FORM NUMBER: 81-101-7
DATE: 7/13/81

WARREN//SHERER

INSTALLATION & OPERATION MANUAL

MODEL:

HZV - ZV - HZU - ZU
PRODUCE

THIS REFRIGERATOR CONFORMS TO THE COMMERCIAL REFRIGERATOR MANUFACTURERS ASSOCIATION HEALTH AND SANITATION STANDARD.
CRS-SI-78

WARREN//SHERER
DIVISION OF KYSOR INDUSTRIAL CORPORATION
1600 ROCKDALE INDUSTRIAL BLVD., CONYERS, GEORGIA 30207 / 404•483•5600

INSTALLATION AND OPERATING INSTRUCTIONS

FOR

HZV, HZU, ZV, AND ZU

SELF-SERVICE PRODUCE MERCHANDISERS

APPLICATION:

The Warren/Sherer single and multi-deck produce cases are designed to merchandise bulk or packaged vegetables. These cases should be installed and operated according to the instructions contained in this manual to insure proper performance. They are designed for display of products in an air-conditioned store where temperature and humidity are maintained at a maximum of 75°F dry bulb, 55% relative humidity.

MODELS	DESCRIPTION	SERIAL CODE DESIGNATION
HZV	Air Curtain Produce Case 74" High With Mirrors	731-D
HZU	Non-Refrigerated Produce Case Companion to HZV	732-D
ZV	Single Deck Produce Case 48" High Without Canopy	649-D
ZU	Non-Refrigerated Single Deck Produce Case Companion to ZV	650-D

Rev. 7/13/81

GENERAL

These display refrigerators may be installed individually or in a continuous line-up consisting of several 8-foot and 12-foot sections by using a joint trim. A plexiglass divider kit must be used between cases operating on different refrigeration systems. Divider will be factory installed if specified on order.

SHIPPING DAMAGE

All equipment should be examined for shipping damage before and during unloading. If there is any damage, the carrier should be notified immediately and an inspection requested. The delivery receipt "must" be noted that the equipment was received damaged. If damage is of a concealed nature you must contact the carrier immediately or no later than three (3) days following delivery. A claim must be filed with the carrier by the consignee for all damages.

Note: Your equipment, when delivered, will have a sticker attached advising what must be done to report any damage.

LOCATION

This refrigerator must be located on a firmly based floor and leveled within plus or minus 1/16". Use shims provided to level your refrigerator.

JOINING

Two or more fixtures of like models can be joined together to form a continuous line-up. Instructions for joining fixtures are included in the joint kit. Before lining up refrigerator, inspect refrigeration lines, electrical connections and controls to insure refrigerators are in proper line-up and are in the proper sequence.

Note: THESE REFRIGERATORS ARE LINED UP AT THE FACTORY AND ARE NUMBERED. INSURE THEY ARE LINED UP IN THE FIELD IN THE SAME SEQUENCE NUMBER.

WASTE OUTLET

These cases are equipped with a 1-1/2" FPI waste outlet connection which terminates in the center of the refrigerator below the insulated bottom. A 1-1/2" galv. water seal trap is provided for field installation.

INSTALLING DRIP PIPE

Improperly installed drip pipes can seriously effect the operation of this equipment and result in maintenance cost and improper installation.

1. Never use a double water seal.

2. Never use a pipe smaller than the size pipe or water seal supplied with the equipment.

3. Always provide as much as fall as possible in drip pipe. (1" fall for each 4' of drip pipe.

4. Avoid long runs in drip pipe which make it impossible to provide maximum fall in pipe.

5. Provide a drip space between drip pipe and floor drain or sewer connection.

6. Do not allow drip pipe to come in contact with uninsulated suction lines, which will cause the condensation from your refrigerator to freeze.

CLEANING

To insure minimum maintenance cost, cabinet should be thoroughly emptied and washed out every three (3) months. The exterior should be washed weekly. A mild soap and water solution is recommended for painted surfaces of the cabinet. Do not use cleaners containing abrasive materials which will scratch or dull finish. The waste outlet should be flushed with a bucket of water following each cleaning.

Caution: Never introduce water into the fixture faster than the waste outlet can carry it away.

When cleaning lighted shelves, wipe down with a wet sponge or cloth so that water does not enter the light rails. DO NOT USE A HOSE OR SUBMERGE SHELVES IN WATER. BE SURE REFRIGERATION IS SHUT OFF AND ALL ELECTRICAL IS OFF BEFORE WASHING YOUR REFRIGERATOR.

LOADING

Merchandise should not be placed in the fixture until all controls have been adjusted and the refrigerator is at proper temperature.

At no time should the fixture be stocked beyond the load line or over the front edge of adjustable shelves. In doing so, you will seriously affect the performance which will result in higher product temperatures and increase operating costs.

ELECTRICAL

All field installed wiring must comply with the NATIONAL ELECTRICAL CODE AND LOCAL CODES.

ELECTRICAL RACEWAY

An electrical raceway is provided with each refrigerator for running your fan, anti-sweat heaters, and defrost circuits from case to case without using conduit. This applies, of course, when the front panel is properly secured into position. This is an approved method by the Underwriters' Laboratories; however, wiring must be run in accordance with local and national electrical codes.

ELECTRICAL CONNECTIONS

All field connections are made in the electrical raceway.

Make sure that proper voltage is supplied to your refrigerator. Check refrigerator nameplate for fan and anti-sweat volts and defrost volts. If a canopy is furnished, use a separate fused circuit. ALL REFRIGERATORS MUST BE GROUNDED.

Fan motors must operate continuously and panel must be marked sufficiently to prevent the fan motors and anti-sweat heaters from being turned off accidentally. When refrigerators are multiplexed, add the total of these amperage values to determine wire size and circuit protection.

Chart #1 shows the electrical ratings for your refrigerator. This is the same information that appears on your refrigeration nameplate.

REFRIGERATION FAN MOTORS

The fan motors employed are permanently oiled for the life of the motor and require no periodic maintenance. They are wired according to the enclosed wiring diagram and MUST RUN CONTINUOUSLY.

EXPANSION VALVE

The expansion valve furnished with your refrigerator has been sized for maximum coil efficiency. To adjust superheat, place a thermocouple under the expansion valve bulb. Read the suction line pressure as near coil as possible. (If at the condensing unit, estimate suction line loss at 2 PSIG.) Convert coil suction pressure to temperature. The difference between coil temperature and the thermocouple temperature is superheat. (Use average superheat when expansion valve is hunting). Do not set superheat until cases have pulled down to operating temperature and never open or close valve over 1/2 turn between adjustments and allow 10 minutes or more between adjustments. Superheat should be set to 6-8°F.

REFRIGERATION LINES

The refrigeration lines are located under the deck pans on the 8' and 12' cases. A refrigeration outlet is provided in the front RH end of the HZV & ZV cases. Make sure all refrigeration lines lie as close to the refrigerator bottom so as not to obstruct the air pattern or block the deck pans. See the section on "Recommended Piping Practices" for additional details on piping practices.

These 8' and 12' refrigerators have polyurethane foamed-in-place insulation. In opening a ferrule hole, simply heat a piece of copper tubing of the same size as the tubing to be employed and force it through the ferrule hole.

IMPORTANT - SEAL AROUND LINES AFTER CONNECTIONS ARE MADE. KEEP DIRECT FLAME FROM BOTTOM OF REFRIGERATOR, AS HEAT WILL DISINTEGRATE THE BOTTOM AND INSULATION. USE A HEAT SHIELD WHEN WELDING NEAR THE BOTTOM OF THE CASES.

REFRIGERANT

R-12 expansion valves are standard. If other refrigerant is used, the order must specify the expansion valve to be supplied.

HEAT EXCHANGER

Heat exchangers are optional in these refrigerators. They aid to increase operating efficiency and reduce frosting and flood-back to compressor.

OPERATION

On single condensing unit systems a thermostat should be used to control temperatures. The thermostat bulb should be mounted in the discharge air. On parallel units, temperature control can be provided by EPR valve, thermostat and liquid line solenoid or solid state low pressure controls on compressor unit. Chart #2 shows approximate settings for merchandisers. Since many variables are present in each installation, such as store temperature, length of tubing runs, temperature desired in refrigerator, etc., Chart # 2 is only a guide for the installer.

