

FORM NUMBER:  
DATE: 9-76  
REVISED:

**WARREN//SHERER**

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# INSTALLATION & OPERATION MANUAL

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MODEL:

MODEL - D4  
DAIRY  
AND DELICATESSEN

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THIS REFRIGERATOR CONFORMS TO THE COMMERCIAL  
REFRIGERATOR MANUFACTURERS ASSOCIATION HEALTH AND  
SANITATION STANDARD.

CRS-SI-78

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**WARREN//SHERER**

*DIVISION OF KYSOR INDUSTRIAL CORPORATION*

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D-4 is the basic designation for the Multi-Deck Dairy Merchandiser for dairy products, with five refrigerated shelves. This model is of the continuous type construction so that several cases may be joined together for a continuous display. Basic lengths are 12' and 8' - for instance, Models D4-8 and D4-12.

Since air conditioning normally holds a room at a predetermined temperature, less fluctuation in case temperature may be expected when installation is made in a air-conditioned store.

MERCHANDISE: As a precautionary measure after installation, the case or cases should be allowed to operate overnight or a comparable period of time without being loaded. This will give the serviceman an opportunity to recheck and adjust controls should he find it necessary and also provide assurance that the equipment will perform satisfactorily after loading.

LOCATION: The case must be located on a firmly based floor and carefully leveled, using blocks or shims if necessary. Extreme care must be used so that the case will not be located close to any source of extreme heat. Direct sunlight into the case MUST BE AVOIDED. Either of these conditions can adversely affect refrigeration efficiency.

#### IMPORTANT

Condensing units for installation on this model must not be placed where temperatures are lower than 65° F. This also applies to suction lines leading from case and/or cases to the condensing units unless special provisions are made for a time termination defrost. If condensing units and/or suction lines are installed where temperatures are lower than recommended above, it will adversely affect the defrosting cycle.

In areas where temperatures drop below freezing, under no circumstances should water-cooled condensing units be installed out-of-doors. If outdoor installation is necessary, use air-cooled units and install a pressure stabilizer on condenser to maintain proper head pressure.

DRAFTS: Room drafts passing in front of this case must be eliminated or operation will be seriously affected. Do not allow air conditioning grilles, electric fans, open doors, etc., to create air currents in front of this case.

JOINING: When two or more cases are to be joined in line, if the floor is not level where the cases are to be located, cases must be shimmed to level them. The speed with which cases can be joined is determined by the foresight given to make sure the cases are level for the entire line-up. In addition, to insure efficient operation for the refrigeration coils and to allow proper drainage, the cases must be level. (Joining instructions are included in joiner kit.)

September, 1976

CABINET CONSTRUCTION: Cabinet exterior shell is welded steel construction and hermetically sealed independently of the removable ends. The interior shell is a separated from exterior shell by foamed-in-place insulation and insulating spacers. Cabinet is welded to a heavy gauge steel base which provides toe space. When moving or installing the case, be careful not to break the seal between the seams in the cabinet. If they are broken, they should be caulked with a good commercial compound.

TOE SPACE COVER PANEL: The toe space cover panel is shipped inside of the case and should not be installed until all service connections have been made. To install the panel, position it below guard rail raceway and install screws furnished in the guard rail flange.

WASTE OUTLET AND CONNECTIONS: The waste outlet is located in the center of the cabinet and connects to a 1" nipple under the exterior bottom. Drip pipe connections should be installed as near to cabinet as it is possible. An open drip space should terminate the pipe. The case drip pipe should not be connected to sewer. Drip pan connections may be reversed to drain at the back instead of the front in which position it is shipped. CAUTION: DO NOT CONNECT A SECOND EXTERNAL WATER SEAL IN DRIP PIPE OR AIR LOCK WILL RESULT.

ELECTRICAL CONNECTIONS: Electrical connections are located in left hand end at guard rail. Access to connections is through removal of guard rail. The power supply must be 115 volt, 60 cycle, 1 phase A.C. and two circuits should be provided, one to operate the small fan motors on the coil and the other for lights. Constant power must be maintained on this line since the small fan motors on the coil are designed to run continuously. The lights are provided with the switch located at the center of top light rail. The switch controls all lights. The shelf lights are 36", preheat 30 watt tubes. Each shelf tube has an FS-4 starter located in the light assembly above the tube. Canopy lights are F40CW RS lamps. Replacements for both tube and starter can be purchased from your SHERER distributor or any electrical or hardware store. The fluorescent light ballast for the canopy is located on right hand end of exterior top. Wire raceway in guard rail may be used to run wiring from one case to joining case. See wiring diagram page D4-7A and 8A for defrost connection if optional electric defrost system has to be utilized.

