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# INSTALLATION & OPERATION MANUAL

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MODEL:

BQD

JQD

JRQD

BRZD

JQXD

JRQXD

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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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INSTALLATION AND OPERATING INSTRUCTIONS

"PRIME MOVER" ROLL-IN MERCHANDISERS (BQD, BRQD)

AND

"DUAL JET" DAIRY-DELI MERCHANDISERS (JQD, JQXD, JRQD, JRQXD)

GENERAL DESIGN OUTLINE

PRIME MOVER (BQD-BRQD) Roll-In Merchandisers are the newest innovation in the food-merchandising industry. Primarily designed for the automatic, labor-saving handling of milk from the dairy to the case, the PRIME MOVER can be equipped with accessory shelves to handle any item of your choice, or with an accessory egg merchandiser kit.

The 8' and 12' models (JQD-JQXD-JRQD-JRQXD) do not have roll-in capability but do have the same dual air jets for superior product protection.

All models may be used in continuous line-up or individually.

<u>MODEL</u>	<u>DESCRIPTION</u>	<u>SERIAL NUMBER DESIGNATION</u>
BQD-2	Front Loading, 2-Bay, Milk Merchandiser ...	578
BQD-3	Front Loading, 3-Bay, Milk Merchandiser ...	578
BRQD-2	Rear Loading, Cooler only, 2-Bay, Sliding Curtain .....	579
BRQD-3	Rear Loading, Cooler only, 3-Bay, Sliding Curtain .....	579
JQD-8	Front Loading, 8 Foot, Deli & Dairy Merchandiser (15" Front) .....	580
JQD-12	Front Loading, 12 Foot, Deli & Dairy Merchandiser (15" Front) .....	580
JQXD-8	Front Loading, 8 Foot, Deli & Dairy Merchandiser (23" Front) .....	581
JQXD-12	Front Loading, 12 Foot, Deli & Dairy Merchandiser (23" Front) .....	581
JRQD-8	Rear Loading, Cooler only, 8 Foot, Deli & Dairy Merchandiser, Sliding Curtain, (15" Front) .....	595
JRQD-12	Rear Loading, Cooler only, 12 Foot, Deli & Dairy Merchandiser, Sliding Curtain, (15" Front) .....	595
JRQXD-8	Rear Loading, Cooler only, 8 Foot, Deli & Dairy Merchandiser, Sliding Curtain, (23" Front) .....	596
JRQXD-12	Rear Loading, Cooler only, 12 Foot, Deli & Dairy Merchandiser, Sliding Curtain, (23" Front) .....	596

### LEVELING - BQD, BRQD

To insure proper drainage and operation of the unit, it must be perfectly level and stationary. The metal angles used to hold the skid rails on during shipping are also used to locate the case to the floor.

The proper method to secure case to the floor is: remove skid rails, fasten case through metal angle to floor. Remove spacer rails in between partitions. These spacer rails are to insure that 40" is held between each partition until case has been secured to floor.

To shim up, use the holes in the metal angles as centers and drill into the floor. Use the fasteners provided, but don't completely fasten the case to the floor. Shim up under the legs and backs as needed. When the case is level, tighten the locator bolts and the case will remain level and stationary.

### LEVELING - ALL MODELS

Proper leveling when multiplexing can be accomplished by finding the highest point on the floor along the lineup location by using a level and chalk line. Place the proper case at this point and use shims as needed to line the other cases to this level.

### STORE DRAFTS

Room air currents or drafts will seriously affect the operation. Make sure that fans, space heaters, or air-conditioning grilles do not produce currents sufficient to move air into the case.

### ELECTRICAL

#### ELECTRICAL CONNECTIONS

Make sure proper voltage is supplied to the unit. Check the data plate for fans, anti-sweats, light and defrost (if supplied) voltage before connecting power. ALL UNITS MUST BE GROUNDED.

The total amperages of the 115-volt circuits must be added together, and the proper wire and fuse must be used to properly handle the load.

When multiplexing, add the total amperages together and size the contactor to handle the combined load.