DEHYDRATION OF REFRIGERATION SYSTEMS

Please read carefully before placing system into operation. After laying refrigerant lines, they should be blown out before making final connection at fixture or condensing unit. Use dry nitrogen to prevent any foreign matter being left in the lines. Keep pressure below 250 pounds. To prevent scaling due to brazing, dry nitrogen should be allowed to flow through lines while brazing operations are taking place.

After the refrigeration system has been pressure-tested and proven leak-free, it is recommended that the system be dehydrated with a vacuum pump to 1000 microns for the first two evacuations and 500 microns on the third. The triple evacuation method requires evacuating the system three successive times and breaking each vacuum with dry refrigerant. Allow the pressure to rise above atmospheric pressure.

DEFROST CYCLE

Off-time defrost is standard on these models. The fans run continuously and defrost termination is by pressure or time (fail safe). See Chart #2 for defrost settings.

Chart #1

Electrical Ratings

Model	Evaporators Fans (Amps)	Anti-Cond Heater (Amps)	Light (Amps)
HZV- 8	1.0	0.0	1.6*
HZV-12	1.5	0.0	2.1*
HZU- 8	0.0	0.0	1.6*
HZU-12	0.0	0.0	2.1*
ZV - 8	1.0	0.0	0.0
ZV -12	1.5	0.0	0.0
ZU - 8	0.0	0.0	0.0
ZU -12	0.0	0.0	0.0

*Light amps indicated is for canopy only. If lighted shelves are used, add .7 amps for each shelf.

Chart #2

Recommended Control Settings

Model	Refrigerant & Application	LP Control Cut-Out	LP Control Cut-In	Setting	Thermostat Cut-Out	Thermostat Cut-In
HZV	R-12 Produce	20 PSIG	35 PSIG	19#	34°F	40°F
	R-502 Produce	52 PSIG	68 PSIG	50#	34°F	40°F
ZV	R-12 Produce	20 PSIG	35 PSIG	19#	34°F	40°F
	R-502 Produce	52 PSIG	68 PSIG	50#	34°F	40°F

Model	*Defrost Periods/ 24 Hrs.	Pressure Termination R-12	Pressure Termination R-502	Fail Safe Setting Pres. Ter.	Fail Safe Setting Time Off
HZV, ZV	4	45#	90#	32 min.	32 min.

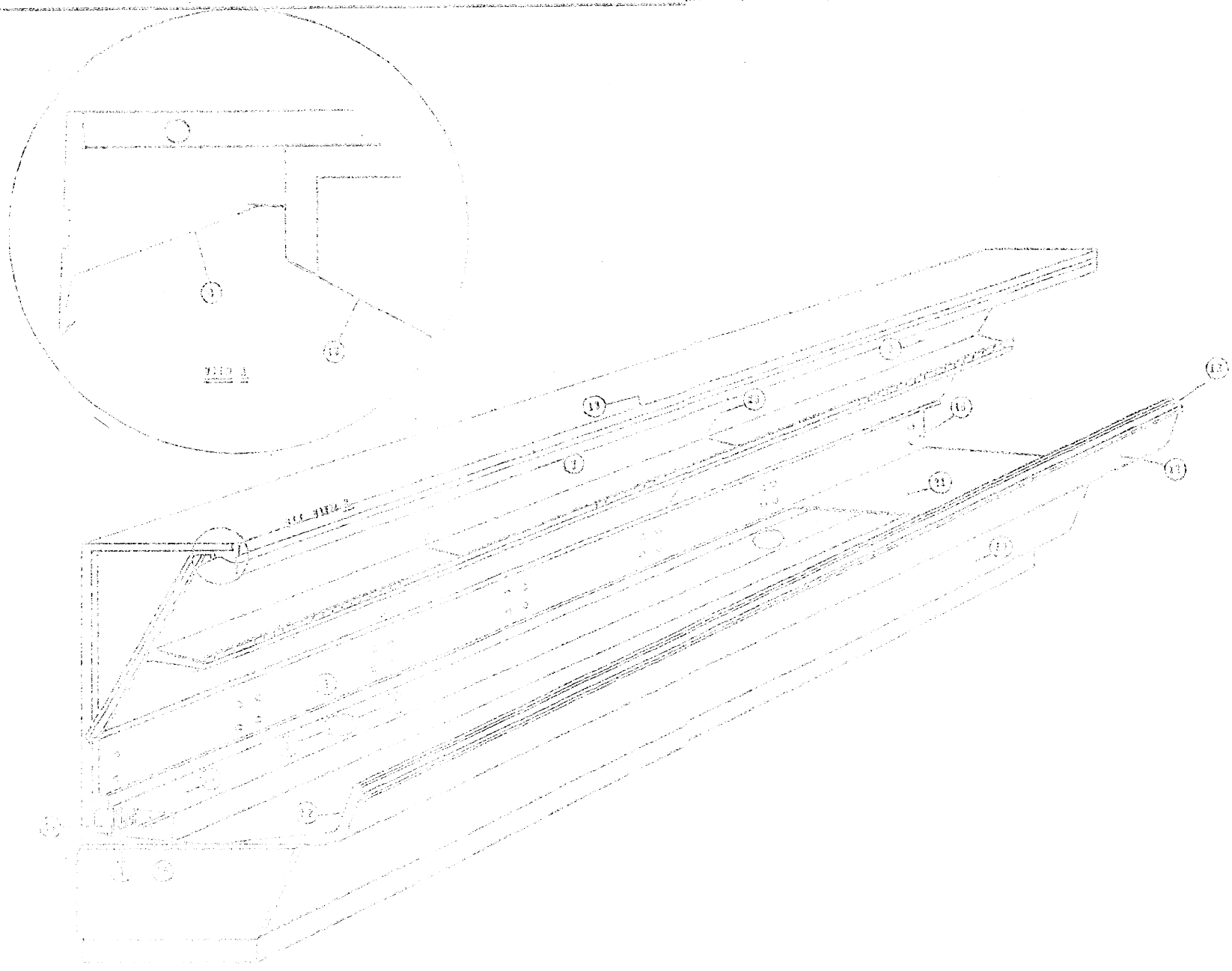
*Defrost frequency is specified at design conditions. Higher temperature or humidity may require more frequent defrost settings.

PARTS LIST

HZV-ZV

DESCRIPTION	REF. NO.	PART NO. 8'	PART NO. 12'
Expansion Valve	1	3A10-17	3A11-18
Fan Blade	2	9B10-22	9B10-22
Fan Motor	3	9A10-17	9A10-17
Light Switch	4	10J10-30	10J10-30
Fan Wiring Harness	5	10M10-100	10M10-101
Mirror	6	14E10-40	14E10-40
Receptacle Harness (Main)	7	10M10-110	10M10-110
Lower Front Panel	10	51A12-116	51A14-97
Upper Front Panel	11	51A12-120	51A14-101
Colorband	12	55F12-79	55F14-73
Canopy Front Panel	13	51C12-59	51C14-55
Back Baffle	15	54H28-64	54H30-51
Upper Air Grille	16	54P16-223	54P16-224
Plenum Chamber	18	96C19-71	96C19-72
Coil Cover	19	54N12-262	54N14-213
Deck Pan	21	56J13-13	56J13-13
Front Baffle	22	56B10-75	56B10-76
Mirror Edging	23	13A12-79	13A12-79
Evaporator	24	5A20-38	5A20-38

Rev. 7/13/81



C	[illegible]	[illegible]	[illegible]
B	[illegible]	11-9-72	[illegible]
A	[illegible]	2-15-72	[illegible]
LETTER	REVISED	DATE	BY

SCALE:

DRAWN W. JONES

APPROVED [illegible]