CAUTION, In its condition as shipped and after proper installation, this equipment is not inherently dangerous. However, it is designed for connection to high voltage outlets and should, therefore, be installed only by a licensed electrician and in accordance with the instructions contained in this manual. A failure to follow these instructions might create an electrical condition (or other condition such as, exposed metal edges, etc) hazardous to life or health. In particular be sure to seal around all openings after connections are made."

REFRIGERATION LINES: (Refer to chart)

These cases, in both 8' and 12' lengths, are equipped with a service entrance sleeve, through which the refrigeration lines are to be installed. Connections will be made to lines provided in the base compartment of the cases. The entrance hole is located under the toe space at the right hand corner as you face the front of the case. The tubing can be easily installed through this opening and at completion of this, both ends of the sleeve should be packed with permagum or its equivalent. All lines must be located under case far enough to permit toe space cover to be installed.

HEAT EXCHANGER AND VALVE LOCATION: Remove the left hand sectional bottom shelf pan. Expansion valve and heat exchanger are installed at this location.

On multiple installations, refrigeration line sizes to second and/or third case may be reduced-but not smaller than lines leading from coil itself.

Refrigeration lines may be internally connected on multiple installations by passing through one case to the next after removing insulation in cut-out at end of case.

COIL FANS: Inspection of the fan motors can be made by removing bottom shelf pans. The fans operate continuously and are for 115 volt, 60 cycle, 1 phase A.C.

DISPLAY COMPARTMENT: The lower display compartment bottom is sectional. Removing the left hand section will expose the valve and refrigeration connections.

ENDS: A single case will require a pair of insulated ends. Ends are shipped installed.

FINISH: The entire cabinet is finished with high quality baked enamel and trimmed with stainless steel.

CLEANING: Your cases should be cleaned at least once each week. For cleaning enameled parts, any good commercial glass cleaner may be used.

#### CAUTION

Do not use any cleaner containing abrasive ingredients which may scratch the finish.

HONEYCOMB: The honeycomb material located in the discharge air is fragile and care must be exercised to avoid damaging it. The honeycombs should be inspected and cleaned as needed after each six(6) months of service.

CONTROLS: A temperature control is required to control the temperature of this cabinet. The control is located below the left hand front grille and may be reached for adjustment by a long blade electrician type screw driver initial setting should be approximately 22°F. After the case has operated in a loaded condition and cabinet is not cycling the temperature should be turned up until unit cycles. Continuous operation of coil without cycling will ice the coil and require more defrost periods and usually will mean higher temperatures in the case.

The control bulb is accessible thru a 4" plug bottom on the lower left rear panel if it should be necessary to replace controller.

3-014-02-2804 Temperature Control Penn #A19AAA-1

CASHES	750 55% SCORE	CONDENSING UNIT SIZING 0-75'			CONDENSING UNIT SIZING 75-150'			CONDENSING UNIT SIZING R-502 0-75'			75-150'			Fans - Lights		
		SAH		SWH	SAH		SWH	SAH		SWH	L		S			
		90	95		90	95		90	95		L	S				
8	12	FT	BTU	REQ.	L	S	L	S	L	S	L	S	L	S		
1	0	8	9900	200	3/8	7/8	3/8	1-1/8	210	210	3/8	7/8	1/2	1-1/8	1.6	1.2
0	1	12	14050	300	1/2	1-1/8	1/2	1-1/8	310	310	1/2	1-1/8	1/2	1-1/8	2.4	1.6
2	0	16	19800	500	1/2	1-1/8	1/2	1-3/8	310	310	1/2	1-1/8	5/8	1-1/8	3.2	2.4
1	1	20	24750	500	1/2	1-3/8	5/8	1-3/8	410	410	1/2	1-1/8	5/8	1-3/8	4.0	2.8
0	2	24	29700	500	1/2	1-3/8	5/8	1-3/8	510	510	5/8	1-3/8	5/8	1-3/8	4.8	3.2
2	1	28	34650	750	5/8	1-3/8	5/8	1-5/8	560	560	5/8	1-3/8	5/8	1-3/8	5.6	4.0
1	2	32	39600	750	5/8	1-3/8	5/8	1-5/8	560	760	5/8	1-3/8	5/8	1-5/8	6.4	4.4
0	3	36	44550	780	5/8	1-5/8	5/8	1-5/8	760	760	5/8	1-3/8	5/8	1-5/8	7.2	4.8
2	2	40	49500	780	5/8	1-5/8	7/8	1-5/8	790	790	5/8	1-5/8	7/8	1-5/8	8.0	5.6
1	3	44	54450	1000	5/8	1-5/8	7/8	2-1/8	790	1010	7/8	1-5/8	7/8	1-5/8	8.8	6.0
0	4	48	59400	1000	5/8	1-5/8	7/8	2-1/8	1010	1010	7/8	1-5/8	7/8	1-5/8	9.6	6.4
2	3	52	64350	1500	7/8	1-5/8	7/8	2-1/8	1010	1010	7/8	1-5/8	7/8	2-1/8	10.4	7.2
1	4	56	69300	1500	7/8	2-1/8	7/8	2-1/8	1010	1510	7/8	1-5/8	7/8	2-1/8	11.2	7.6
0	5	60	74250	1500	7/8	2-1/8	7/8	2-1/8	1510	1510	7/8	1-5/8	7/8	2-1/8	12.0	8.0