The following chart gives the electrical characteristics of the various units. This is the same information that appears on the data plate.

CHART 1

<u>MODEL</u>	<u>EVAP. FAN AMPS 115VAC</u>	<u>ANTI-SWEAT AMPS 115VAC</u>	<u>STANDARD LIGHTS 115VAC</u>	<u>DEFROST HEATER (WHERE USED) AMPS 230VAC*</u>
BQD-2	3.0	.51	1.6	6.4
BQD-3	4.0	.69	1.6	8.5
BRQD-2	4.8	.51	1.6	6.4
BRQD-3	6.7	.69	1.6	8.5
JQD, JQXD-8	3.0	.41	1.6	7.4
JQD, JQXD-12	4.0	.56	1.6	10.2
JRQD, JRQXD-8	4.8	.41	1.6	7.4
JRQD, JRQXD-12	6.7	.56	1.6	10.2

\*For 208 volts, multiply 230-volt rating by .9.

NOTE: If extra lighted shelves are employed, add .7 amperes for each lighted shelf.

FAN MOTORS

The fan motors used are permanently oiled for the life of the motor and require no periodic maintenance. They are wired according to the enclosed diagram and must run continuously. The fan blade will turn clockwise when looking into the top of the refrigerator. The fan blade must have its ribs facing the motor for proper operation.

ANTI-SWEAT HEATERS

Anti-sweat heaters are used in the honeycomb divider to prevent condensate from forming under normal use.

Should replacement of the heater ever be necessary, refer to Figure 9.

DEFROST HEATERS

All models can be supplied with an accessory 208/230-volt heater that attaches to the evaporator coil. This heater was designed to insure fast defrosting of the coil. If this accessory is used, connect the two orange wires from the junction box to the defrost timer or relay in the compressor room. The rear load models should be equipped with electric defrost if rapid defrosting is required.

ELECTRICAL CONNECTION - BQD, BRQD

Standard for these models is a junction box located in the top left corner at the rear of the case under the service access cover. Optional, when specified, is a junction box at the left, bottom back for bottom connection where carts will not be used.

All models can be run case-to-case in conduit in the fan plenum area where ferrules are provided in the false ends.

ELECTRICAL CONNECTION - JQD, JQXD, JRQD, JRQXD

The "J" models, because they are not designed for cart use, have a bottom raceway and junction box at the bottom front. No conduit is required for case-to-case connection.

REFRIGERATION CONNECTION

All models can be supplied for top or bottom connection as specified. In all cases, the liquid line is 1/2" o.d. and suction is 7/8" o.d. copper.

The BQD can be interconnected case-to-case at the top through the ferrule (see Fig. 6) or at the bottom back through the drain ferrule (see fig. 2). The BRQD also can be connected in this manner when used with shelves.

JQ(X)D, JRQ(X)D models can be interconnected through the top ferrule (fig. 6) or as shown in figure 7.

DRAIN CONNECTIONS

BRQD, JRQD, JRQXD

These are 1" PVC pipe stubbed out the back top and must be run horizontally with maximum pitch and yet still clear the curtains and carts.

BQD

This is 1" PVC pipe that is stubbed out behind and below the inside back panel. If desired, this can be stubbed out the back as in the BRQD.

JQD, JQXD

These models have a 1" MPT PVC plastic drain fitting at the center bottom front. There are actually separate drain pans preconnected with PVC pipe by the factory for one field-connected outlet.

OPERATION

To obtain proper temperatures with concise control, a thermostat should be used, although it is not mandatory. When the condensing units are subjected to low ambient during the winter months, a thermostat may be necessary. The thermostat bulb should be located in the discharge air.

Chart 2 shows approximate settings for these models. Since many variables are present in each installation, such as, store temperatures, humidity conditions, length of tubing runs, etc., the chart is only a guide for the installer.