DATE 4-12-40

TITLE HEV ILLUSTRATION

THE WARREN COMPANY
INCORPORATED
ATLANTA 1, GEORGIA

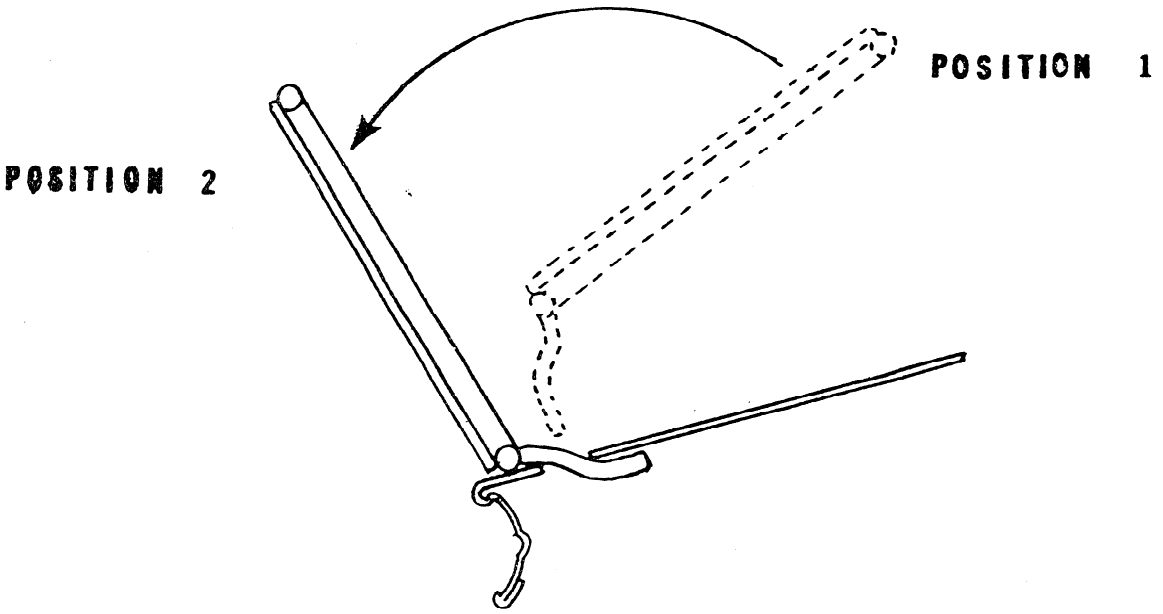
DRAWING NUMBER PC-12989-C

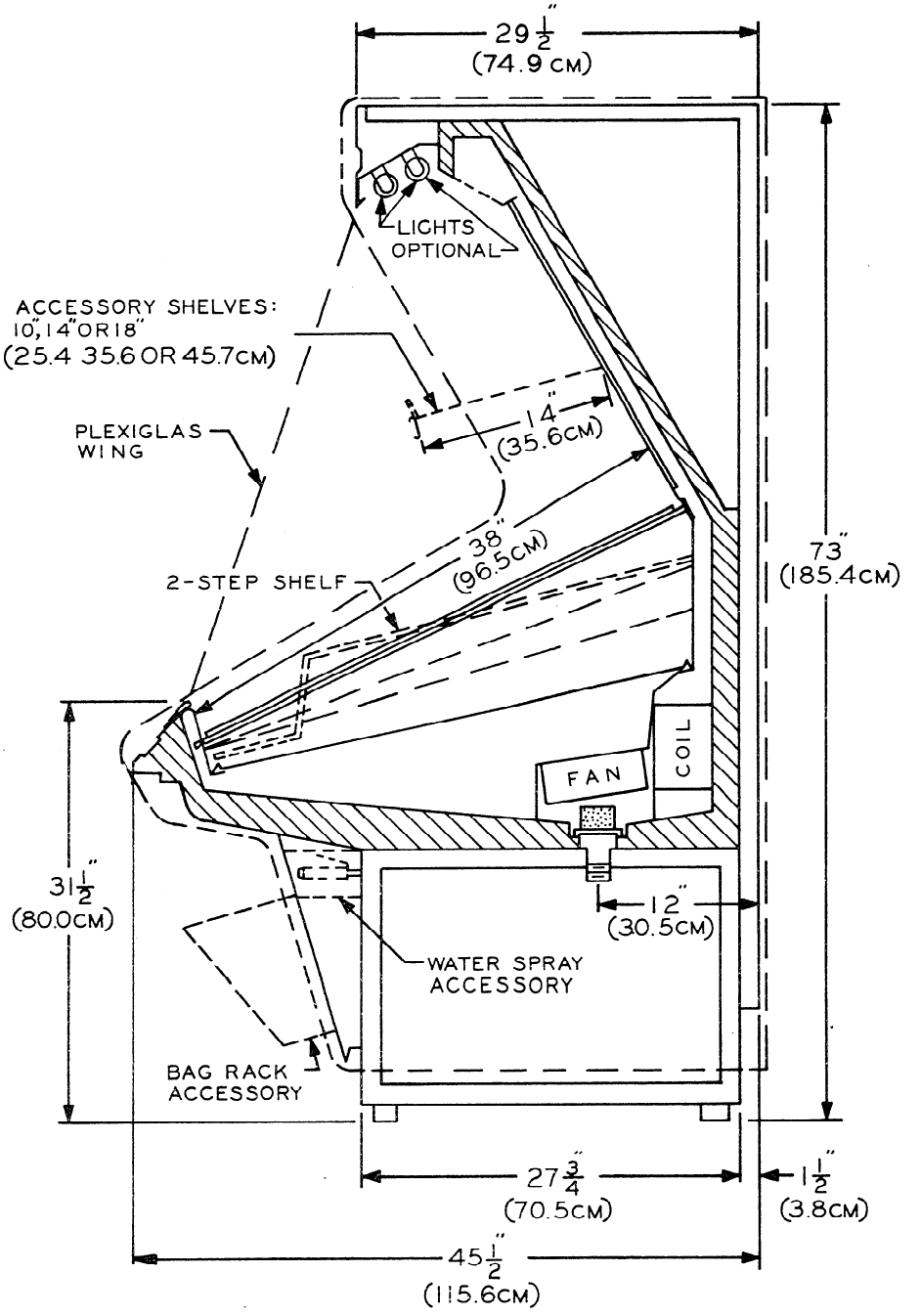
SHELF & FENCE

Optional shelf is shipped installed when ordered. However, the shelf may be removed and re-installed if so desired. To remove, lift entire shelf up until tabs clear, and lift out and away from the shelf standard. To install, insert the top tab on both shelf brackets into the slots in the shelf standards. Insert the remaining tabs and push downward to lock in position. Care must be taken to insure that the mirror edging is positioned to cover all slots not occupied by the shelf brackets. The flow of refrigerated air might be affected if the slots are left uncovered. This would also detract from the appearance of the case.

To install fence, tilt fence back as shown in View "A", Position 1 and bring forward until in Position 2.