\* Add .7 Amps Per Lighted Shelf.

NOTES:

- Cond. Unit Recommendations Based on 75° F & 55% RH store ambient.
- SAH (Air Cooled) unit selection is based on air temp entering condenser, as shown. SWH (Water Cooled) unit selection based on 2 GPM Ton-75° F water entering.
- Cond. Unit Suffix is:  
RC-Med Temp R-502  
FC-Med Temp R-12
- Caution: These Recommendations based on best information available and on conditions as listed. For applications not listed, consult Engineering Department.
- Line lengths shown are equivalent length. To determine equivalent length, measure actual lineal length from compressor to furthest case and add four feet for each elbow or other fitting.
- Riser and P-Traps should be reduced one size from that shown.
- Lights: Amps shown are for standard fixtures. For each lighted shelf, add 0.7 AMP.
- Three phase AMPS is maximum for one leg.
- Waste outlet is standard one inch M.P.I.

CONNECTIONS: SUCTION LINE 7/8 OC, LIQUID LINE 3/8 OD

CONDENSING UNIT RECOMMENDATIONS, REFRIGERANT LINE SIZING, ELECTRICAL DATA FOR: MODEL D-4.  
75°-55% STORE. SUCTION TEMPERATURE +10°.

WARREN/SHERER

JULY, 1976

**BTU REQUIREMENTS, RECOMMENDED UNITS AND  
LINE SIZES FOR D4 CASES**

See page D4-4 for details

Recommended sizes are for DELI MEAT Products at + 10° F suction. These sizes should also be used on Dairy Products in marginal or non air conditioned stores.

For Air Conditioned Stores (75° F 55% RH) compressors using BTU ratings shown at + 15° F suction may be used.

Condensing unit sizing is based on use of Warren-Sherer models. Use of other manufacturers condensing units should be checked for BTU capacities under similar conditions.

**RECOMMENDED VALVE AND \* APPROXIMATE CONTROL SETTING (SEE PAGE # 3)**

	EXPANSION VALVES		*PRESSURE CONTROL SETTINGS	
PRODUCT	12' Case	8' Case	Cut-In	Cut-Out
DAIRY	GFE-1-1/2C	CFE-1C	25 lbs.	5 lbs.
	PT#3-009-01-1507	PT#3-009-01-0806		

When two or more cases are joined for continuous display in one line-up, the same expansion valves and approximate control setting recommendations apply.

**DEFROSTING:** For the dairy products application, defrosting is accomplished by a defrost timer. Timer recommended and supplied when ordered as an accessory is a Paragon 8245. The timer operates on a combination principle, cutting the circuit to the motor at the time for which it is set and since it is connected by a 1/4" tube to the suction line at the compressor, it does not cut back in until the refrigerant reaches a defrosting temperature. The cut-in point should be set at 44#(Cut-in for F-12 refrigerant), with a 30 min. fail safe. If time-time defrost clock is used a 30 min. time period should be used to assure an adequate defrost time.

