

# TYLER

REFRIGERATION

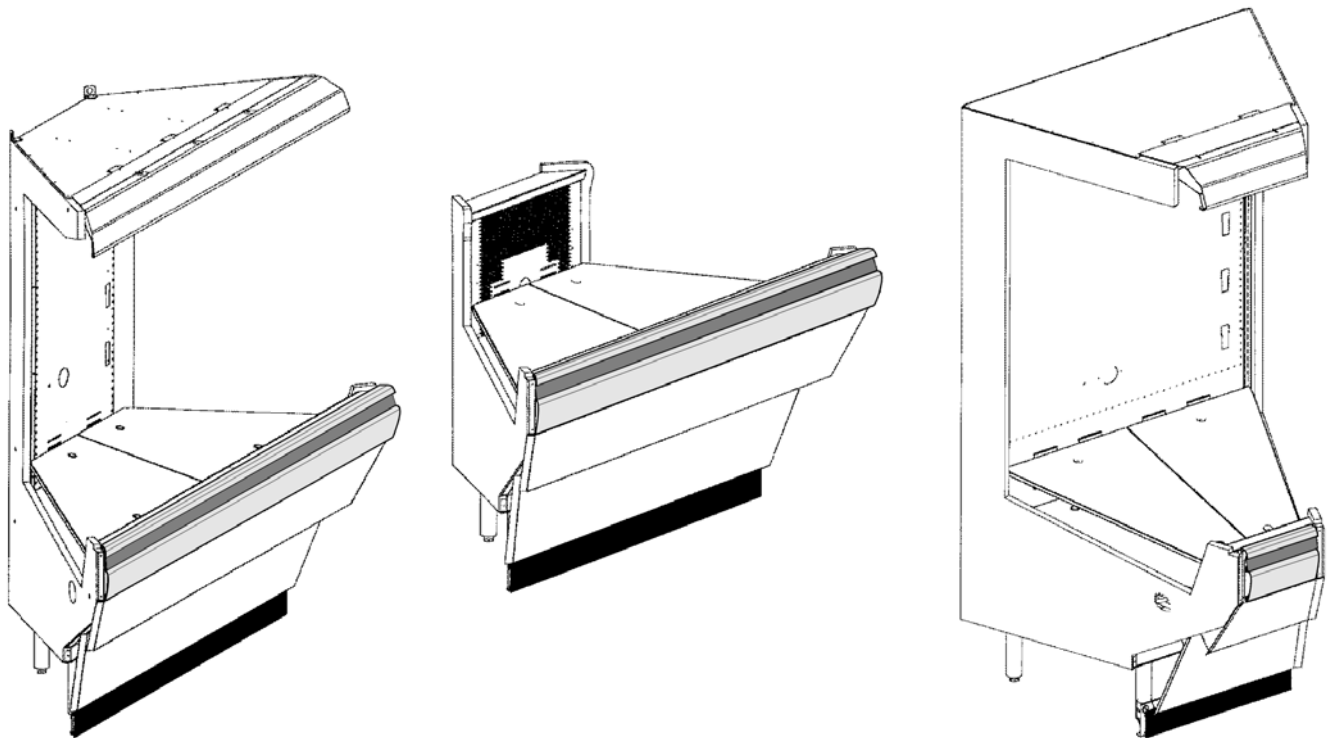


**Carrier**

A United Technologies Company

# A<sup>series</sup> Advantage

# Installation & Service Manual



## PRODUCE CORNER (WEDGE) CASES

**PRODUCE SELF-SERVE INSIDE & OUTSIDE CORNER MERCHANDISERS**  
**Medium Temperature & High Performance Refrigerated Corner Display Cases**

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

**Save the Instructions in Both Manuals for Future Reference!!**

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

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The following Medium Temperature, Top Display, Waterfall and Multi-Shelf, Refrigerated Bulk Produce Corner Merchandiser models are covered in this manual:

MODELS	DESCRIPTION
NP45IS	45° INSIDE TOP DISPLAY BULK PRODUCE CORNER MERCHANDISER
NP45OS	45° OUTSIDE TOP DISPLAY BULK PRODUCE CORNER MERCHANDISER
NP90OS	90° OUTSIDE TOP DISPLAY BULK PRODUCE CORNER MERCHANDISER
N3PH45IS	45° INSIDE WATERFALL BULK PRODUCE CORNER MERCHANDISER
N3PH45OS	45° OUTSIDE WATERFALL BULK PRODUCE CORNER MERCHANDISER
N4P30IS	30° INSIDE MULTI-SHELF BULK PRODUCE CORNER MERCHANDISER
N4P45IS	45° INSIDE MULTI-SHELF BULK PRODUCE CORNER MERCHANDISER
N4P45OS	45° OUTSIDE MULTI-SHELF BULK PRODUCE CORNER MERCHANDISER
N4PHP45IS	45° INSIDE HIGH PERFORMANCE MULTI-SHELF BULK PRODUCE MERCHANDISER
N4P90IS	90° INSIDE MULTI-SHELF BULK PRODUCE CORNER MERCHANDISER
N4P90OS	90° OUTSIDE MULTI-SHELF BULK PRODUCE CORNER MERCHANDISER
N5P45IS	45° INSIDE EXTENDED HEIGHT MULTI-SHELF BULK PRODUCE CORNER MERCHANDISER
N5P90IS	90° INSIDE EXTENDED HEIGHT MULTI-SHELF BULK PRODUCE CORNER MERCHANDISER
N5P90OS	90° OUTSIDE EXTENDED HEIGHT MULTI-SHELF BULK PRODUCE CORNER MERCHANDISER

## SPECIFICATIONS

### NP Top Display Inside and Outside Bulk Produce Corner Merchandisers

#### Refrigeration Data:

MODEL	CASE LENGTH	CASE USAGE	CAPACITY (BTUH / CASE)		EVAPORATOR (°F)	UNIT SIZING (°F)	DISCHARGE AIR		AVG. REF. CHARGE (LBS/CASE)
			PARALLEL	CONVENTIONAL			TEMPERATURE (°F)	VELOCITY (FPM)	
NP45IS	43-15/16"	BULK PRODUCE	1,284*	1,401*	+20**	+18	+34	N/A***	1.84
NP45OS	51-5/16"	BULK PRODUCE	1,177*	1,284*	+20**	+18	+34	N/A***	1.53
NP90OS	80-11/16"	BULK PRODUCE	1,834*	2,001*	+20**	+18	+34	N/A***	1.84

\* 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.

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	AMPS	WATTS
NP45IS	43-15/16"	1	0.34	30.2	N/A	N/A	N/A	N/A
NP45OS	51-5/16"	1	0.34	30.2	N/A	N/A	N/A	N/A
NP90OS	80-11/16"	2	0.68	60.4	N/A	N/A	N/A	N/A

#### Defrost Data:

DEFROST TYPE*	DEFROSTS PER DAY	DURATION TIME (MIN)	TERMINATION (°F)	EPR SETTINGS *		DEFROST WATER (LB / DAY)
				R22 (PSIG)	R404A (PSIG)	
TIME OFF	3	40	- - -	43	56	N/A

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

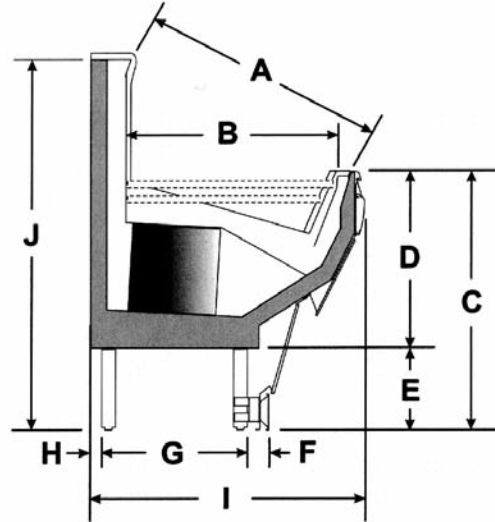
**CASE CIRCUITS:** This case requires a 120V circuit for fans.

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.

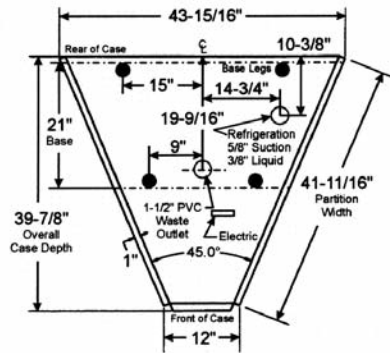
## NP PRODUCE WEDGE CROSS SECTION



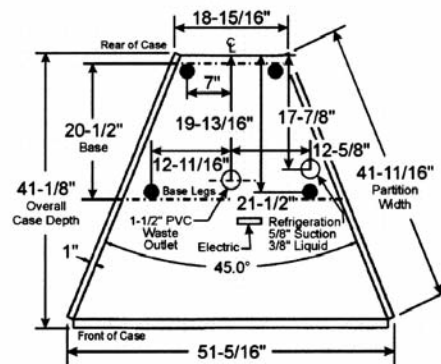
### Dimensional Specifications:

MODEL	A	B	C	D	E	F	G	H	I	J
NP45IS	35-3/8"	31"	31"	21"	10"	3"	21"	1-1/2"	39-7/8"	43"
N4P45OS	40-3/8"	34-1/8"	31"	21"	10"	3"	20-1/2"	1-1/2"	41-1/8"	43"
NP90OS	27"	20-3/4"	31"	21"	10"	3"	15-1/4"	1-1/2"	31-1/2"	43"