VIEW A



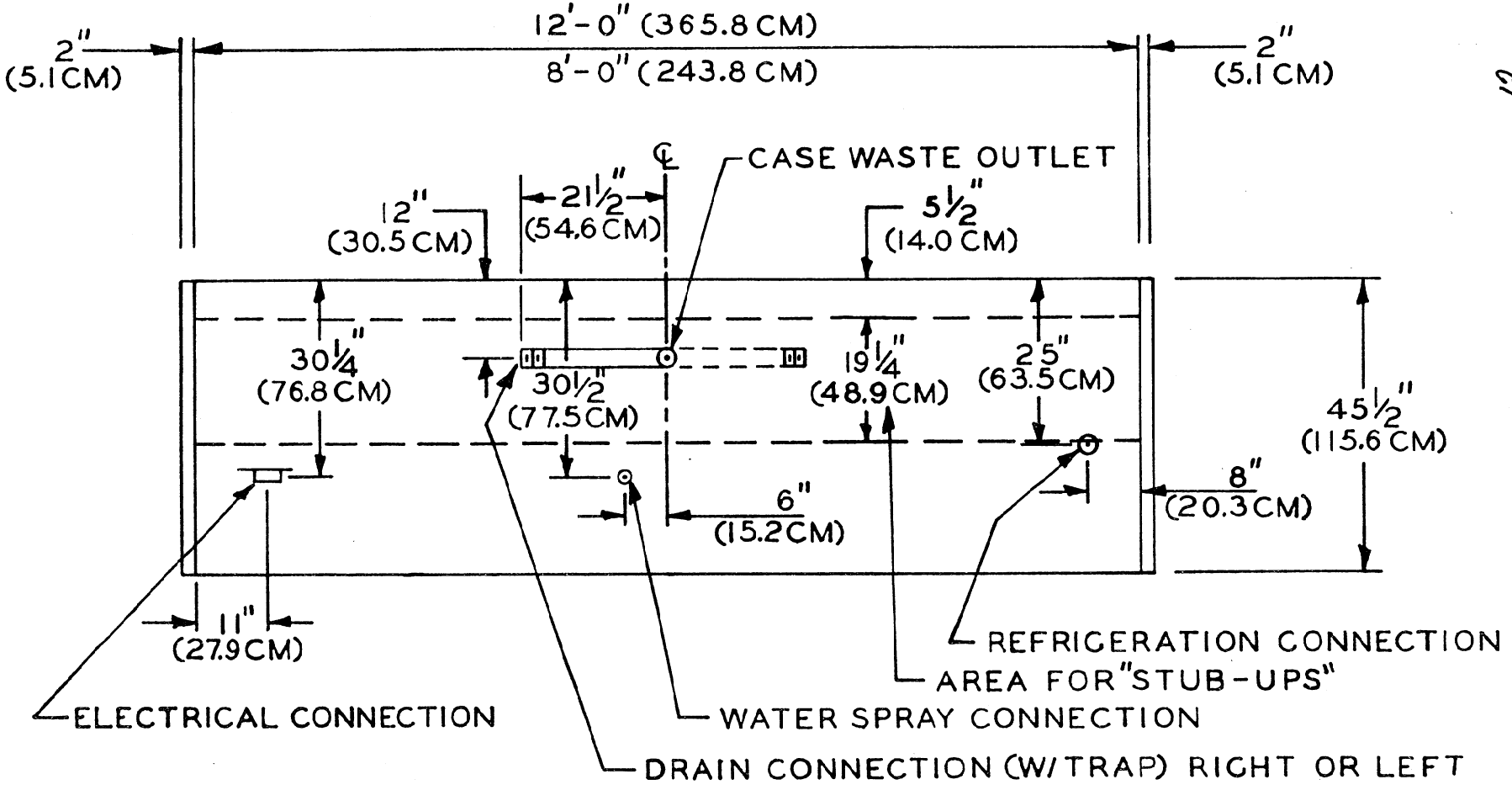


		LETTER	REDESIGNED THE COLOR BAND
			CHANGE END CONTOUR & CANOPY
APPD.		REVISED	8/10/81
DRAWN	SCALE 1/8" 1-0"	DATE	9/15/80
	DATE 9-5-80	BY	RMM

KYSOR — DIVISION OF KYSOR INDUSTRIAL CORPORATION

TITLE: CROSS SECTION MODEL HZV

DRAWING NUMBER: SB-80507



LETTER	REVISED	DATE	BY

DATE 4 DEC 81

SCALE 1/2" = 1'-0"

DRAWN J-P

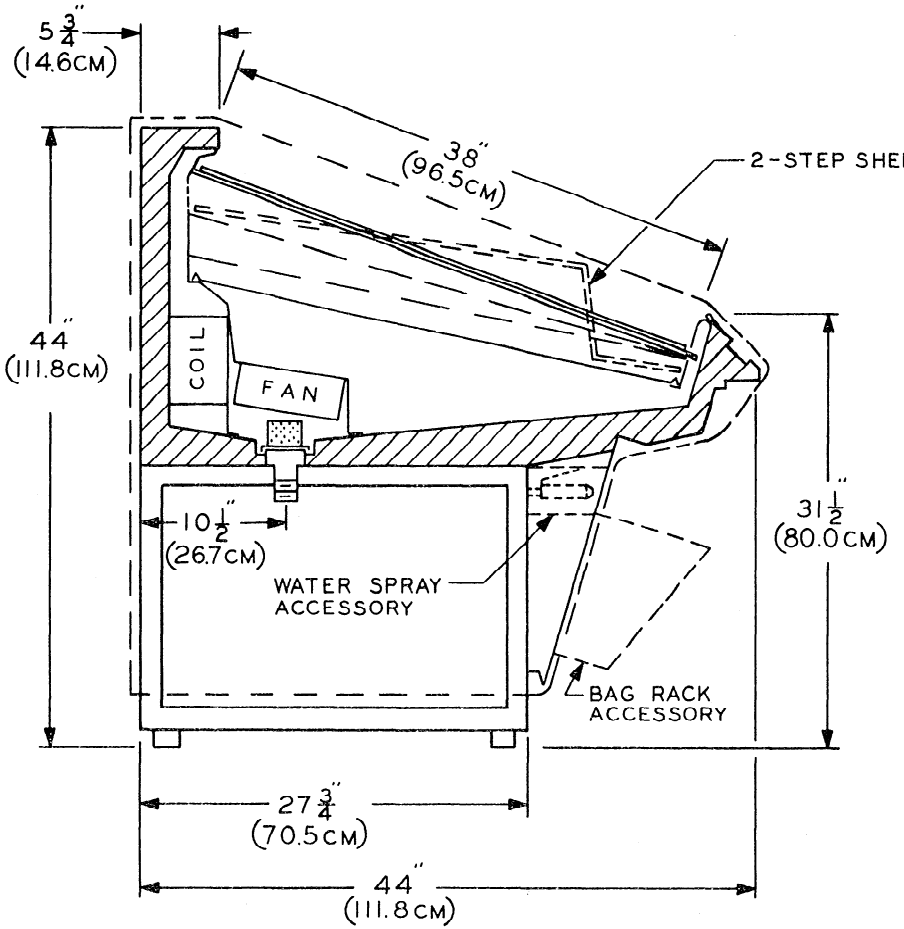
APPD.

TITLE

PLAN VIEW
MODEL HZV

KYSOR WARREN / SHERER

DRAWING NUMBER SA-81509



13

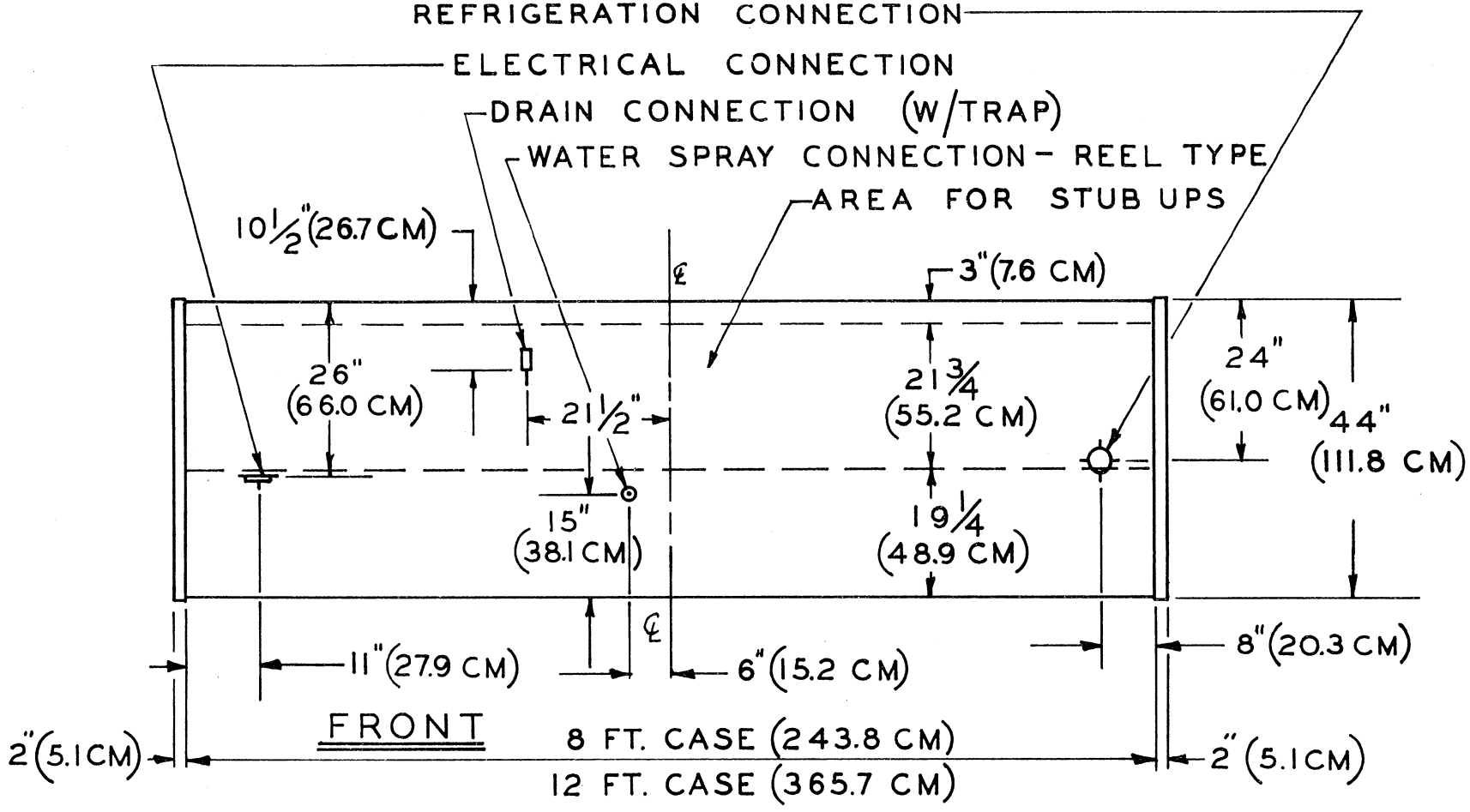
	REDESIGNED THE COLORBAND	8/20/81	RR
LETTER	REVISED	DATE	BY

DATE 3-31-81
SCALE 1/8"=1'-0"
DRAWN RRM
APPD.