**DEFROST PERIOD:** Six defrost periods each 30 minutes long may be required during High Ambient Humidity operation (55% to 60% RH). Four defrost per day can be used at lower humidity conditions (35 to 55% RH)

INSTALLING AND OPERATING DEFROST TIMERS: Place start pins in outer (24 hour) dial at the time of day that defrost is desired. Push down and rotate pointer on inside (2 hour) dial until it is opposite desired time for fail safe cycle.

Grasp knob in the center of inner (2 hour) dial and rotate it in a counter-clockwise direction. Line up the correct time of day on the outer dial with the time pointer.

CAUTION: INSTALL AND OPERATE TIMER IN A VERTICAL POSITION ONLY.

#### REPLACEMENT PARTS

Refrigeration Tx valves are shown on page D4-5.  
Electrical part numbers are given on wiring diagrams page D4-7 for 8 Ft. case  
D4-8 for 12 Ft. cases.

#### SHELVING

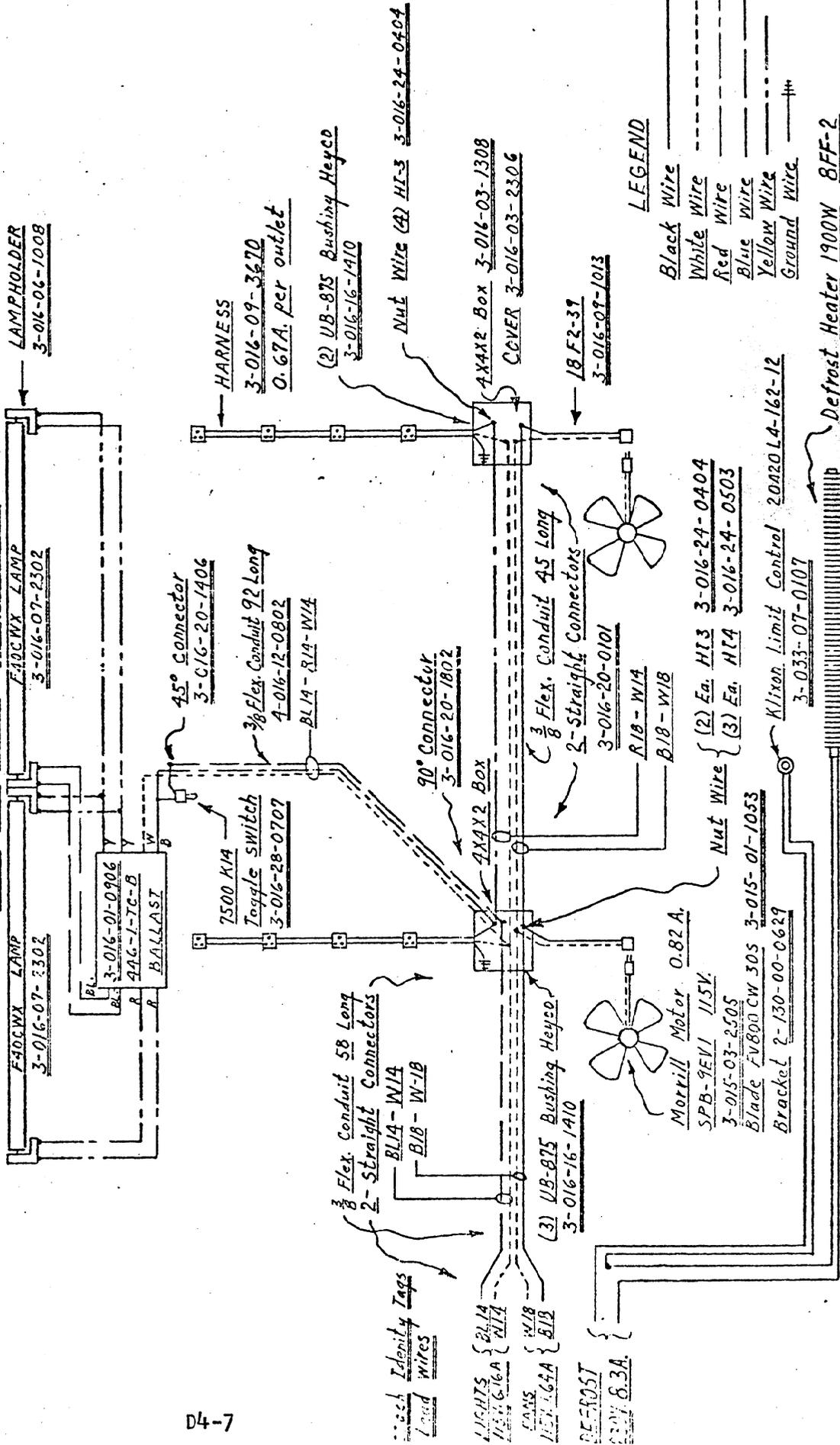
20" wide shelves are recommended for best operation of this case. See page D4-9. Hang on spot displays, tags or other items which extend in front of these shelves intercept the air curtain and cause inefficient operation of the case. Display should be kept to the front edge of the shelf. Shelf spacers are recommended at the back of the shelves if the case is to be only partially loaded.