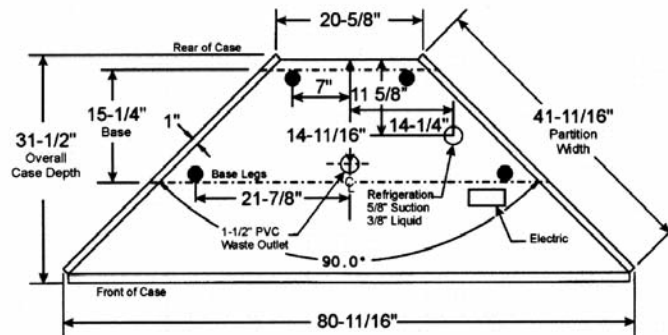
### NP45IS FLOOR PLAN



### NP45OS FLOOR PLAN



### NP90OS FLOOR PLAN



## N3PH Waterfall Inside and Outside Bulk Produce Corner Merchandisers

### Refrigeration Data:

MODEL	CASE LENGTH	CASE USAGE	CAPACITY (BTUH / CASE)		EVAPORATOR (°F)	UNIT SIZING (°F)	DISCHARGE AIR		AVG. REF. CHARGE (LBS/CASE)
			PARALLEL	CONVENTIONAL			TEMPERATURE (°F)	VELOCITY (FPM)	
N3PH45IS	51-5/16"	BULK PRODUCE	1,712*	1,868*	+20**	+18	+38	N/A***	1.17
N3PH45OS	56-13/16"	BULK PRODUCE	3,381*	3,688*	+20**	+18	+38	N/A***	1.17

\* Capacity data listed for compact canopy lights, elevating bottom tray and a 23" mirror. 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.

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		DISCHARGE AIR ANTI-SWEATS	
			AMPS	WATTS	AMPS	WATTS	AMPS	WATTS
N3PH45IS	51-5/16"	1	0.34	30.2	N/A	N/A	0.7	8.2
N3PH45OS	56-13/16"	1	0.34	30.2	N/A	N/A	0.7	8.2

#### Compact Lighting with Electronic Ballasts (120 Volt)

MODEL	CASE LENGTH	CANOPY LIGHTS	
		AMPS	WATTS
N3PH45IS	51-5/16"	0.30	36.0
N3PH45OS	56-13/16"	0.34	38.0

### Defrost Data:

DEFROST TYPE*	DEFROSTS PER DAY	DURATION TIME (MIN)	BACKUP PRESSURE SETTINGS*		EPR SETTINGS **		DEFROST WATER (LB / DAY)
			CUT IN	CUT OUT	R22 (PSIG)	R404A (PSIG)	
TIME OFF	3	40**	40# @ R22	30# @ R22	43	56	N/A

\* Used with Thermostat or EPR Control.

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

**MIRROR NOTES:** 23" mirror is standard with two elevating bottom trays. There is no shelving available on the N3PH wedge cases

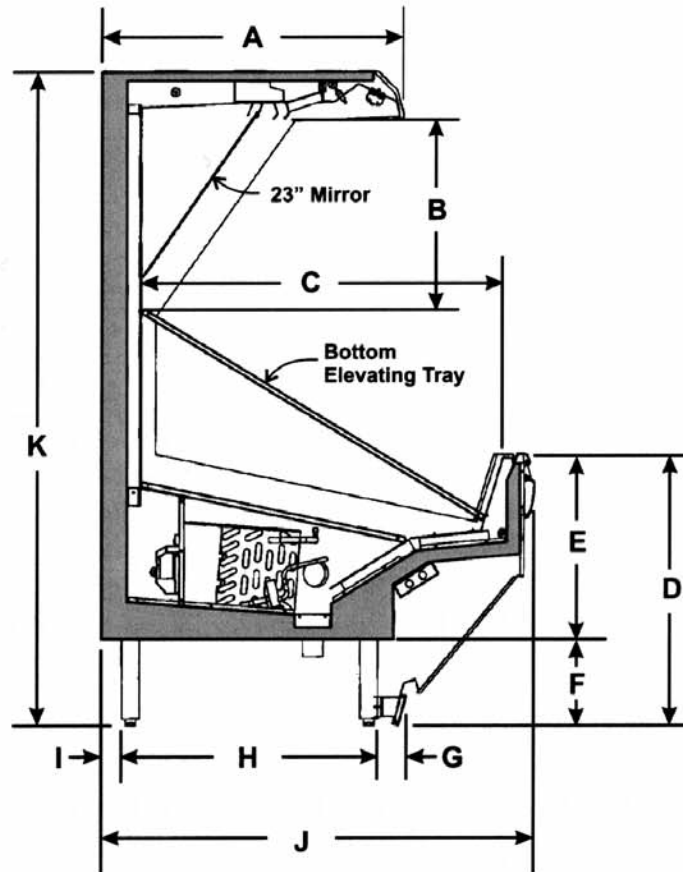
UL SANITATION approved in accordance with ANSI/NSF - 7.

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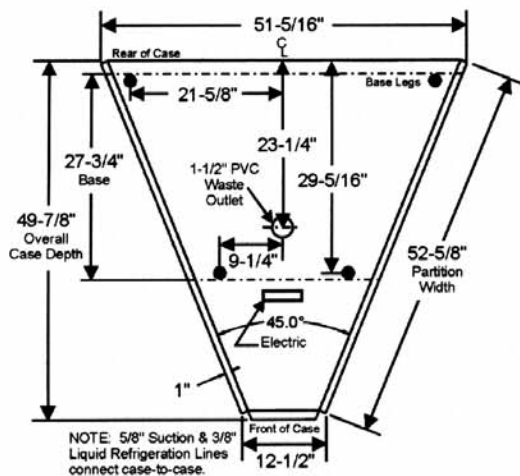
## N3PH PRODUCE WEDGE CROSS SECTION



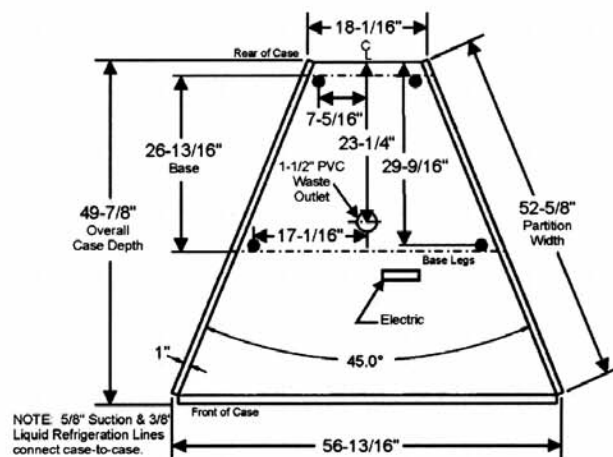
### Dimensional Specifications:

MODEL	A	B	C	D	E	F	G	H	I	J	K
N3PH45IS	28-3/8"	21-1/16"	40-5/8"	30-1/2"	20-13/16"	9-13/16"	3-1/4"	27-3/4"	1-3/4"	49-7/8"	73-1/2"
N3PH45OS	28-5/16"	21-1/16"	40-5/8"	30-1/2"	20-13/16"	9-3/4"	3-1/4"	26-13/16"	2-1/8"	49-7/8"	73-1/2"

### N3PH45IS FLOOR PLAN



### N3PH45OS FLOOR PLAN



## N4P(HP) Multi-Shelf Inside and Outside Bulk Produce Corner Merchandisers

### Refrigeration Data:

MODEL	CASE LENGTH	CASE USAGE	CAPACITY (BTUH / CASE)		EVAPORATOR (°F)	UNIT SIZING (°F)	DISCHARGE AIR		AVG. REF. CHARGE (LBS/CASE)
			PARALLEL	CONVENTIONAL			TEMPERATURE (°F)	VELOCITY (FPM)	
N4P30IS	33-5/8"	BULK PRODUCE	1,440*	1,571*	+20**	+18	+38	N/A***	0.74
N4P45IS	43-15/16"	BULK PRODUCE	1,663*	1,814*	+20**	+18	+38	N/A***	1.84
N4P45OS	51-5/16"	BULK PRODUCE	2,711*	2,957*	+20**	+18	+38	N/A***	1.84
N4PHP45IS	43-15/16"	BULK PRODUCE	1,555*	1,577*	+34**	+32	+39	N/A***	1.38
N4P90IS	71"	BULK PRODUCE	2,008*	2,191*	+20**	+18	+38	N/A***	2.76
N4P90OS	79-5/8"	BULK PRODUCE	5,675*	6,191*	+20**	+18	+38	N/A***	2.76

\* Capacity data listed for 1 row of compact canopy lights and up to 3 rows of unlighted shelves. 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.