TITLE
CROSS SECTION
MODEL ZV

KYSOR DIVISION OF KYSOR INDUSTRIAL CORPORATION

DRAWING NUMBER
SB-81505



		3/4/81	RRM
LETTER	REVISED	DATE	BY

DATE 1-22-79

SCALE ½":1'-0"

DRAWN mav

APPD.

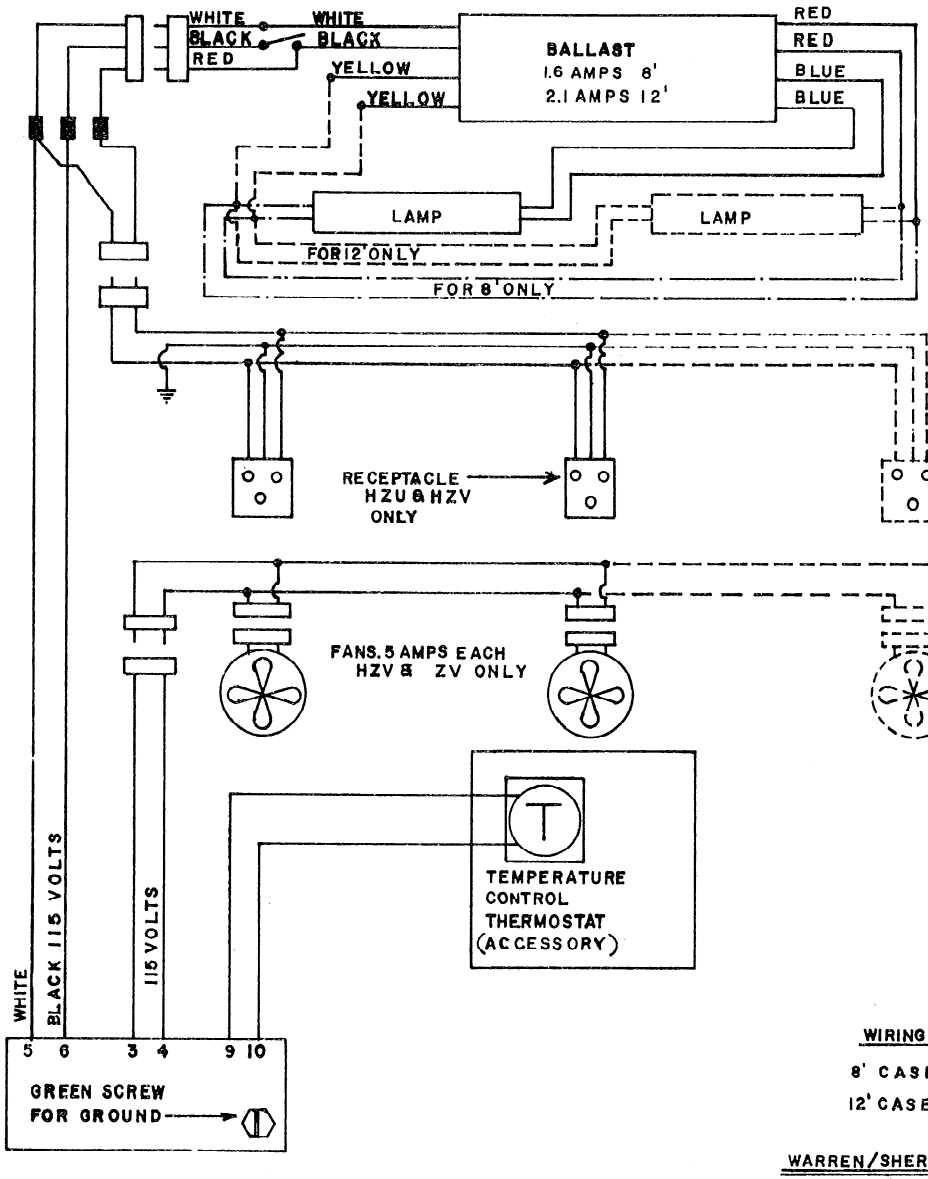
TITLE

PLAN VIEW
MODEL ZV

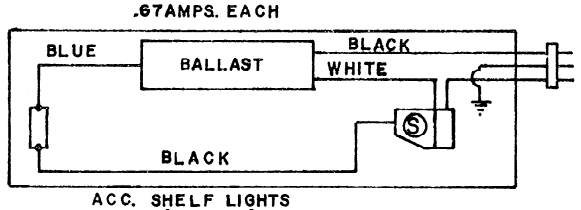
KYSOR | WARREN / SHERER
DIVISION OF KYSOR INDUSTRIAL CORPORATION

DRAWING NUMBER
SA 79506

BRUNING 40-21 28081-1



NOTE: ZV 8' & 12' DOES NOT UTILIZE RECEPTACLES, ACCESSORY SHELF LIGHTS OR CANOPY LIGHTS.



ACC. SHELF LIGHTS
(TYPICAL)

WIRING LEGEND

8' CASE ——·——·——

12' CASE — — — — —

WARREN/SHERER PP NO. 31C10-144

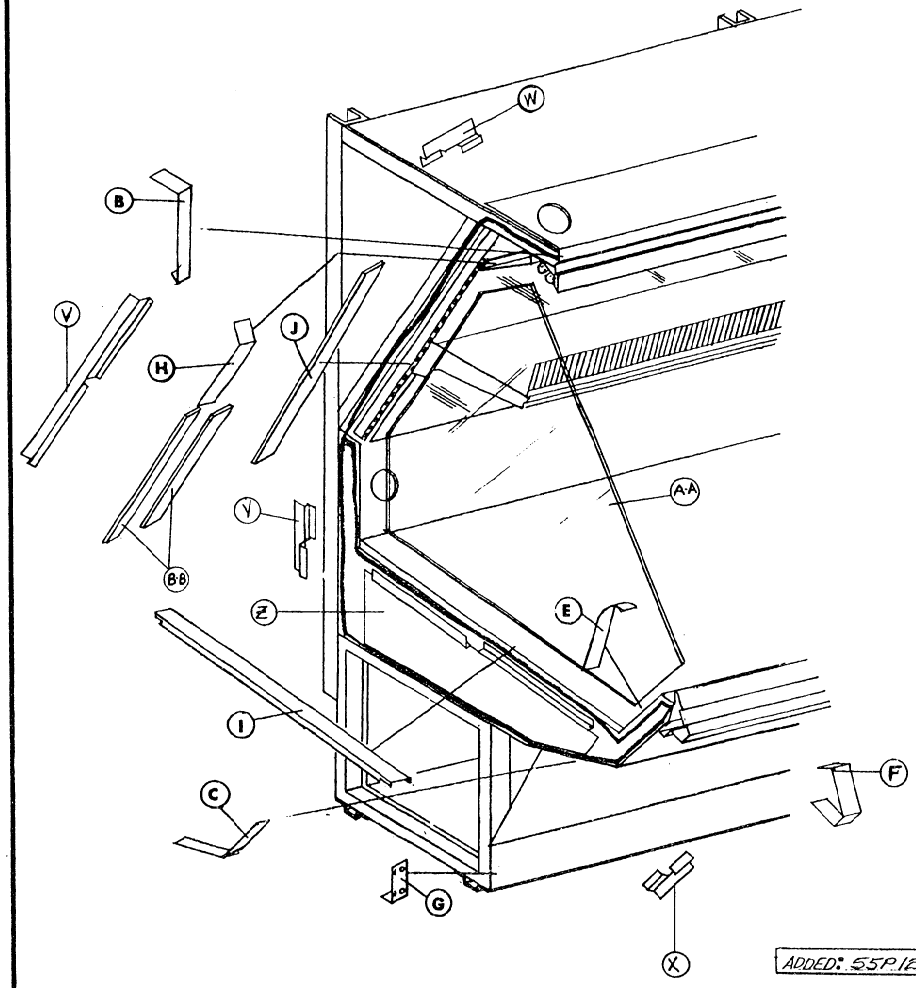
LETTER	REVISED	DATE	BY

DATE 5-79
SCALE NTS
DRAWN RAM
APPD. JDM

TITLE WIRING DIAGRAM FOR HZU-HZV-ZV 8' & 12'