CHART 2

	<u>REFRIG.</u>	<u>LOW PRESSURE CUT-OUT</u>	<u>CUT-IN</u>	<u>THERMOSTAT</u>		<u>HIGH PRESSURE CUT-OUT MAXIMUM</u>
				<u>CUT-OUT</u>	<u>CUT-IN</u>	
+15 Rating (Deli)	R-12	14PSI	28PSI	27°F	37°F	200PSI
	R-502	40PSI	63PSI	27°F	37°F	360PSI
+20 Rating (Dairy)	R-12	20PSI	32PSI	30°F	40°F	200PSI
	R-502	50PSI	70PSI	30°F	40°F	360PSI

REFRIGERANT

The unit is available with either R-12 or R-502 expansion valves. The customer order must specify the refrigerant so proper expansion valve can be supplied.

HEAT EXCHANGER

The heat exchanger is sized to give maximum efficiency to the refrigeration system. The heat exchanger uses the heat of the incoming liquid refrigerant to raise the temperature of the suction gas to prevent flood back, and uses the temperature of the suction gas to subcool the incoming liquid to prevent flash gas.

DEFROST

Like all commercial temp multideck fixtures, off-cycle defrost can be used although electric defrost is preferable for rapid defrost with minimum product temperature increase during defrost.

Defrost settings should be as follows:

	<u>Frequency</u>	<u>Length</u>
Off Cycle - JRQD, BRQD	4-6/day	45 min.
Off Cycle (all others)	4-6/day	30 min.
Electric (all)	4-6/day	20 min.

Defrost frequency requirements will vary with store air conditioning quality. A store with humidity control will only need 4/day.

If desired, a pressure terminated electric defrost can be used. If so, it should be set for 46# (R-12) and 90# (R-502).

EXPANSION VALVE

The expansion valve has been carefully sized and set for the unit to give maximum coil efficiency. The valve bulb has been strategically located and MUST NOT BE MOVED. Due to local conditions, adjustment of the expansion valve may be necessary after a minimum of 6 hours operation. Do not adjust the expansion valve at this point until you have checked the inlet strainer. If adjustment is necessary, adjust the valve to give frost line to ferrule hole where the suction line exits the case.

### REMOVAL AND CLEANING OF HONEYCOMB

Variable conditions in stores cause the cells in the honeycomb to be clogged with dust after a period of use. To insure proper operation of the fixture, it is necessary to remove the honeycomb at least once a year and thoroughly clean with warm detergent water and then rinse and blow all water from the cells. Do not replace the honeycomb until completely dry. Extreme care must be exercised in handling the honeycomb as it is very fragile and expensive to replace. See Fig. 9 for removal instructions.

### REAR LOADING MODELS BRQD, JROD, JROXD

The rear loading models are designed for use in a cooler only. The components and operation of the case is exactly the same as the front loading model, with the following exceptions.

Sliding curtains are used for rear access and are designed for heavy traffic stores and for applications where cooler space is restricted. The curtain is fiberglass reinforced vinyl and can be cleaned with soap or detergent and water.

The curtain must be fully closed during operation.

This model also incorporates a front fan in each bay underneath the air grille to assist in circulating the refrigerated air back through the coil.

### ACCESSORY SHELF KIT - BQD, BRQD

An accessory shelf kit (see Accessory List) can be purchased as an option. Optional lighted shelves are also offered. If these lighted shelves are not ordered, the receptacle provided in the perforated back panel can be wired as shown in Fig. 6 for field kit installation. Use the following procedure for in-store installation.

#### Instructions

- 1) After removal of cart, remove guidance system.
- 2) Install the standards and back panel using the fasteners provided, as shown in Fig. 3.
- 3) Install the shelves, using the spacing shown in Fig. 7 for maximum merchandising.

### EGG KIT

The optional egg kit (see Accessory List) can be used to merchandise wire egg crates. Use the following procedure for installation of the egg kit.

EGG KIT (Cont'd)

Instructions

- 1) Follow the above instructions for installation of standards and back panels. See Fig. 3.
- 2) For maximum merchandising, install the egg pans and frames as shown in Fig. 8.