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		DISCHARGE AIR ANTI-SWEATS	
			AMPS	WATTS	AMPS	WATTS	AMPS	WATTS
N4P30IS	33-5/8"	1	0.34	30.2	N/A	N/A	0.07	8.2
N4P45IS	43-15/16"	1	0.34	30.2	N/A	N/A	N/A	N/A
N4P45OS	51-5/16"	1	0.34	30.2	N/A	N/A	0.14	17.0
N4PHP45IS	43-15/16"	1	0.34	30.2	N/A	N/A	N/A	N/A
N4P90IS	71"	1	0.34	30.2	N/A	N/A	0.11	13.8
N4P90OS	79-5/8"	1	0.34	30.2	N/A	N/A	0.14	17.5

Compact Lighting with Electronic Ballasts (120 Volt)

MODEL	CASE LENGTH	CANOPY LIGHTS		SHELF LIGHTS - PER ROW						MAXIMUM LIGHTING (1 or 4 ROWS)	
		AMPS	WATTS	AMPS			WATTS			AMPS	WATTS
				1	2	3	1	2	3		
N4P30IS	33-5/8"	0.29	34.0	N/A	N/A	N/A	N/A	N/A	N/A	0.29	34.0
N4P45IS	43-15/16"	0.20	24.0	0.25	0.50	0.75	30.0	60.0	90.0	0.95	114.0
N4P45OS	51-5/16"	0.30	36.0	0.25	0.50	0.75	30.0	60.0	90.0	1.05	126.0
N4PHP45IS	43-15/16"	0.20	24.0	0.25	0.50	0.75	30.0	60.0	90.0	0.95	114.0
N4P90IS	71"	0.40	48.0	0.25	0.50	0.75	30.0	60.0	90.0	1.15	138.0
N4P90OS	79-5/8"	0.60	72.0	0.25	0.50	0.75	30.0	60.0	90.0	1.35	162.0

### Defrost Data:

DEFROST TYPE	DEFROSTS PER DAY	DURATION TIME (MIN)	ELEK. THERMOSTAT / AIR SENSOR SETTINGS			EPR SETTINGS ***		CONVENTIONAL COMPRESSOR SETTINGS ****				DEFROST WATER (LB / CASE / DAY) (ALL MODELS)
			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	
TIME OFF (All N4P Corner Cases)	3	40	MED TEMP	---	---	43	56	---	---	---	---	N/A
TIME OFF (N4PHP45IS)*	2	10**	MED TEMP	40°F	38°F	60	75	58	46	73	58	

\* All high performance cases use OFF CYCLE defrost.

\*\* NOTE: 10 minutes is for EPR with suction stop for defrost isolation. Defrost times increase by four minutes (14 min. total) when defrost isolation is by pump down. Set EPR to give this pressure at the case.

\*\*\* 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 N4PHP45IS 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.

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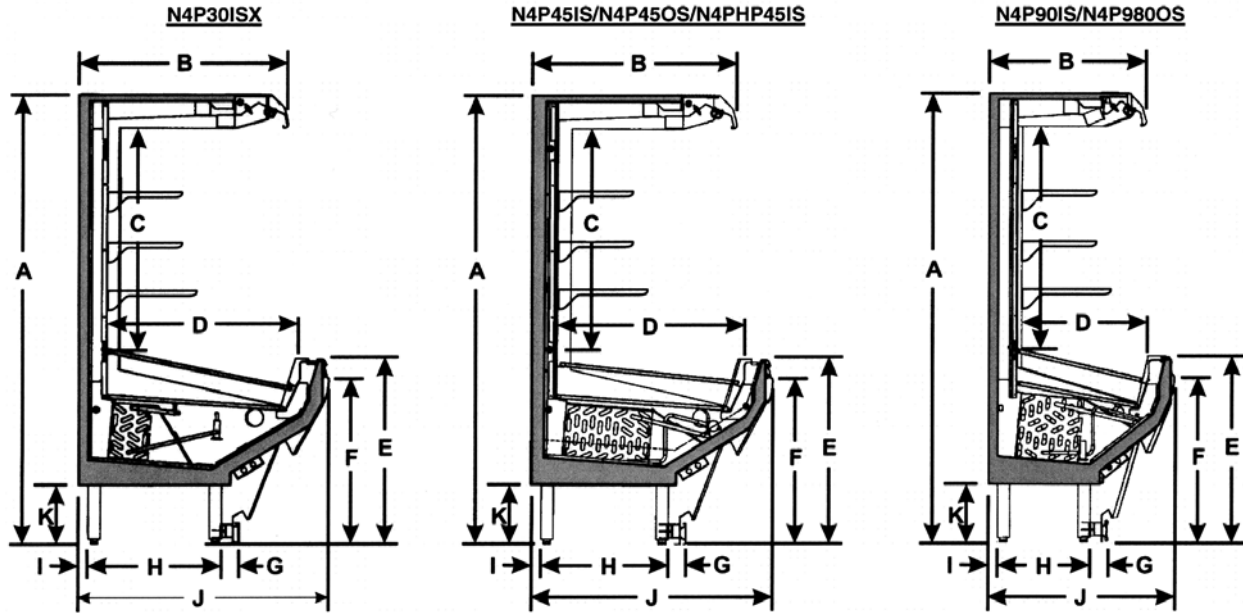


**SHELVING AND MIRROR NOTES:** 15" and 18" shelves are available for the N4P corner cases. When two sizes are used, the smaller must be used on top. Optional 16", 23" or 30" mirror is available on the N4P corner cases.

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

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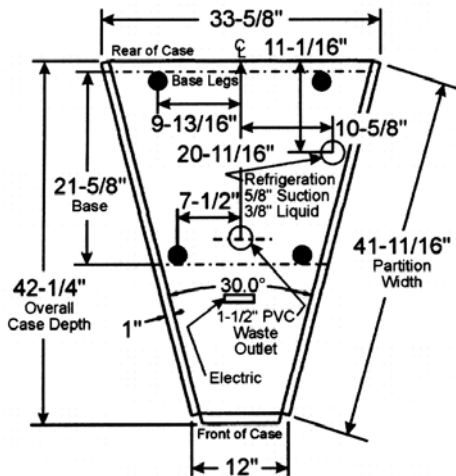
### N4P PRODUCE WEDGE CROSS SECTIONS



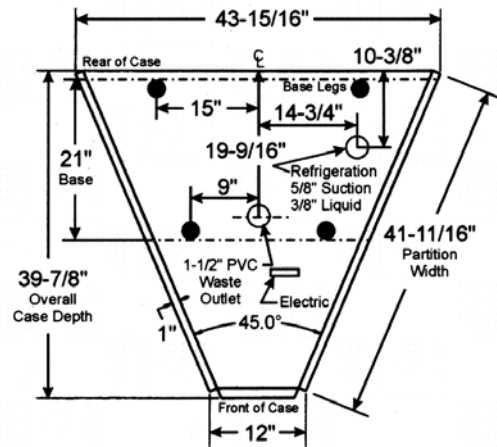
#### Dimensional Specifications:

MODEL	A	B	C	D	E	F	G	H	I	J	K
N4P30IS	6' 3"	28-3/8"	36-15/16"	32-15/16"	31"	27-9/16"	3"	21-5/8"	1-1/2"	42-1/4"	10"
N4P45IS	6' 3"	28-3/8"	36-15/16"	27-7/8"	31"	27-9/16"	3"	21"	1-1/2"	39-7/8"	10"
N4P45OS	6' 3"	27-7/16"	39-1/16"	31-1/16"	31"	27-9/16"	3"	20-1/2"	1-1/2"	41-1/8"	10"
N4PHP45IS	6' 3"	28-3/8"	36-15/16"	27-7/8"	31"	27-9/16"	3"	21"	1-1/2"	39-7/8"	10"
N4P90IS	6' 3"	20-3/4"	36-15/16"	21-11/16"	31"	27-9/16"	3"	15-1/4"	1-1/2"	30-3/4"	10"
N4P90OS	6' 3"	20-11/16"	36-15/16"	21-11/16"	31"	27-9/16"	3"	14-1/4"	1-1/2"	31-1/2"	10"