KYSOR WARREN/SHERER DIVISION OF KYSOR INDUSTRIAL CORPORATION

DRAWING NUMBER PB 21020



MODELS HZV-HZU, HZU-HZV
+ HZV-HZU W/DIVIDER

	ITEM	DESCRIPTION	KIT NO. 94D13-101 *94D13-105 BRUSHED PART NO.	KIT NO. 94D13-119 *94D13-120 BRIGHT PART NO.	QTY.
		WEDGES - WOOD 5"	12D10-68	12D10-68	6
	A				
	B	TRIM - CANOPY JOINT	55P12-191	55P12-192	1
	C	TRIM - UPPER FRONT PANEL JOINT	55P12-237	55P12-238	1
	D	SCREW - #10-16 X 1/2 SMS SD	21B12-17	21B12-17	20
—	E	TRIM - FRONT BAFFLE JOINT	56F18-134	56F18-134	1
	F	TRIM - COLOR SAND JOINT	55P12-157	55P12-158	1
	G	TRIM - KICKPLATE JOINT	51F11-58	51F11-58	1
—	H	TRIM - UPPER AIR GRILLE JOINT	55P18-113	55P18-177	1
—	I	CHANNEL - JOINT DRIP	56F18-125	56F18-125	1
—	J	MIRROR - JOINT COVER ASSY	73F11-142	73F11-142	1
	K	NUT - 3/8-16 HEX SCP	19A15-10	19A15-10	4
	L	NUT - TEE 3/8-16 HEX HD 5/8" LONG	19A15-13	19A15-13	4
	M	WASHER - 3/8" CUT SCP	19B13-11	19B13-11	4
	N	BOLT - 3/8-16 X 1 1/4 HEX HD MCH	20E10-11	20E10-11	4
	O	BOLT - 3/8-16 X 2 1/2 HEX HD MACH	20E10-13	20E10-13	4
	P	SCREW - #10 X 3/4 SS	21B12-19	21B12-19	2
	Q	SCREW - #8 X 3/4 SS SMS	21B11-12	21B11-12	10
	R				
	S				
	T	CAULKING PUTTY	29B10-17	29B10-17	1 FT
	U	WASHER - ROUND SLUG TEE NUT	54Y10-13	54Y10-13	6
		BUTYL SEALER	29B10-28	29B10-28	1 TB.
+	V	DIVIDER - CANOPY BACK	56J10-67	56J10-67	1
+	W	DIVIDER - CANOPY TOP	56J10-68	56J10-68	1
+	X	DIVIDER - CANOPY FRONT	56J10-69	56J10-69	1
+	Y	DIVIDER - LOWER BACK	56J10-70	56J10-70	1
+	Z	DIVIDER - CENTER	56J10-71	56J10-71	1
+	A-A	DIVIDER - PLEXIGLASS	73F11-73	73F11-73	1
+	B-B	MIRROR - SHELF STD. COVER END	73F11-140	73F11-140	2

ADDED: 55P12-157, 55P12-158

LETTER	REVISED	DATE	BY
A	REMOVED: 16F16-57, 55P12-105 & 55P12-129	3-27-91	TLA

LEGEND: + ... PARTS USED W/ DIVIDER
— ..... PARTS NOT USED W/ DIVIDER

NOTE: SEE PA-21547-A FOR INSTALLATION INSTRUCTION
" PA-21546-A " " " W/ DIVIDER

DATE 10-1-90
SCALE NONE
DRAWN TLA
APPD. JPM

TITLE
HZV-HZU, HZU-HZV
JOINT KIT INSTRUCTION

KYSOR / KUEHNER ENGINEER — DIVISION OF KYSOR INDUSTRIAL CORPORATION

DRAWING NUMBER PB-21514-A

BRUNING 40-105 41137

16

NOTES

1. MOVE REFRIGERATORS AS NEAR THEIR PERMANENT LOCATION AS POSSIBLE BEFORE REMOVING SHIPPING BRACES, SKIDS OR ROLLERS. NOTE: THESE REFRIGERATORS WERE LINED UP AT FACTORY & NUMBERED. INSURE THEY ARE LINED UP IN THE FIELD BY THE SAME SEQUENCE NUMBER. (THE NUMBER IS LOCATED ON THE HANDRAIL). THE CASES MUST BE POSITIONED SO THAT ELECTRICAL CONNECTIONS ARE ON THE SAME SIDE IN THE LINE-UP.

2. REMOVE SKIDS & SHIPPING BRACES. INSTALL APPROX. A 5/16" BEAD OF SEALER AT ONE END OF CASE AS NOTED BY HEAVY LINE ON CROSS-SECTION.

3. MOVE CASES AS CLOSE TOGETHER AS POSSIBLE & LEVEL BY USING THE SHIMS PROVIDED. (CASES MUST BE LEVELED FROM FRONT TO BACK & END TO END).

4. REMOVE ACCESS COVERS OVER LINE-UP HOLES & INSERT THE SMALL T-NUTS IN THE END FRAME, BOTH FRONT & BACK. PLACE SPECIAL T-NUT WASHER ON THE 3/8" MCHN BOLT WITH HOLLOW SECTION AWAY FROM THE BOLT HEAD. ROTATE THE 3/8" BOLTS WITH T-NUT WASHER INTO T-NUTS ALTERNATELY UNTIL CASES ARE PULLED UP TIGHT & THE JOINT IS COMPLETELY SEALED. (REASONABLE CARE SHOULD BE EXERCISED IN THIS PROCEDURE TO PREVENT END FRAME DISTORTION). ASSIST PULLING CASE UP TIGHT BY BUMPING FROM OPPOSITE END OF CASE OR USING PRY BAR.

5. INSPECT JOINT FOR PROPER AIR AND WATER-TIGHT SEAL BOTH INSIDE AND OUTSIDE THE CASE.

6. REPLACE LINE-UP ACCESS COVER PLUGS OR PLATES.

JOINT TRIM - MOST JOINT TRIM CAN & SHOULD BE INSTALLED IMMEDIATELY AFTER CASES ARE LINED UP. WHERE POSSIBLE, INSTALL ALL TRIM IMMEDIATELY SO IT WILL NOT BE LOST. THE TRIM THAT CANNOT BE INSTALLED IMMEDIATELY SUCH AS KICKPLATE AREA, STORE IN A SAFE PLACE UNTIL REFRIGERATION AND ELECTRICAL WORK IS COMPLETED.

7. "F" COLORBAND JOINT TRIM - FASTEN COLORBAND JOINT TRIM "F" WITH (2) #21B12-17 IN UPPER HOLES FIRST, THEN (2) #21B12-19 IN LOWER HOLES.

8. "B" CANOPY TOP JOINT TRIM - POSITION AND SECURE WITH #10-16X3/4 SELF-DRILLING SCREWS.

9. "C" UPPER FRONT PANEL JOINT TRIM - POSITION AND SECURE WITH (4) #10-16X3/4 SELF-DRILLING SCREWS.

10. "E" FRONT BAFFLE JOINT TRIM - POSITION AND SECURE WITH (4) #10-16X3/4 SELF-DRILLING SCREWS.

11. "H" UPPER AIR GRILLE JOINT TRIM - POSITION AND SECURE WITH (4) #10-16X3/4 SELF-DRILLING SCREWS.

12. "I" JOINT DRIP CHANNEL - POSITION OVER END FRAME JOINT & INSTALL DECK PANS.

13. "J" MIRROR JOINT TRIM - IF SHELF IS USED, PLACE SHELF IN DESIRED POSITION THEN CUT TRIM TO FIT ABOVE AND BELOW SHELF.

14. "D" LOWER FRONT PANEL JOINT TRIM - POSITION AND SECURE WITH (4) #10-16X3/4 SELF-DRILLING SCREWS.

15. "G" KICKPLATE JOINT TRIM - POSITION & SECURE W/(4) #10-24X1/2 ROUND HEAD BLACK MACHINE SCREWS.