Shelving comes with brackets separate to install place the brackets in the slots at the desired heights. Place shelf over brackets. Make sure outside flanges drop down over the bracket for their full length. If shelf is equipped with a light it must be plugged into the special receptacle located on the rear wall.

#### HOOK-A-PAC SYSTEM

See page D4-9. Warren Sherer Hook-A-Pac systems are designed to give proper and efficient operation of this case. If other systems are used please observe the following. A 20" shelf should be used in the low position. Product on hooks should not extend into air curtain or 20" from rear wall. Open spaces at rear of Hook system should be closed with partial shelves or covers.

**LIGHT RAIL CANOPY 2-236-00-0234**



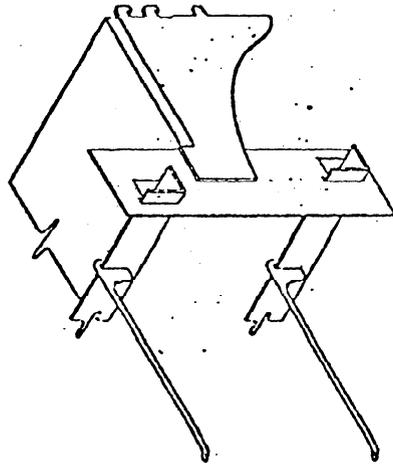
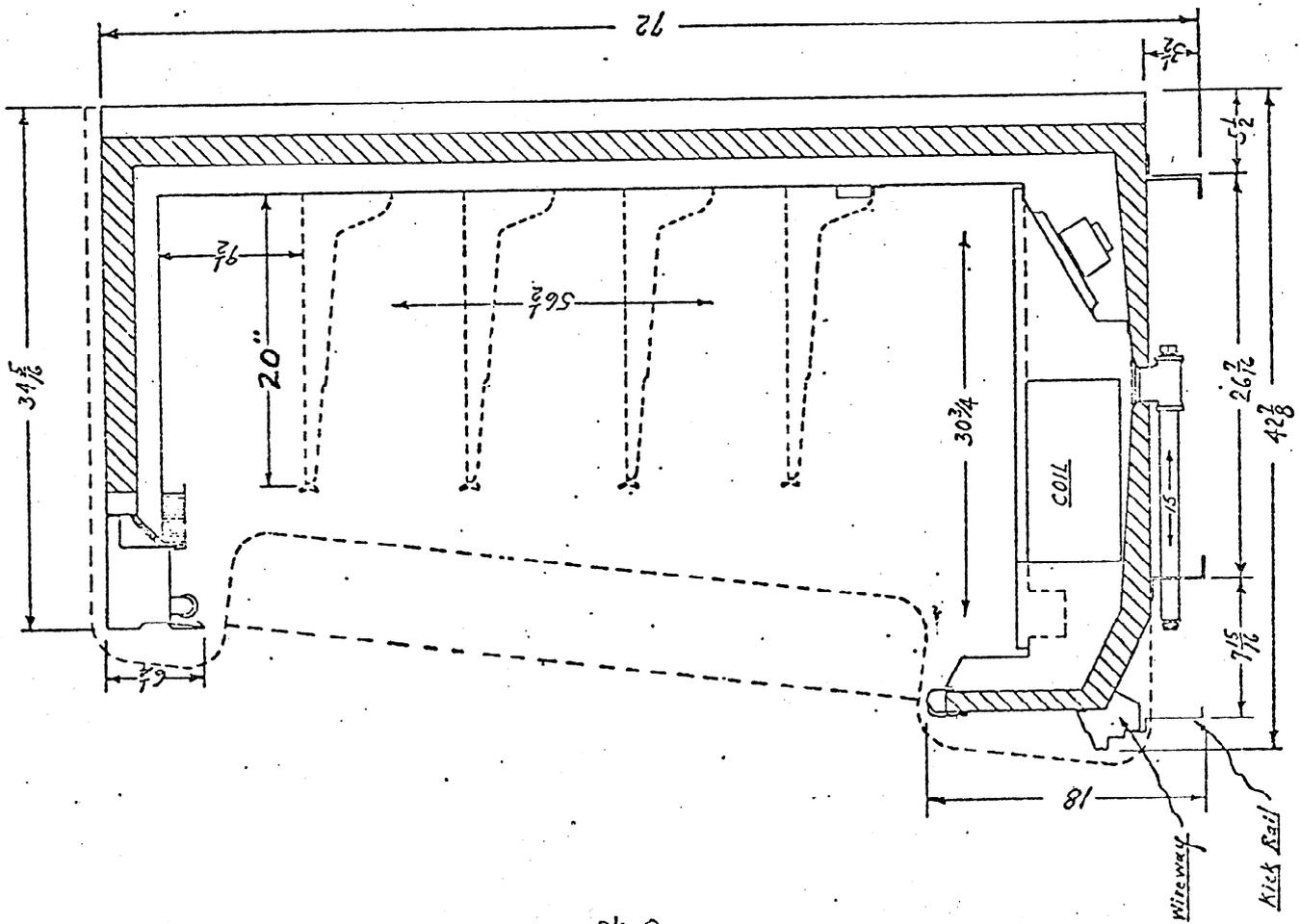
**LEGEND**  
 Black Wire  
 White Wire  
 Red Wire  
 Blue Wire  
 Yellow Wire  
 Ground Wire