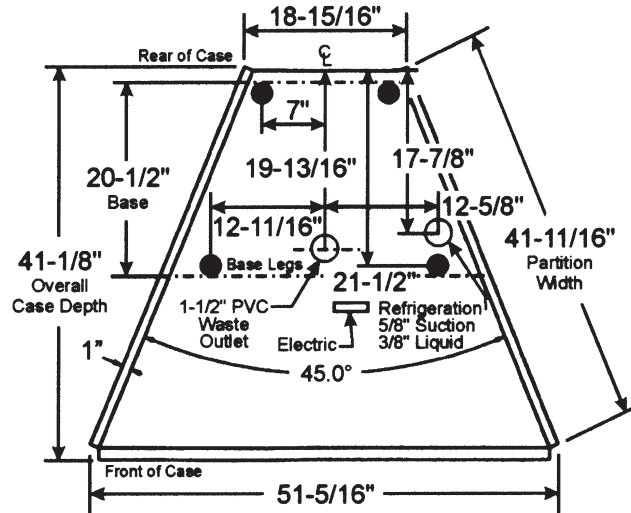
#### N4P30IS FLOOR PLAN



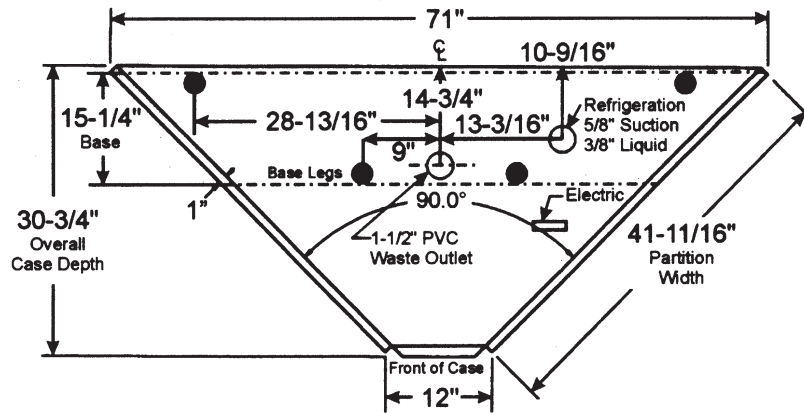
#### N4P45IS/N4PHP45IS FLOOR PLAN



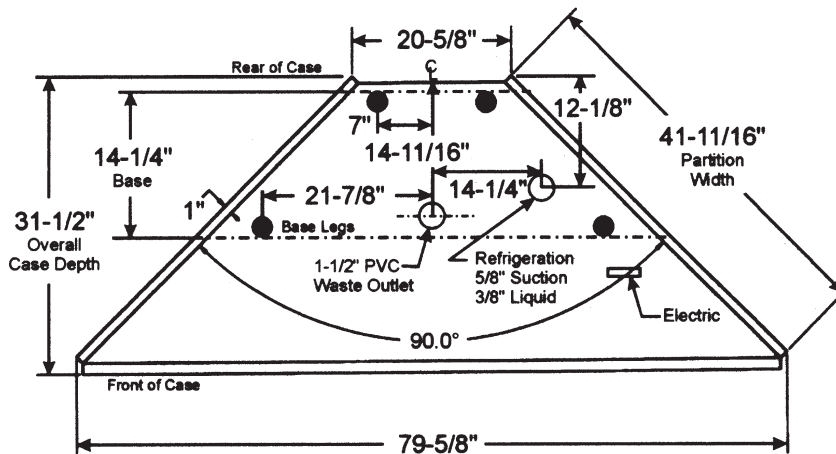
**N4P450S FLOOR PLAN**



**N4P90IS FLOOR PLAN**



**N4P900S FLOOR PLAN**



## N5P Ext. Height Multi-Shelf Inside & Outside Bulk Produce Corner Merchandisers

### Refrigeration Data:

MODEL	CASE LENGTH	CASE USAGE	CAPACITY (BTUH / CASE)		EVAPORATOR (°F)	UNIT SIZING (°F)	DISCHARGE AIR		AVG. REF. CHARGE (LBS/CASE)
			PARALLEL	CONVENTIONAL			TEMPERATURE (°F)	VELOCITY (FPM)	
N5P45IS	43-15/16"	BULK PRODUCE	1,881*	2,052*	+20**	+18	+35	N/A***	1.84
N5P90IS	71"	BULK PRODUCE	2,395*	2,613*	+20**	+18	+35	N/A***	2.76
N5P90OS	79-5/8"	BULK PRODUCE	6,417*	7,000*	+20**	+18	+35	N/A***	2.76

\* Capacity data listed for 1 row of compact canopy lights and up to 3 rows of unlighted shelves. 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.

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		DISCHARGE AIR ANTI-SWEATS	
			AMPS	WATTS	AMPS	WATTS	AMPS	WATTS
N5P45IS	43-15/16"	1	0.34	30.2	N/A	N/A	0.07	8.2
N5P90IS	71"	1	0.34	30.2	N/A	N/A	0.11	13.8
N5P90OS	79-5/8"	1	0.34	30.2	N/A	N/A	N/A	N/A

#### Compact 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		
N5P45IS	43-15/16"	0.20	24.0	0.25	0.50	0.75	30.0	60.0	90.0	0.95	114.0
N5P90IS	71"	0.40	48.0	0.25	0.50	0.75	30.0	60.0	90.0	1.15	138.0
N5P90OS	79-5/8"	0.60	72.0	0.25	0.50	0.75	30.0	60.0	90.0	1.35	162.0

### Defrost Data:

DEFROST TYPE*	DEFROSTS PER DAY	DURATION TIME (MIN)	BACKUP PRESSURE SETTINGS*		EPR SETTINGS **		DEFROST WATER (LB / CASE / DAY)		
			CUT IN	CUT OUT	R22 (PSIG)	R404A (PSIG)	N5P45IS	N5P90IS	N5P90OS
TIME OFF (All N5P Corner Cases)	3	40	40# @ R22	30# @ R22	43	56	N/A	N/A	N/A

\* Used with Thermostat or EPR Control.

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

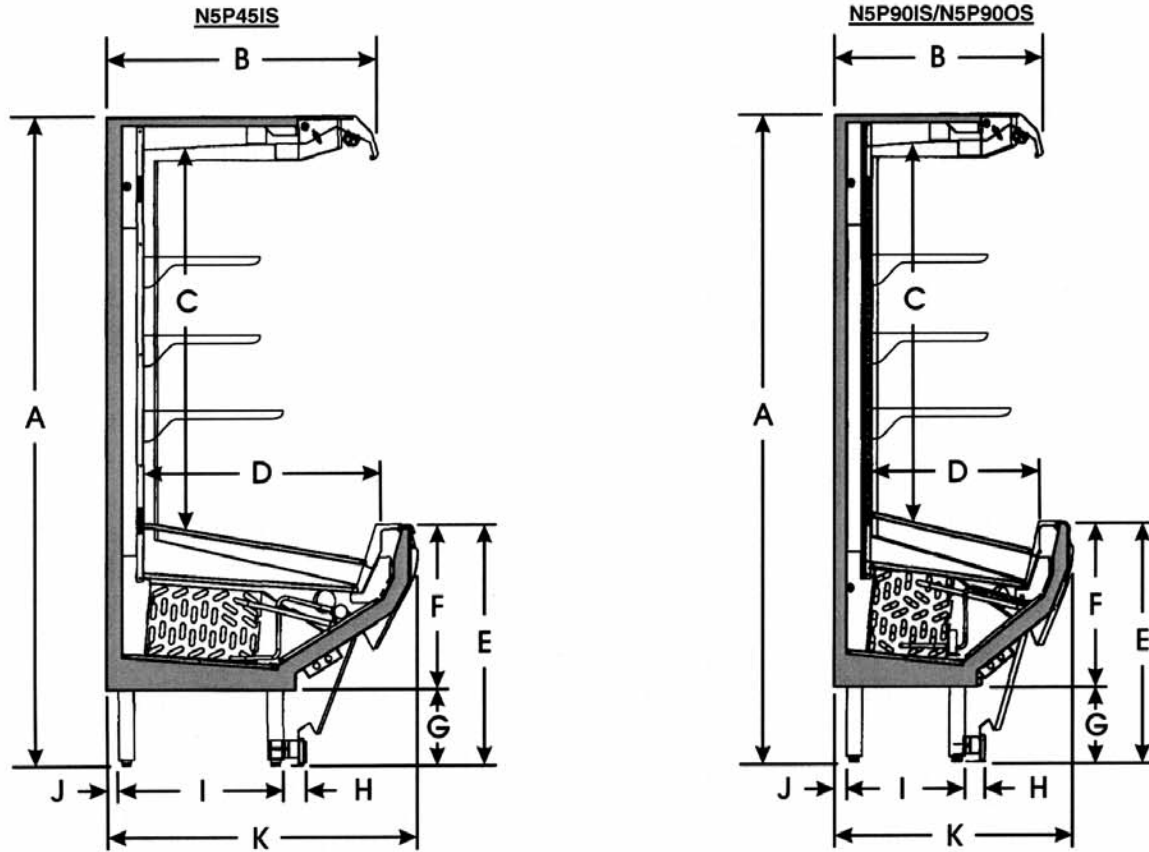
**SHELVING AND MIRROR NOTES:** 15" and 18" shelves are available for the N5P corner cases. When two sizes are used, the smaller must be used on top. Optional 12" or 16" mirror is available on the N5P corner cases.

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.

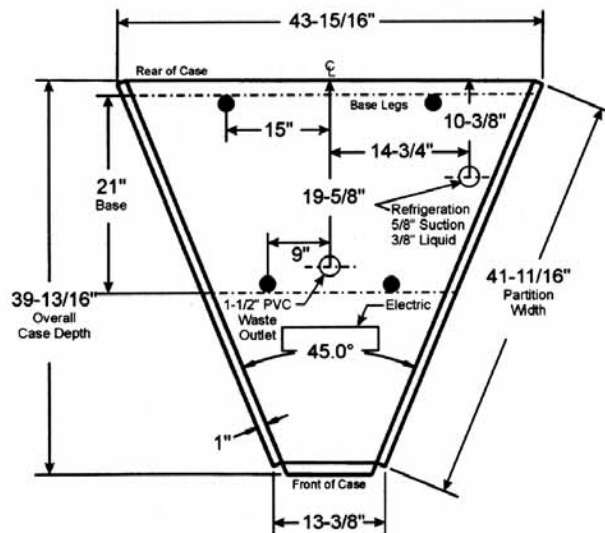
## N5P PRODUCE WEDGE CROSS SECTIONS



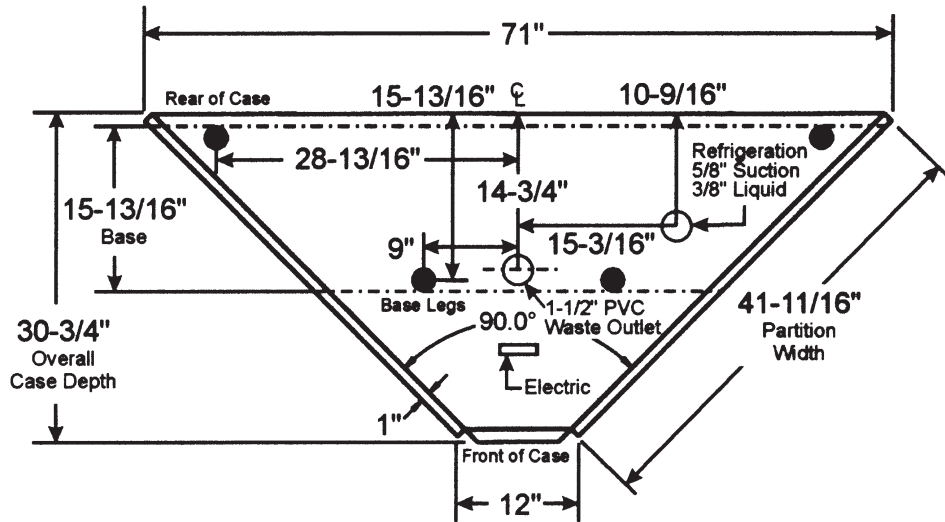
### Dimensional Specifications:

MODEL	A	B	C	D	E	F	G	H	I	J	K
N5P45IS	83-1/4"	26-3/4"	47-3/4"	31"	30-13/16"	21-1/16"	9-3/4"	3"	21"	1-1/2"	39-13/16"
N5P90IS	83-1/4"	26-3/4"	45-7/16"	22-7/8"	30-13/16"	21-1/16"	9-3/4"	2-9/16"	15-13/16"	1-1/2"	30-3/4"
N5P90OS	83-1/4"	26-3/4"	45-7/16"	22-7/8"	30-13/16"	21-1/16"	9-3/4"	2-15/16"	14-13/16"	2"	31-1/2"

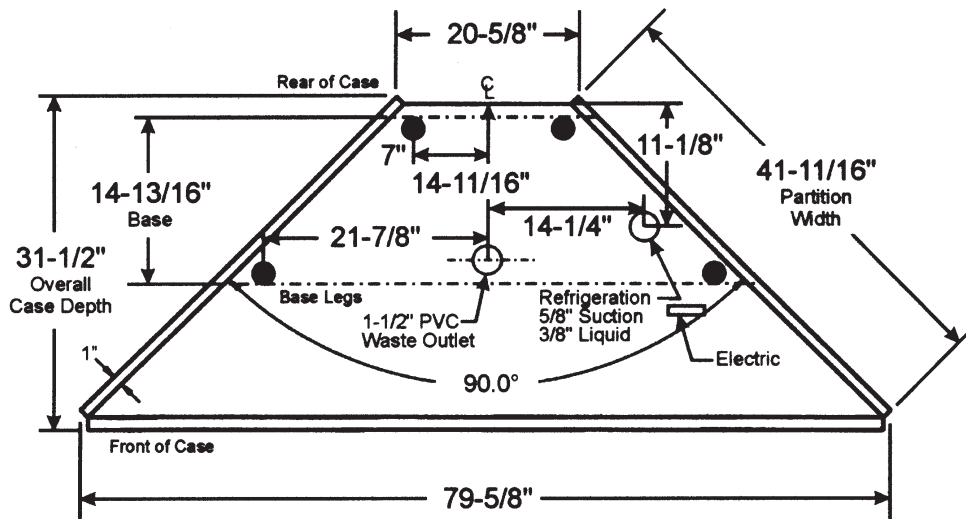
### N5P45IS FLOOR PLAN



**N5P90IS FLOOR PLAN**



**N5P90OS FLOOR PLAN**



## INSTALLATION PROCEDURES

### **WARNING**

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

### Carpentry Procedures

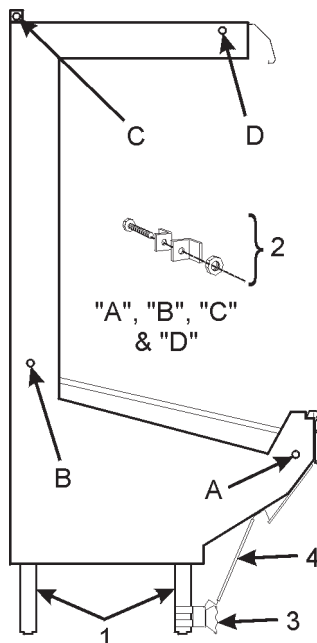
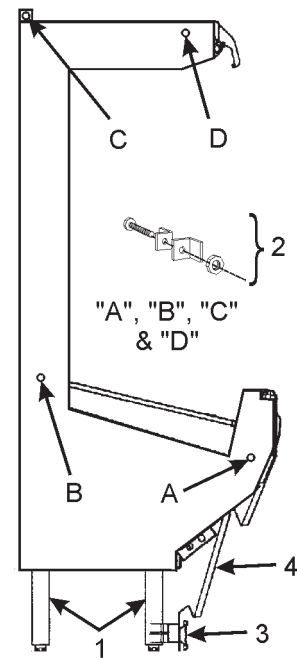
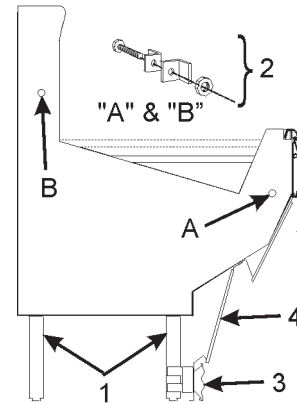
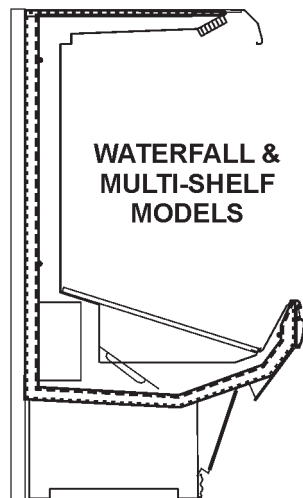
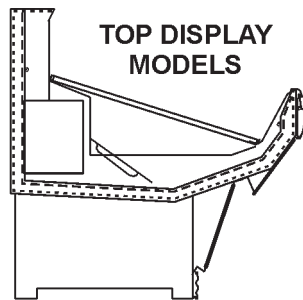
#### Case Line-up and Pull-Up Locations

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

### **WARNING**

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

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





**Installation & Service Manual**

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

**CAUTION**

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

5. Secure corner case to case line-up by installing pull-up bolts and mounting hardware (2) at pull-up locations (A & B) or (A, B, C & D) as shown on page 10. **NOTE:** Do not tighten any pull-up hardware until all of it has been installed. Tighten all pull-up hardware equally starting at point A and finishing at point B or D. **Do not overtighten.**
6. Install kickplate assembly (3) by securing clips to front legs (1).
7. Install lower front cladding (4) by positioning lower tab behind top of kickplate and securing top of lower front cladding with bottom screws from upper front cladding.

**Trim & NSF Thermometer Installation**

The joint trim and mounting hardware are shipped loose. Trim includes bumper joint trim, front upper cladding joint trim, front lower cladding joint trim and kickplate joint trim.

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

**Electrical Procedures**

**Electrical Considerations**

**CAUTION**

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

**NOTE**

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

**Case Fan Circuit**

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

**Fluorescent Lamp Circuit**

N3PH, N4P, N4PHP and N5P corner case lighting is supplied by PL-L folded lamps with electronic ballasts. It is controlled by a light switch in each case. The standard lighting is 1-row of horizontal lighting.

**Defrost Information**

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

**Defrost Control Chart**

<u>Defrost Type</u>	<u>Defrosts Per Day</u>	<u>Defrost Duration (Min)</u>	<u>Term. Temp.</u>
Off Time*			
NP	3	40	-----
N3PH	3	40	-----
N4P	3	40	-----
N4PHP	2	10	-----
N5P	3	40	-----

**\*All produce models are only offered with Off Time defrost.**

**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 page 16, 17 and 18 will cover all the NP/N3PH/N4P/N4PHP/N5P produce corner case circuits.