NOTE: JOINT KIT ASSY - SEE PB-21514

LETTER	REVISED	DATE	BY
A	REVISED COLORBAND JOINT TRIM NOTATION	10/29/81	TLA

TITLE: JOINT KIT INSTALLATION INSTRUCTION FOR H2V-H2L

DATE 1-13-81 | SCALE NONE | DRAWN TLA | APPD JPM

KYSOR / WARREN — DIVISION OF KYSOR INDUSTRIAL CORPORATION

DRAWING NUMBER PA-21547-A

AF 8066

NOTES

1. MOVE REFRIGERATORS AS NEAR THEIR PERMANENT LOCATION AS POSSIBLE BEFORE REMOVING SHIPPING BRACES, SKIDS OR ROLLERS. NOTE: THESE REFRIGERATORS WERE LINED UP AT FACTORY & NUMBERED. INSURE THEY ARE LINED UP IN THE FIELD BY THE SAME SEQUENCE NUMBER. (THE NUMBER IS LOCATED ON THE HANDRAIL). THE CASES MUST BE POSITIONED SO THAT ELECTRICAL CONNECTIONS ARE ON THE SAME SIDE IN THE LINE-UP.

2. REMOVE SKIDS & SHIPPING BRACES. INSTALL APPROX. A 5/16" BEAD OF SEALER AT ONE END OF CASE AS NOTED BY HEAVY LINE ON CROSS-SECTION.

3. MOVE CASES AS CLOSE TOGETHER AS POSSIBLE & LEVEL BY USING THE SHIMS PROVIDED. (CASES MUST BE LEVELED FROM FRONT TO BACK & END TO END).

4. REMOVE ACCESS COVERS OVER LINE-UP HOLES & INSERT THE SMALL T-NUTS IN THE END FRAME, BOTH FRONT & BACK. PLACE SPECIAL T-NUT WASHER ON THE 3/8" MCHN BOLT WITH HOLLOW SECTION AWAY FROM THE BOLT HEAD. ROTATE THE 3/8" BOLTS WITH T-NUT WASHER INTO T-NUTS ALTERNATELY UNTIL CASES ARE PULLED UP TIGHT & THE JOINT IS COMPLETELY SEALED. (REASONABLE CARE SHOULD BE EXERCISED IN THIS PROCEDURE TO PREVENT END FRAME DISTORTION). ASSIST PULLING CASE UP TIGHT BY BUMPING FROM OPPOSITE END OF CASE OR USING PRY BAR.

5. INSPECT JOINT FOR PROPER AIR AND WATER-TIGHT SEAL BOTH INSIDE AND OUTSIDE THE CASE.

6. REPLACE LINE-UP ACCESS COVER PLUGS OR PLATES.

JOINT TRIM - MOST JOINT TRIM CAN & SHOULD BE INSTALLED IMMEDIATELY AFTER CASES ARE LINED UP. WHERE POSSIBLE, INSTALL ALL TRIM IMMEDIATELY SO IT WILL NOT BE LOST. THE TRIM THAT CANNOT BE INSTALLED IMMEDIATELY SUCH AS KICKPLATE AREA, STORE IN A SAFE PLACE UNTIL REFRIGERATION AND ELECTRICAL WORK IS COMPLETED.

7. "F" COLORBAND JOINT TRIM - FASTEN COLORBAND JOINT TRIM "F" WITH (2) #21B12-17 IN UPPER HOLES, THEN (2) 21B12-19 IN LOWER HOLES.

8. "C" CANOPY TOP JOINT TRIM - POSITION AND SECURE WITH #10-16X3/4 SELF-DRILLING SCREWS.

9. "D" UPPER FRONT PANEL JOINT TRIM - POSITION AND SECURE WITH (4) #10-16X3/4 SELF-DRILLING SCREWS.

10. "N" MIRROR END TRIM - IF SHELF IS USED, PLACE SHELF IN DESIRED POSITION, THEN CUT TRIM TO FIT ABOVE AND BELOW SHELF.

11. "E" LOWER FRONT PANEL JOINT TRIM - POSITION AND SECURE WITH (4) #10-16X3/4 SELF-DRILLING SCREWS.

12. "B" KICKPLATE JOINT TRIM - POSITION AND SECURE WITH (4) #10-24X1/2 ROUND HEAD BLACK MACHINE SCREWS.

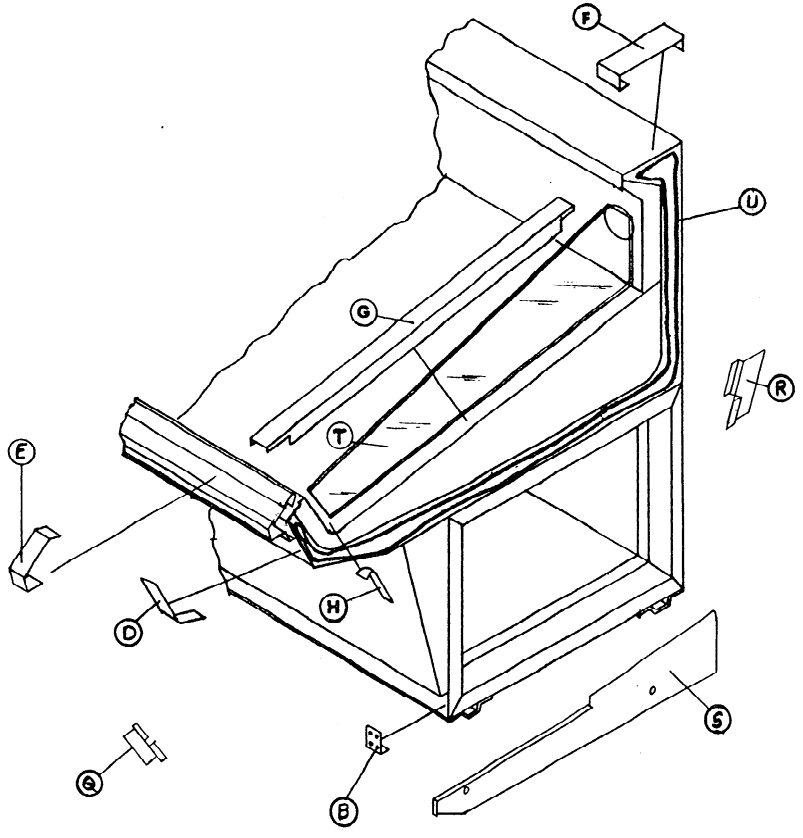
NOTE: JOINT KIT ASSY - SEE PB-21514-A

LETTER	A		
REVISED	REVISED COLORBAND JOINT TRIM NOTATION	10/30/81	TA
		DATE	BY
DATE	1-13-81		
SCALE	NONE		
DRAWN	TLA		
APPD	JPM		

TITLE: JOINT KIT INSTALLATION FOR HZ-HZR W/DIVIDER

KYSOR | WARREN / SHERER — DIVISION OF KYSOR INDUSTRIAL CORPORATION

DRAWING NUMBER PA-21546-A



	MODELS ZV-ZU, ZU-ZV ZV-ZU, ZU-ZV W/DIVIDER	KIT NO. 94A13-423 +94A13-425 BRUSHED	KIT NO. 94A13-524 +94A13-525 BRIGHT	
ITEM	DESCRIPTION	PART NO.	PART NO.	QTY.
	WEDGES - WOOD 5"	12D10-68	12D10-68	6
A				
B	TRIM - KICKPLATE JOINT	51F11-58	51F11-58	1
C	SCREW - #10-16 X ½ SD SMS	21B12-17	21B12-17	20
D	TRIM - UPPER FRONT PANEL JOINT	55P12-237	55P12-238	1
E	TRIM - COLORBAND JOINT	55P12-157	55P12-158	1
F	TRIM - BACK TOP JOINT	55P13-284	55P13-330	1
− G	CHANNEL - DRIP JOINT	56F18-125	56F18-125	1
− H	TRIM - FRONT BAFFLE JOINT	56F18-134	56F18-134	1
I	NUT - TEE 3/8-16 HEX 5/8 LONG	19A15-13	19A15-13	4
J	BOLT - 3/8-16 X 1¼ HEX HD MCHN. SCP	20E10-11	20E10-11	4
K	SCREW - #10-16 X ¾ SD PH SS	21B12-19	21B12-19	4
L	SCREW - #8-X ¾ SS SMS	21B11-12	21B11-12	12
M				
N				
O	CAULKING PUTTY	29B10-28	29SJ-28	1 TB.
P	WASHER - ROUND SLUG TEE NUT	54V10-13	54V10-13	4
+ Q	DIVIDER - FRONT	56J10-69	56J10-69	1
+ R	DIVIDER - BACK LOWER	56J10-70	56J10-70	1
+ S	DIVIDER - CENTER	56J10-71	56J10-71	1
+ T	PARTITION - CENTER	73F11-77	73F11-77	1
U	BUTYL SEALER	29B10-17	29B10-17	1 FT.