ACCESSORY SHELVING

	<u>BQD</u>	<u>BRQD</u>
Shelf Kit L.H. or Center Bay -----	96F16-296	96F16-290
Shelf Kit R.H. Bay -----	96F16-297	96F16-290
Lighted Shelves: 16" -----	96F17-325	96F17-325
18" -----	96F17-326	96F17-326
20" -----	96F17-327	96F17-327

ACCESSORY EGG KITS

	<u>PAINTED</u>	<u>STAINLESS STEEL</u>
BQD Egg Kit, L.H. or Center Bay -----	96F16-303	96F16-309
BQD Egg Kit, R.H. Bay -----	96F16-304	96F16-310
JQD Egg Kit, 4' Center Bay -----	96F16-305	96F16-311
JQD Egg Kit, 4' L.H. or R.H. Bay -----	96F16-306	96F16-312
JQD Egg Kit, 8' Case -----	96F16-307	96F16-313
JQD Egg Kit, 12' Case -----	96F16-308	96F16-314



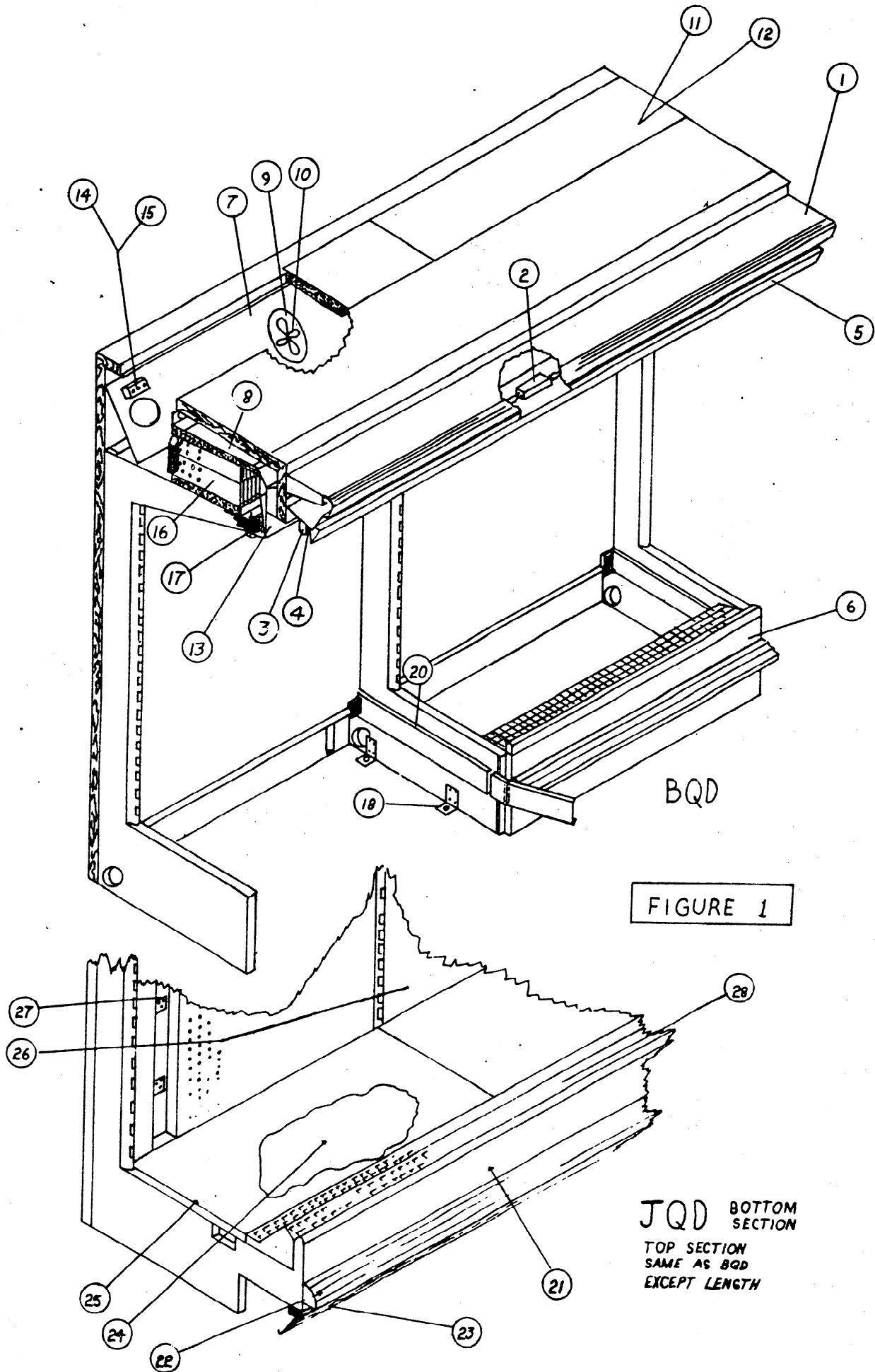
JQD, JQXD  
JRQD, JRQXD

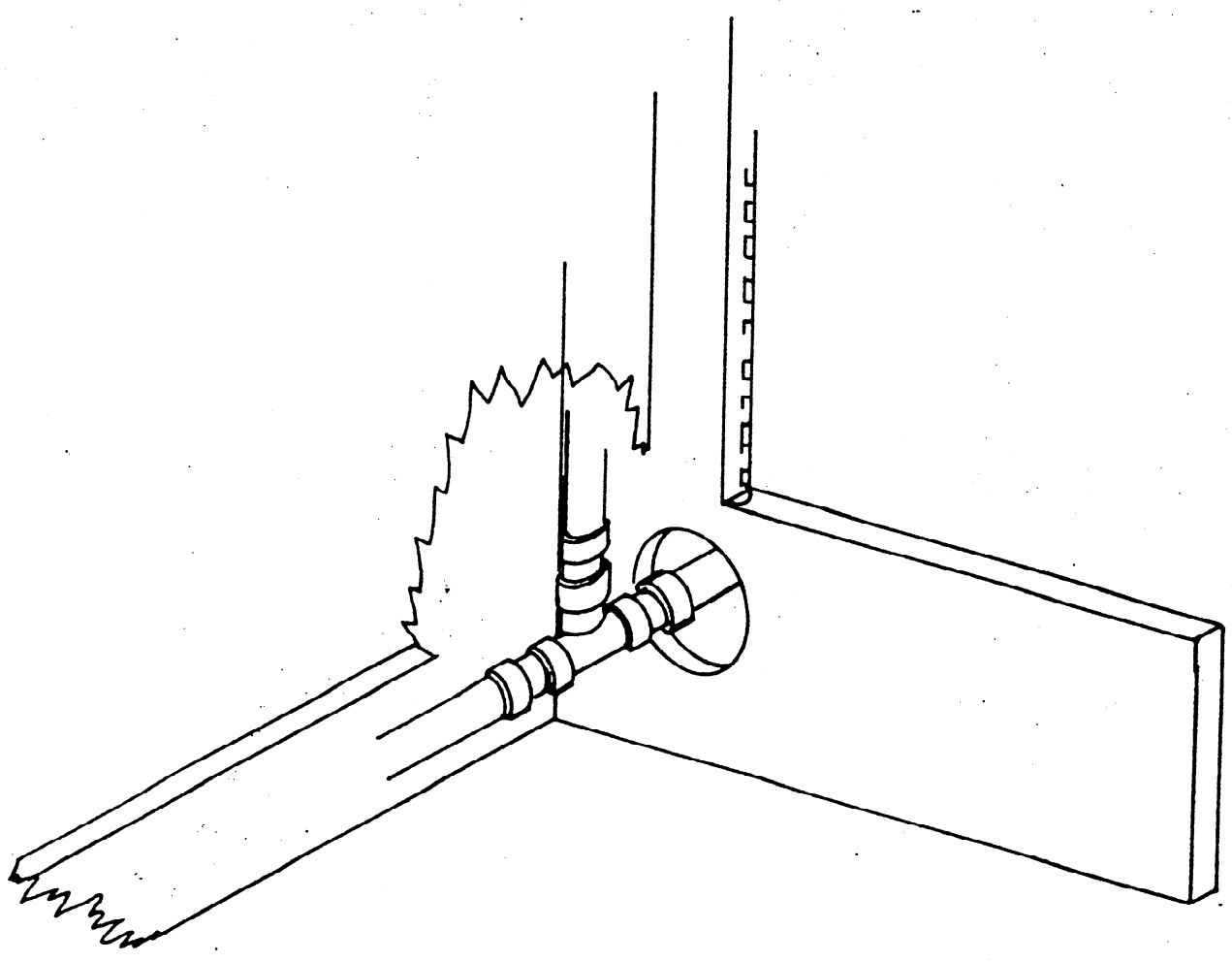
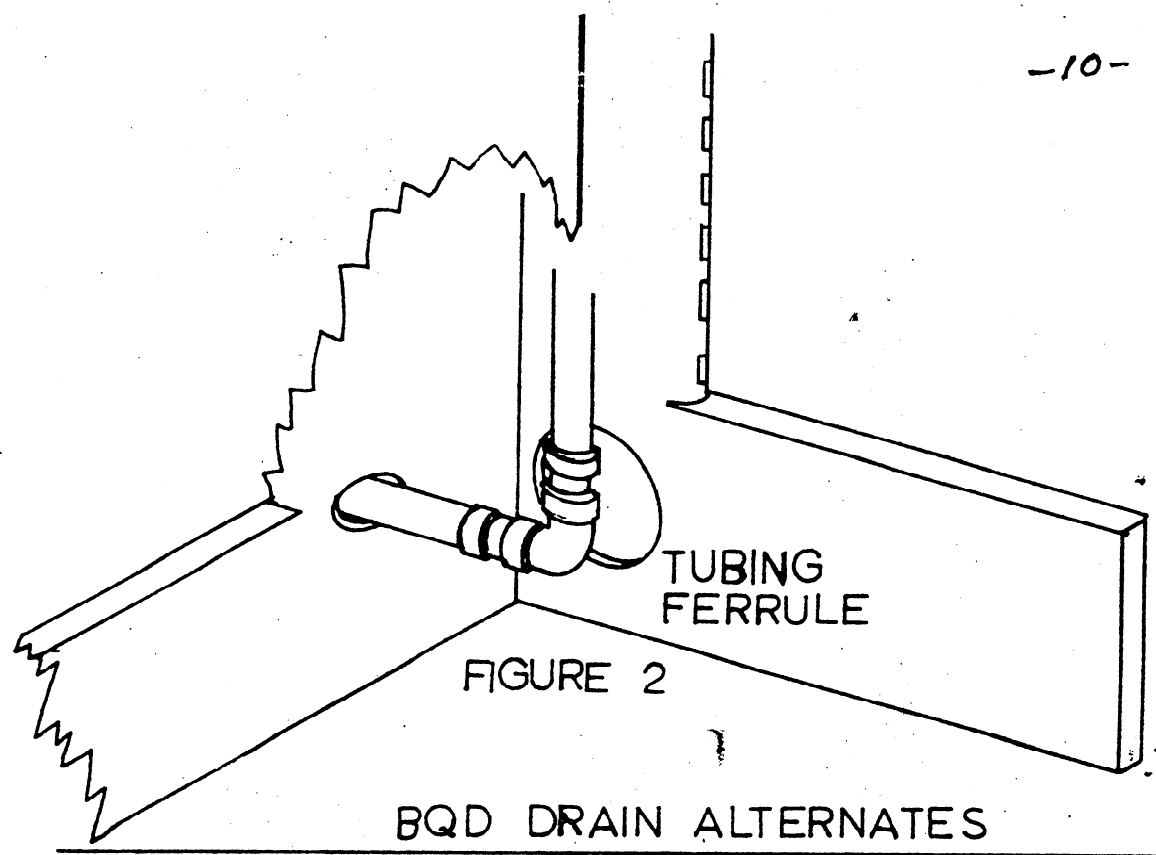
BQD, BRQD