# NP Domestic & Export (50 Hz) Corner Case Circuits

**TYLER**  
REFRIGERATION CORPORATION

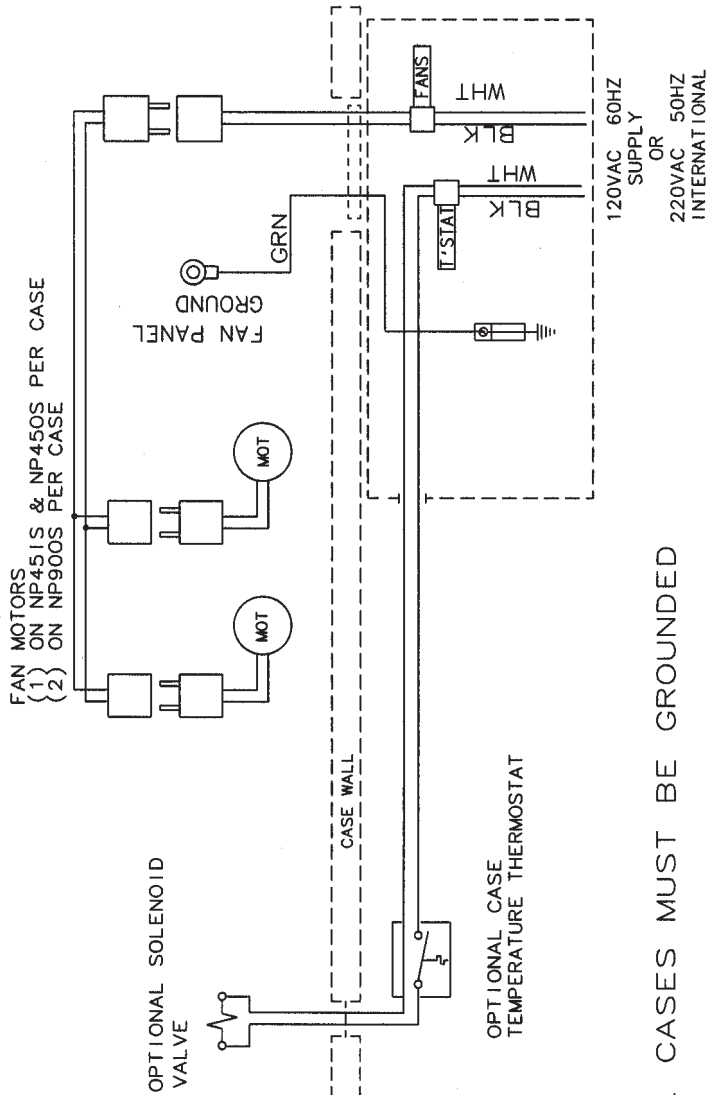
**PART TYPE N T S**

MODEL  
FABRICATED X

PURCHASED

DEPT | CC | X | W

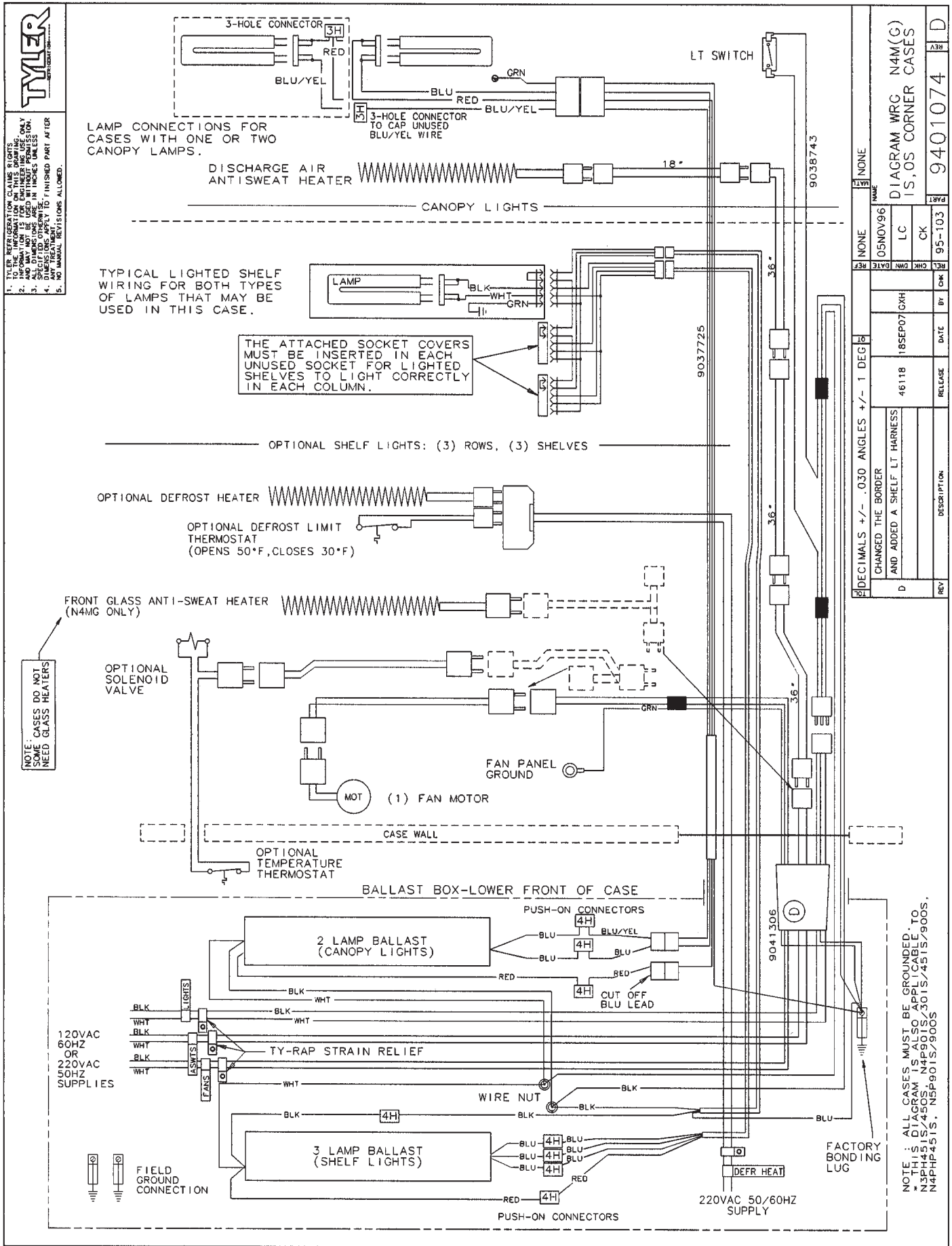
1. TYLER REFRIGERATION CORP. CLAIMS RIGHTS TO THE INFORMATION ON THIS DRAWING.  
 2. INFORMATION IS FOR ENGINEERING USE ONLY. INFORMATION IS NOT TO BE REPRODUCED OR USED FOR OTHER PURPOSES WITHOUT PERMISSION.  
 3. ALL DIMENSIONS ARE IN INCHES UNLESS SPECIFIED OTHERWISE.  
 4. DIMENSIONS APPLY TO FINISHED PART AFTER ANNEALING AND FINISHING.  
 5. NO MANUAL REVISIONS ALLOWED.



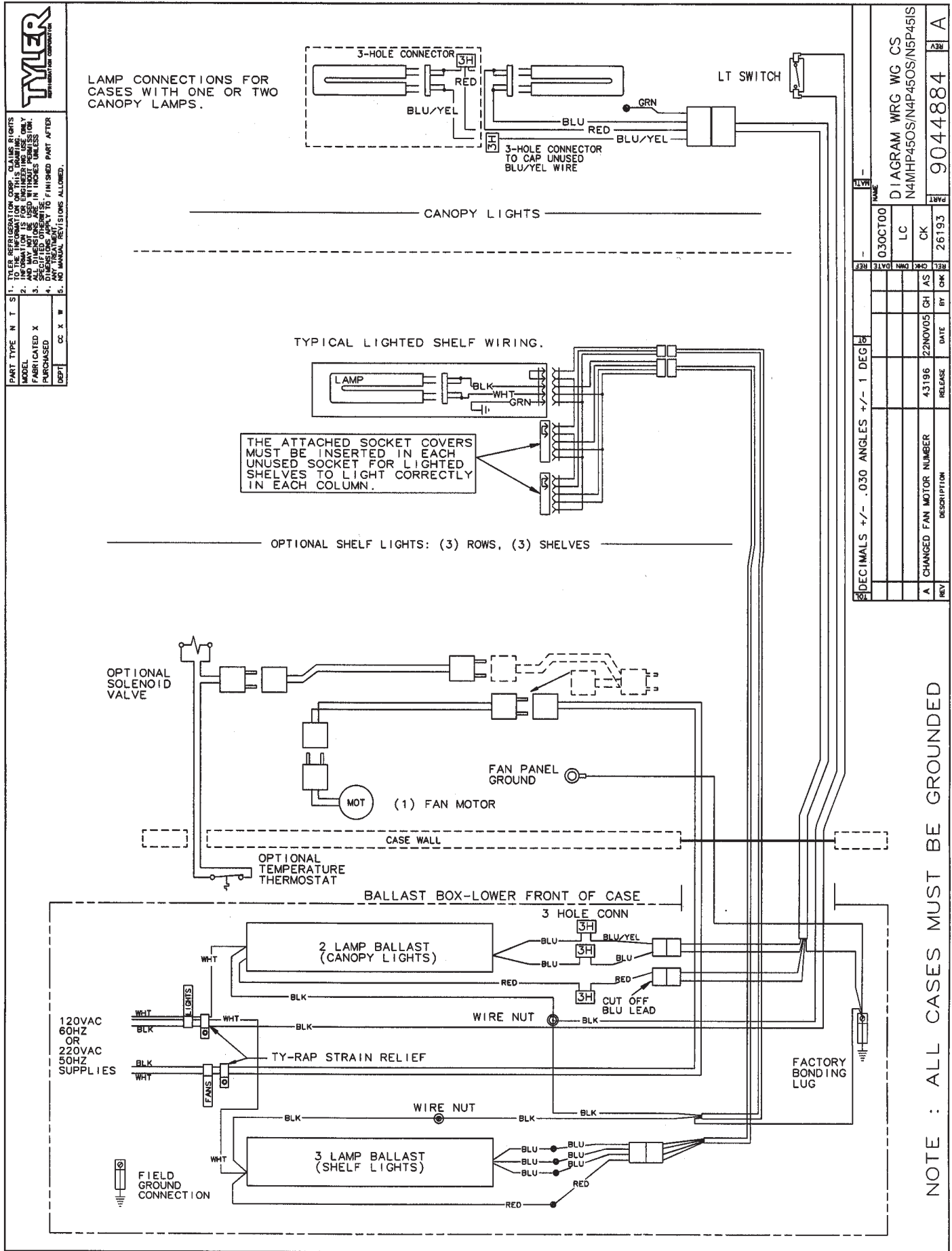
NOTE : ALL CASES MUST BE GROUNDED

08	DECIMALS +/- .030 ANGLES +/- 1 DEG	1	DEG	B	-	-	IS I	-
					21SEP00		NAME	
					LC			DIAGRAM WRG WG CS
					CK			NP451S/450S/900S
A	REV. PER ECN	43196	22NOV05	GH	AS			
REV	DESCRIPTION	RELEASE	DATE	BY	CHK	26192	PAT	
								9044883
							REV	A

# N3PH/N4P/N4PHP/N5P Domestic & Export (50 Hz) Corner Case Circuits



# N4P45OS/N5P45IS Domestic & Export (50 Hz) Corner Case Circuits



REV	DESCRIPTION	DATE	BY	CHK	REL	CHK	DATE
A	CHANGED FAN MOTOR NUMBER	4/3/96	22NOV05	CH	AS	AS	
				CK	CK		
				LC	LC		
				030CT00			

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

NAME

DIAGRAM WRC WG CS

N4MHP45OS/N4P45OS/N5P45IS

PART NO

9044884

REV

A

NOTE : ALL CASES MUST BE GROUNDED

## **CLEANING AND SANITATION**

### **Component Removal and Installation Instructions for Cleaning**

#### **Mirrors (N3PH/N4P/N4PHP/N5P Models)**

1. Remove mounting screws and end molding from ends of mirror section(s).
2. Carefully grasp and lift mirror section until bottom edge clears the lower mirror track.
3. Carefully lower mirror section out of upper mirror track and remove from case.
4. After cleaning, replace in reverse order.