**NOTE: ELECTRIC DEFROST IS A SPECIAL ACCESSORY**

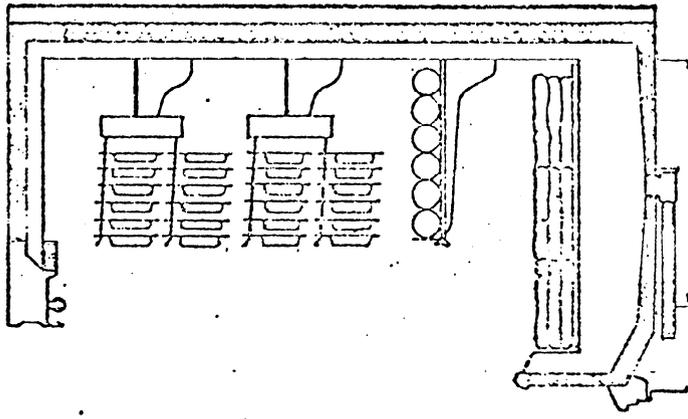
FINISH-	WIEDEMATIC	FOAM	COOLER	CABINET	ELECT.	REFRIG.	CEL. REFRIG.	TRIM	CEL. TRIM	MILL	STOCK ROOM	SHIPP ORDER
REV'S.	76059											
PART NAME												
WIRING DIAGRAM												
DRAWING NO. 0-368-00-0501												
DATE 6-29-76												