LEGEND: + ----- PARTS USED W/DIVIDER
− ----- PARTS NOT USE W/DIVIDER

NOTE: SEE PA-21544-A FOR INSTALLATION INSTRUCTION
" PA-21545-A " " " W/DIVIDER

ADDED: 55P12-157, 55P12-158

LETTER	REVISED	DATE	BY
A	REMOVED 16F10-57, 55P12-105, 55P12-129 & 21B11-19	3-19-81	TLA

DATE 10-1-80
SCALE NONE
DRAWN TLA
APPD. JPM

TITLE
ZV-ZU, ZU-ZV
JOINT KIT INSTRUCTION

KYSOR DIVISION OF KYSOR INDUSTRIAL CORPORATION

DRAWING NUMBER PB-21515-A

BRUNING 105 41137

NOTES

1. MOVE REFRIGERATORS AS NEAR THEIR PERMANENT LOCATION AS POSSIBLE BEFORE REMOVING SHIPPING BRACES, SKIDS OR ROLLERS. NOTE: THESE REFRIGERATORS WERE LINED UP AT FACTORY & NUMBERED. INSURE THEY ARE LINED UP IN THE FIELD BY THE SAME SEQUENCE NUMBER. (THE NUMBER IS LOCATED ON THE HANDRAIL). THE CASES MUST BE POSITIONED SO THAT ELECTRICAL CONNECTIONS ARE ON THE SAME SIDE IN THE LINE-UP.

2. REMOVE SKIDS & SHIPPING BRACES. INSTALL APPROX. A 5/16" BEAD OF SEALER AT ONE END OF CASE AS NOTED BY HEAVY LINE ON CROSS-SECTION.

3. MOVE CASES AS CLOSE TOGETHER AS POSSIBLE & LEVEL BY USING THE SHIMS PROVIDED. (CASES MUST BE LEVELED FROM FRONT TO BACK & END TO END).

4. REMOVE ACCESS COVERS OVER LINE-UP HOLES & INSERT THE SMALL T-NUTS IN THE END FRAME, BOTH FRONT & BACK. PLACE SPECIAL T-NUT WASHER ON THE 3/8" MCHN BOLT WITH HOLLOW SECTION AWAY FROM THE BOLT HEAD. ROTATE THE 3/8" BOLTS WITH T-NUT WASHER INTO T-NUTS ALTERNATELY UNTIL CASES ARE PULLED UP TIGHT & THE JOINT IS COMPLETELY SEALED. (REASONABLE CARE SHOULD BE EXERCISED IN THIS PROCEDURE TO PREVENT END FRAME DISTORTION). ASSIST PULLING CASE UP TIGHT BY BUMPING FROM OPPOSITE END OF CASE OR USING PRY BAR.

5. INSPECT JOINT FOR PROPER AIR AND WATER-TIGHT SEAL BOTH INSIDE AND OUTSIDE THE CASE.

6. REPLACE LINE-UP ACCESS COVER PLUGS OR PLATES.

JOINT TRIM - MOST JOINT TRIM CAN & SHOULD BE INSTALLED IMMEDIATELY AFTER CASES ARE LINED UP. WHERE POSSIBLE, INSTALL ALL TRIM IMMEDIATELY SO IT WILL NOT BE LOST. THE TRIM THAT CANNOT BE INSTALLED IMMEDIATELY SUCH AS KICKPLATE AREA, STORE IN A SAFE PLACE UNTIL REFRIGERATION AND ELECTRICAL WORK IS COMPLETED.

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8. "D" UPPER FRONT PANEL JOINT TRIM - POSITION AND SECURE WITH (4) #10-16X3/4 SELF-DRILLING SCREWS.

9. "F" TRIM TOP BACK JOINT - POSITION AND SECURE WITH (2) #10-16X3/4 SELF-DRILLING SCREWS.

10. "G" JOINT DRIP CHANNEL - POSITION OVER END FRAME JOINT & INSTALL DECK PANS.

11. "H" FRONT BAFFLE JOINT TRIM - POSITION AND SECURE WITH (4) #10-16X3/4 SELF-DRILLING SCREWS.

12. "C" LOWER FRONT PANEL JOINT TRIM - POSITION AND SECURE WITH (4) #10-16x3/4 SELF-DRILLING SCREWS.

13. "B" KICKPLATE JOINT TRIM - POSITION AND SECURE WITH (4) #10-24X1/2 ROUND HEAD BLACK MACHINE SCREWS.

NOTE: JOINT KIT ASSY - SEE PB-21515-A

BY	DATE	REVISED
TLA	10/30/81	REVISED COLORBAND JOINT TRIM NOTATION

TITLE: JOINT KIT INSTALLATION INSTRUCTION FOR 2V-2W

KYSOR / WARREN / SHERER — DIVISION OF KYSOR INDUSTRIAL CORPORATION

DRAWING NUMBER: PA-21544-A

LETTER	DATE	SCALE	DRAWN	APPD.
A	1-13-81	NONE	TLA	JPM

AF 8066

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11. "B" KICKPLATE JOINT TRIM - POSITION AND SECURE WITH (4) #10-24X1/2 ROUND HEAD BLACK MCHN SCREWS.

NOTE: JOINT KIT ASSY - SEE PB-21515

LETTER	REVISED	DATE	BY
A	REVISED COLORBAND JOINT TRIM NOTATION	10/30/81	TLA

TITLE: JOINT KIT INSTALLATION INSTRUCTION FOR 2V-2K W/DIVIDER

DATE 1-13-81 | SCALE NONE | DRAWN TLA | APPD JPM

KYSOR | WARREN / SHERER DIVISION OF KYSOR INDUSTRIAL CORPORATION

DRAWING NUMBER PA-21545-A

1. Proper size refrigeration lines are essential to good refrigeration performance. Suction lines are more critical than liquid or discharge lines. Oversized suction lines may prevent good oil return to the compressor. Undersized lines can rob refrigeration capacity and increase operating cost. Consult the technical manual or legend sheet for proper line sizes.

2. Refrigeration lines in cases in line-ups can be reduced. However, the lines should be no smaller than the main trunk lines in at least 1/3 of the cases and no smaller than one size above the case lines to the last case. Reductions should not exceed one line size per case. It is preferred to bring the main trunk lines in at the center of line-up. Liquid lines on systems on hot gas defrost must be increased one line size above the main trunk line for the entire line-up. Individual feed lines should be at the bottom of the liquid header.

3. Do not run refrigeration lines from one system through cases on another system.

4. Use dry nitrogen in lines during the brazing to prevent scaling and oxidation.

5. Insulate suction lines from the cases to the compressor with 3/4" wall thickness Armaflex or equal on low temp cases to provide maximum of 65° sub-cooled gas back to the compressor and prevent condensation in exposed areas. Insulate suction lines on medium temp cases with 1/2" thick insulation in exposed areas to prevent condensate drippage.

6. Suction and liquid lines should never be taped or soldered together. Adequate heat exchanger is provided in the case.

7. Refrigeration lines should never be placed in the ground unless they are protected against moisture and electrolysis attack.

8. Always slope suction lines down toward the compressor, 1/2" each 10'. Do not leave dips in the line that would trap oil.

9. Provide "P" traps at the bottom of suction line risors, 4' or longer. Use a double "P" trap for each 20' of risors. "P" traps should be the same size as the horizontal line. Consult the technical manual or legend sheet for proper size risors.

10. Use long radius ells and avoid 45° ells.

11. Provide expansion loops in suction lines on systems on hot gas defrost. An expansion loop is required for each 100' of straight run.

12. Strap and support tubing to prevent excessive line vibration and noise.

13. Brazing of copper to copper should be with a minimum of 10% silver. Copper to brass or copper to steel should be with 45% silver.

14. Avoid the use of "bull head" tees in suction lines. An example is where suction gas enters both ends of the tee and exits the center. This can cause a substantial increase in pressure drop in the suction lines.

15. When connecting more than one suction line to a main trunk line, connect each branch line with an inverted trap.