#### **Shelves and Shelf Brackets (N3PH/N4P/N4PHP/N5P Models)**

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 lower tray from the case interior.
3. Remove tray supports from slots in front and rear ducts.
4. After cleaning, replace in reverse order.

#### **Front Air Ducts**

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

#### **Rear Duct Panels (Models w/o Shelf Light Sockets)**

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

#### **(Models with Shelf Lights Sockets)**

1. Remove mirrors, shelves and bottom trays, see this page.
2. Remove mounting screws from rear duct panels.
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 install and secure the rear duct panels in reverse order.

#### **Discharge Air Honeycomb (N3PH/N4P/N4PHP/N5P Models Only)**

### **NOTE**

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

1. Remove screws, rear grid retainer and honeycomb grid from front of top duct panel.

## CAUTION

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

2. After cleaning, replace honeycomb grid as it was removed and secure with rear grid retainer and screws.

## Front Lower Cladding

1. Remove screws from top of front lower cladding.
2. Lower top of front lower cladding until bottom can be removed from top of kick-plate support brackets.
3. After cleaning, replace and secure front lower cladding in reverse order.

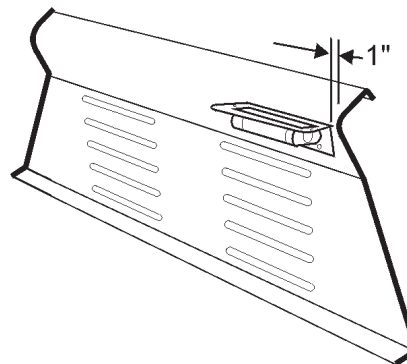
## Front Upper Cladding

1. Remove front lower cladding. See this page.
2. Remove screws, bumper joint trim and upper cladding joint trim from front corners of the case.
3. Remove color band, bumper and bumper retainer from the case. See "General-UL/NSF I&S Manual".
4. Remove screws from sides of front upper cladding and remove front upper cladding.
5. After cleaning, replace front upper cladding and remaining front components in the reverse order.

## GENERAL INFORMATION

### NSF Product Thermometer Installation

1. Unwrap the thermometer and bracket assembly shipped loose with the case.
2. Remove left front return air duct.



3. Position bracket 1" in from left edge and just under the bottom return air duct holes.
4. Mount the bracket to the return air duct with two self-tapping screws.
5. Replace the front return air duct.

### Mirror Installation

#### (N3PH/N4P/N4PHP/N5P Models)

Most corner cases will have two mirror sections. Make sure the gaps at the ends of both mirrors are equal. This will prevent any gap showing when the stainless steel trim is installed. Also make sure all mirrors have a good tight seal between each mirror.

#### NOTE

- Mirror angles have been designed to be the same as straight cases, but mirror heights on the back wall of the corner case may be different due to the case design.
- Stainless steel trim may need to be cut and/or notched to fit the gap between the corner and straight case joint.



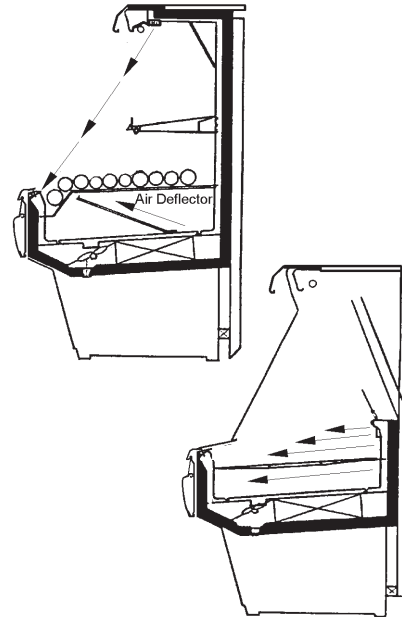
## Produce Handling Tips

Fresh fruits and vegetable are living things, even after they have been harvested. They continue the process of respiration and transpiration after harvesting. Respiration is the process of self feeding to provide energy for maintaining life. (EXAMPLE: Asparagus and sweet corn generate heat after they are picked.) Transpiration is the process of water loss through vapor from the plant tissues. Post-harvest life can be maintained by slowing the rate of water loss. Refrigeration lowers the rate of respiration and transpiration. Store most types of produce close to freezing prior to display. There are a number of explanations (ex. Cucumbers can be kept relatively cool by themselves, but could be damaged by temperatures below 40°F). See chart on following pages for specifics.

Non-refrigerated produce cases are called "Dry" cases. They are used to display potatoes, dry onions, bananas, avocados and other products which don't need refrigeration. These cases can also be used with a bed of cracked ice to display perishables.

Refrigerated produce cases displays produce products that require refrigeration. The refrigeration coil is below the display and fans are used to circulate air through the case display. This moving air will pick up moisture from unwrapped produce and carry it to the coil.

It is necessary to replace this moisture by using a water spray several times during the day. At night the produce should be covered with a wet cloth. The alternate to sprinkling is to wrap the produce.



In order to maintain case air flow, the return air duct must not be blocked by product. An important aid to improve air circulation is to use air deflectors below the elevated screens in the case. These deflectors will direct the air flow into the display and prevent cool air from "short circuiting" the display. Deflectors are furnished with hump screen option. See illustration.

Produce	Ideal Storage Conditions			Display Rack Care		Special Notes
	Temperature (°F)	Relative Humidity (%)	Sell Quickly (1-2 days)	Refrigerate (40°F)	Sprinkle with Water	
Apples	30-32	85-95		Helpful	No advantage	Avoid bruising
Apricots	31-32	85-90	Yes	Helpful	No	
Asparagus	32-36	90-95	Yes	Profitable	No	Trim butts and stand in ice or shallow water
Avocados	40-55	85-90	Yes	No	No surface	Display on padded surface
Bananas, Ripe	56-58	85-90	Yes	No	No	Display on padded surface
For Ripening	58-68	90-95		No	No	Avoid bruising
Beans, Lima	32-40	85-90	Yes	Profitable	No	Shake up to aerate
Beans, Snap	40-45	90-95	Yes	Profitable	Yes	
Beets	32	85-95	Yes	Profitable	Yes	Moisten roots only
Berries	31-32	90-95	Yes	Helpful	No	Keep well ventilated
Broccoli	32-35	90-95	Yes	Profitable	Yes	Keep out of sun
Brussel Sprouts	32-35	90-95	Yes	Profitable	Yes	Remove yellow leaves
Cabbage	32	90-95		Helpful	Yes	
Carrots	32	90-95		Profitable	Yes	Moisten roots only of bunches
Cauliflower	32	90-95	Yes	Profitable	Yes	Sprinkle only if refrigerated
Celery	31-32	90-95	Yes	Profitable Yes		
Cherries	31-32	90-95	Yes	Helpful	No	Keep well ventilated
Corn, Sweet	31-32	90-95	Yes	Profitable	Yes	Keep cold to keep sweetness
Cucumbers	45-50	85-90	Yes	No	No advantage	
Eggplants	45-50	85-90	Yes	No	No advantage	Do not bruise, keep on ice
Grapefruit	50-60	85-90		Helpful	No advantage	Remove decayed fruit
Grapes	30-32	85-95	Yes	Helpful	No	Keep well ventilated
Honeydews	45-50	85-90		Helpful	No	Cover cut melons with transparent film
Lemons	38-40	85-90		Helpful	Yes	Sprinkling may be helpful
Lettuce	32	90-95	Yes	Profitable	Yes	Avoid soaking with water
Limes	48-50	85-90		Helpful	No advantage	
Mushrooms	32-35	80-90	Yes	Helpful	No	Handle carefully, keep dry
Muskmelons	32-35	85-90	Yes	Helpful	No	Cover cut melons with transparent film
Onions, Dry	32	65-70		No	No	Remove loose wrappers, keep dry
Onions, Green	32	90-95	Yes	Profitable	Yes	Keep well ventilated
Oranges	34-38	85-90		Helpful	No advantage	Remove decayed fruit
Parsnips	32	90-95		Helpful	Yes	Moisten roots only
Peaches, Ripe	31-32	90	Yes	Helpful	No	Ripen at room temperature before storage
Pears	29-31	90-95	Yes	Helpful	No	Display in single or double layer on pads
Peas, Green	32	90-95	Yes	Profitable	Yes	Shake up to aerate, keep cold