**D-4-8 CASE**



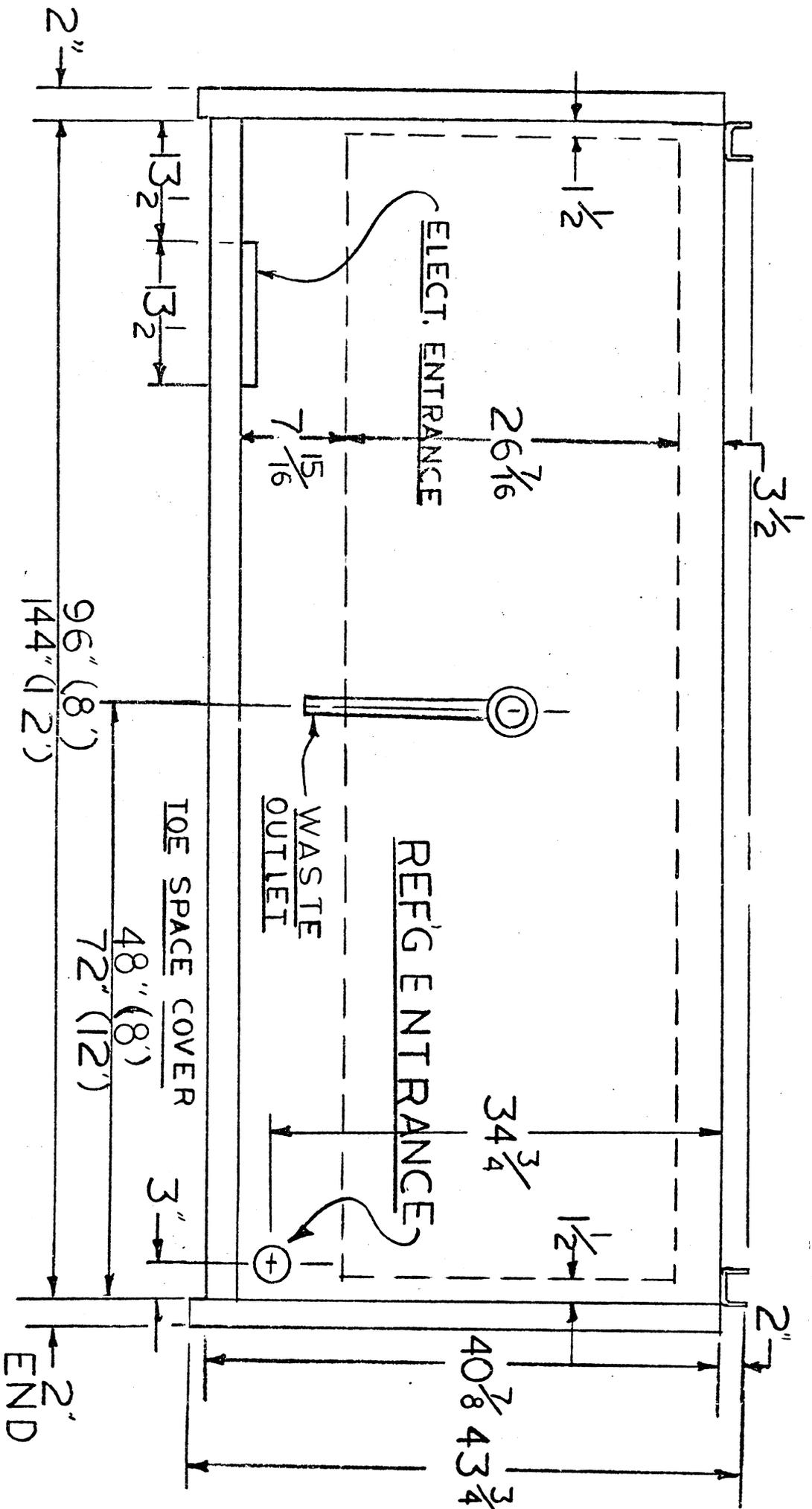


DETAIL OF "HOOK-A-PAC"  
48" LONG W/2 RAILS &  
8 HOOKS PER 4' SECTION.



D-4 MERCHANDISER W/RECOMMENDED  
"HOOK-A-PAC" & SHELF ARRANGEMENT.  
(WHEN USING "HOOK-A-PAC" -  
BOTTOM SHELF IS MANDATORY)

D-4 MERCHANDISER WITH RECOMMENDED  
SHELF ARRANGEMENT



PLAN VIEW - D-4

HEALTH AND SANITATION STANDARD FOR RETAIL  
FOOD STORE REFRIGERATION

NORMAL TEMPERATURE

This model was designed and built in compliance with CRMA Health and Sanitation Standard CRS-S1-67.

Since sanitation must necessarily be a joint effort of manufacturer, installer and user, recommendations and instructions for both installer and user are listed below. Beyond furnishing practical recommendations, manufacturer cannot be responsible for unsanitary installation or usage.

INSTALLER'S RESPONSIBILITIES (See section VII of standard)

Display cases must be carefully leveled to insure that drains in case can function properly. Shims and other leveling means used must provide a firm support for the case to insure that case will remain level for its useful life.

Manufacturer furnishes a line type water seal that must be connected to the waste fitting on each cabinet. The water seal must be located within 3 feet of the cabinet and discharge must not be directly connected to sewer line but rather discharge into drain sump. Caution: Do not reduce waste line size smaller than what is provided at case. Waste sump is case aluminum.

Cases must be installed a minimum distance of 3 inches from wall so as to permit adequate ventilation. If cases are installed back to back, a forced ventilating system must be incorporated. A suitable kit can be purchased from manufacturer.