Produce	Ideal Storage Conditions			Display Rack Care		Special Notes
	Temperature (°F)	Relative Humidity (%)	Sell Quickly (1-2 days)	Refrigerate (40°F)	Sprinkle with Water	
Peppers	45-50	90-95	Yes	Profitable	Yes	
Pineapples, Ripe	45-55	85-90	Yes	No	No	Remove decayed fruit
Plums	31-32	90-95	Yes	Helpful	No	Remove decayed fruit
Potatoes	40-50	85-90		No	No	Keep out of sun
Radishes	32	90-95	Yes	Profitable	Yes	Keep water off tops, avoid tight packing
Rhubarb	32	90-95	Yes	Profitable	No	Trim thin slice off stems and stand in cold water
Squash, Summer	40-50	85-95	Yes	Helpful	Yes	
Winter & Pmpkns	50-55	50-75		No	No	
Spinach	32	90-95	Yes	Profitable	Yes	Keep ventilated
Sweet Potatoes	55-60	85-90		No	No	Keep ventilated
Rhubarb	32	90-95	Yes	Profitable	No	Trim thin slice off stems and stand in cold water
Squash, Summer	40-50	85-95	Yes	Helpful	Yes	
Winter & Pmpkns	50-55	50-75		No	No	
Spinach	32	90-95	Yes	Profitable	Yes	Keep ventilated
Sweet Potatoes	55-60	85-90		No	No	Keep ventilated
Tangerines	32	85-90	Yes	Profitable	Yes	Remove decayed fruit
Tomatoes, Ripe	45-50	85-90	Yes	Helpful	No	Sell quickly, refrigerate to hold
Tomatoes, Green	55-70	85-90		No	No	Ripen in back room, sort frequently
Turnips	32	90-95		Profitable	Yes	Sprinkle roots only
Watermelons	40-45	80-85		Helpful	No	Cover cut melons with transparent film

The "Produce Handling Chart" is courtesy of Produce Marketing Association, Inc., Newark, Delaware 19711, from their 1973 Yearbook. This book is published as a service to the Fresh Produce Industry.

**For additional information, consult:**

"The Commercial Storage of Fruits, Vegetables, and Florist and Nursery Stocks", USDA Handbook No. 66, 1968.

"The Shelf Life of Fresh Fruits and Vegetables - Retail Store Display Cases", USDA HT&S Office Report No. 247, October 1951.

"Fresh Fruits and Vegetables - Handling and Care", Corporate Extension Service, Michigan State University.

## SERVICE INSTRUCTIONS

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

### Connecting the Refrigeration Piping and Components

#### **WARNING**

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

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

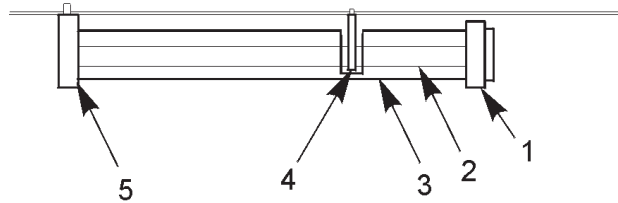
#### **NOTE**

- Make sure all sensor and thermostat wires are clear of areas being heated.
  - Mount all refrigeration lines off the floor to allow for cleaning access.
3. Apply flux to all joint ends. Starting at one end, thoroughly heat each new pipe joint and braze it together. Repeat this process until all new pipe joints have been brazed.
  4. After piping has cooled, route and connect thermostat and sensor wires through openings in the bottom of the case.

### Compact Lamp Replacement (N3PH/N4P/N4PHP/N5P Models)

#### **CAUTION**

Shut off light switch or disconnect power supply before changing a lamp. Lighting system power and/or ballast surges can burn out adjacent lamps if power is left on.



1. Remove lampshield end cap (1).
2. Gently pull down on lamp (2) and lampshield (3) to release end from retainer clip (4).
3. Unseat and slide off light shield (3) from lamp (2).
4. Carefully grasp and pull lamp (2) until it releases from the receptacle (5).
5. Insert new lamp (2) in receptacle (5) until it snaps into place.
6. Slide on lampshield (3) until it is fully seated on the receptacle (5).

#### **NOTE**

Slot in lampshield must line up with retainer clip to allow for proper lamp securing.

7. Snap lamp (2) and lampshield (3) into retainer clip (4). Install lampshield end cap (1) over open end of lampshield (3).

### Discharge Grid Replacement (N3PH/N4P/N4PHP/N5P Models)

1. Remove screws rear grid retainer and discharge grid.

#### **NOTE**

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

#### **CAUTION**

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

2. Position new discharge grid so front bottom lip is resting on lower lip of front grid retainer. Install and secure discharge grid with rear grid retainer and screws.

## **PARTS INFORMATION**

### **Operational Parts List**

<b>Case Usage</b>	<b>Domestic</b>
Electrical Circuit	115 Volt 60 Hertz
Case Size	All Produce Corners
Fan Motor	5125532 5 Watt
Fan Motor Brackets	
(6" Blades)	5213132
(7.75" Blades)	5120098
Fan Bracket Plate	9041077
Fan Blades	
(6" 10° 5B) (NP90OS/N3PH45IS)	9403971
(6" 15° 5B) (N4P30IS)	9408191
(6" 21° 5B) (N3PH45OS)	5105621
(6" 27° 5B) (N4PHP45IS)	9023762
(7.75" 32° 5B) (N4P45OS)	5104738
(7.75" 37° 5B) (NP45IS-OS/N4P45IS/ N4P90IS-OS/N5P45IS/N5P90IS-OS)	9454640
Compact Lamp Ballast (N3PH/N4P(HP)/N5P)	
(canopy)	5991029
(shelf - 3 rows)	5991030
Compact Lampholder	9450238
(N3PH/N4P(HP)/N5P)(can. or shelf)	
Compact Lamp Clip	9450239
(N3PH/N4P(HP)/N5P)(can. or shelf)	
Compact Lampsheild	9410790
(N3PH/N4P(HP)/N5P)(can. or shelf)	
Anti-Sweat Heater (Light Channel)	
(N4P30IS/N3PH45IS-OS/N5P45IS)	9044848
(N4P45OS)	9403434
(N4P90IS/N5P90IS)	9044847
(N4P90OS)	9044846
NSF Product Thermometer	5967100

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

**Cladding and Optional Trim Parts Lists**

**NP Models**

Item Description	45IS	45°OS	90°OS
1 Rear Riser Trim	9456419	9458302	9451538
2 Bumper Joint Trim	-----	color per order	-----
3 Bumper Retainer	-----	color per order	-----
4 Color Band, Ptd.	9450870	9452465	9450574
5 Bumper	-----	color per order	-----
6 Upper Front Cladding, Ptd.	9450873	9458241	9450576
7 Lower Front Cladding, Ptd.	9450872	9458242	9450575
8 Kickplate Joint Trim, Ptd.	9452769	N/A	9452784
9 Kickplate, Ptd.	9454863	9458261	9454859
10 Kickplate Support Assembly	9450892	9458238	9450578
11 Pipe Leg, Std. (2" X 9.75")	9024894 (4)	9024894 (4)	9024894 (4)
12 NSF Product Thermometer	5967100	5967100	5967100

**N3PH Models**

Item Description	45°IS	45°OS
1 Canopy Joint Trim, Ptd.	9400625	9400621
2 Bumper Joint Trim	-----	color per order
3 Bumper Retainer	-----	color per order
4 Color Band, Ptd.	9452253	9454678
5 Bumper	-----	color per order
6 Upper Front Cladding, Ptd.	9452262	9454666
7 Lower Front Cladding, Ptd.	9452259	9454667
8 Kickplate Joint Trim, Ptd.	9454847	9454736
9 Kickplate, Ptd.	9454855	9454857
10 Kickplate Support Assembly	9452245	9454750
11 Pipe Leg, Std. (2" X 9.75")	9024894 (4)	9024894 (4)
12 NSF Product Thermometer	5967100	5967100



**N4P/N4PHP Models**

Item	Description	30°IS	45°IS	45°OS	90°IS	90°OS
1	Canopy Joint Trim, Ptd.	9400624	9400625	9400621	9400627	9400623
2	Bumper Joint Trim	-----		color per order	-----	
3	Bumper Retainer	-----		color per order	-----	
4	Color Band Ptd.	9451642	9450870	9452465	9450541	9450574
5	Bumper	-----		color per order	-----	
6	Upper Front Cladding, Ptd.	9452361	9450973	9452471	9450542	9450576
7	Lower Front Cladding, Ptd.	9452358	9450872	9452468	9450543	9450575
8	Kickplate Joint Trim, Ptd.	N/A	9452769	N/A	9452781	9452784
9	Kickplate, Ptd.	9454869	9454863	9454865	9454861	9454859
10	Kickplate Support Assembly	9451643	9450892	9452393	9450579	9450578
11	Pipe Leg, Std. (2" X 9.75")	9024894 (4)	9024894 (4)	9024894 (4)	9024894 (4)	9024894 (4)
12	NSF Product Thermometer	5967100	5967100	5967100	5967100	5967100

**N5P Model**

Item	Description	45°IS	90°IS	90°OS
1	Canopy Joint Trim, Ptd.	9400625	9400627	9400623
2	Bumper Joint Trim	-----	color per order	-----
3	Bumper Retainer	-----	color per order	-----
4	Color Band Ptd.	9450870	9450541	9450574
5	Bumper	-----	color per order	-----
6	Upper Front Cladding, Ptd.	9450873	9450542	9450576
7	Lower Front Cladding, Ptd.	9450872	9450543	9450575
8	Kickplate Joint Trim, Ptd.	9452769	9452781	9452784
9	Kickplate, Ptd	9454863	9454861	9454859
10	Kickplate Support Assembly	9450892	9450579	9450578
11	Pipe Leg, Std. (2" X 9.75")	9024894 (4)	9024894 (4)	9024894 (4)
12	NSF Product Thermometer	5967100	5967100	5967100