Installing ends and/or joining cases must be according to instructions furnished by manufacturer. Special case must be exercised to insure that joints are sealed properly, especially in lower areas of joint.

Toe space cover panel is adjustable and should be installed to make a sanitary joint with floor. If floor is irregular or an unusual amount of shimming was necessary to level cases so that range of adjustment on panel furnished is exceeded, installer must provide and install additional materials as required or advise owner of condition so he can arrange to have corrections made.

The open space between wall and end of case must be neatly closed with hardboard or other material acceptable to owner so as to prevent the accumulation of debris back of case.

Space between wall and top of case must be covered with a suitable screen or grille to guard from debris finding its way into this space.

Since proper temperatures are most important for sanitation, installer must make sure cases are performing properly before he permits owner to load cases with product. Maximum temperature of air supply to display case must be 35° F. or lower except during defrost cycle.

OWNER RESPONSIBILITIES (See Sections VIII and IX)

General: To insure minimum maintenance cost of operating your cabinet and to meet all local sanitary codes, this cabinet should be thoroughly emptied and washed out every three (3) months. CAUTION: Do not use high pressure hose when cleaning any case. Check the waste outlet to insure it is not clogged before starting to clean and do not introduce water into case faster than the waste line can carry it away.

Painted Surface: A mild soap and water solution is recommended for enameled surface. Do not use cleaners containing abrasive ingredients which will scratch or dull finish.

Waste Line: Right hand end or center of cabinet below interior bottom (Bottom is sectional). Refer to floor plan in case manual for exact location of drain.

Cleaning of Return Air: Remove all tags and other foreign materials from return air grille and in front of refrigeration coils.

## INSTRUCTIONS FOR JOINING MODEL D4

Any number of cases can be joined to make a continuous appearing line-up. A common end is required if the D4 is joined to another model or different temperature case. The basic kit of parts necessary to join two cases are:

<u>PART NO.</u>	<u>DESCRIPTION</u>
2-355-00-0791	1 ea. trim, front panel joint
2-355-00-0775	1 ea. clip, raceway bumper joint
2-355-00-0767	1 ea. trim, canopy conn.
3-027-03-0901	5 ea. bolt, machine HHZPT 3/8-16 x 3
3-027-03-1305	1 ea. bolt, machine HH PT 3/8-16 x 5
3-026-04-0802	10 ea. washer, flat 1 3/8 OD x 13/32 ID x 1/8 ZPT
3-026-04-0505	2 ea. washer, flat 3/8 PL
3-026-01-0607	6 ea. nut, hex 3/8-16 ZPT
4-017-05-0107	1 tube Caulking Compound
3-028-09-0409	8 ea. screw, truss head 3/4 x 6 SS
3-028-06-0105	2 ea. screw, binderhead 1/2 x 10-24 SS

1. It is recommended that entire line of cases be removed from crate skids and set in approximate final location. Remove end shipping supports. CAUTION: Avoid dropping nuts and washers into case as they will plug drain.
2. Check floor conditions noting the high and low spots; how much shimming will be necessary and how service outlets are located. Decide which case will be positioned first and move others out of the way.
3. Move one case into final position and level carefully. Follow illustrated leveling instructions packed with metal shims furnished. Move the joining case into position and level and adjust to obtain good alignment.
4. Pry off the round plastic plug buttons at each end of joining cases.
5. Install the 3/8- 16 x 5" hex. bolt, washers and nut in the alignment pull-up lugs at the front of base and tighten to draw cases tight. As bolt is being tightened use pry bar to assist bolt in getting cases tight and to keep fronts in straight line.
6. Install the 3/8- 16 x 3" hex. bolts, washers and nuts in the holes accessible from display area at front, back, and top. Use standard 3/8" washer on bolt for canopy joining holes.
7. Check alignment and adjust if necessary. Tighten all joining bolts firmly. Inspect the joint between cases on exterior. Use caulking beads furnished to seal any open joints.

8. The bumper rail trim part should be positioned first. Fasten with  $\frac{1}{2}$  x 10 - 24 binderhead screw.
9. Lower front trim may be positioned next. Adjust trim for best fit and install #6 x  $\frac{3}{4}$  truss head screw.
10. Next, install canopy trim which is shaped to fit the canopy and the recessed area in canopy. Position trim and install with #6 x  $\frac{3}{4}$  truss head screws.