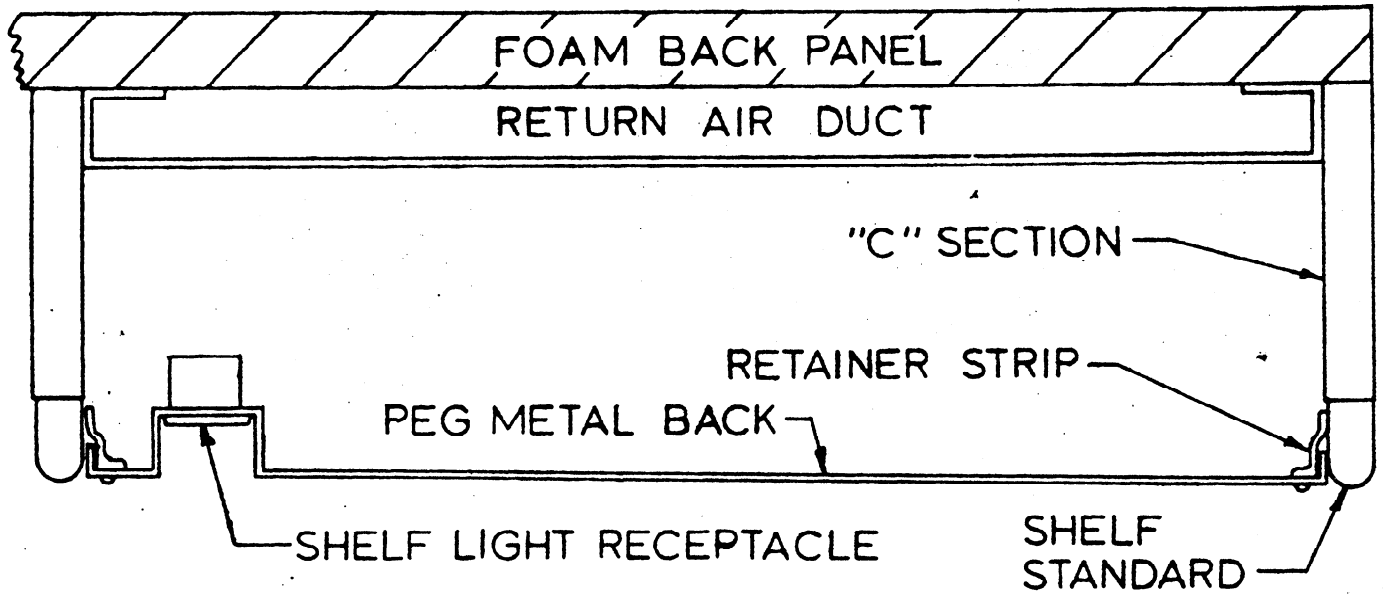
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(Fig. 1)

DESCRIPTION

	2-BAY	3-BAY	8'	12'
Light Hood	54T12-72	54T12-73	54T12-70	54T12-71
Ballast	10D10-27	10D10-27	10D10-27	10D10-27
Canopy Light	10A10-42	10A10-41	10A10-51	10A10-52
Light Switch	10J10-12	10J10-12	10J10-12	10J10-12
Canopy Front	51C12-37	51C14-34	51C12-40	51C14-37
Front Panel Assy.	54A12-51	54A12-51	-----	-----
Fan Wiring Harness	10M10-81	10M10-82	10M10-81	10M10-82
42" Lead Harness	10M10-14	10M10-14	10M10-14	10M10-14
Fan Motor (16W)	9A10-32	9A10-32	9A10-32	9A10-32
Fan Blade (OU-1020-5)	9B10-23	9B10-23	9B10-23	9B10-23
Expansion Valve (R-12)	3A11-23	3A12-21	3A11-23	3A12-21
Expansion Valve (R-502)	3A11-25	3A12-22	3A11-25	3A12-22
Heater Extrusion Assy.	81C10-69	81C11-69	81C10-70	81C11-70
Junction Box	10E11-23	10E11-23	10E11-23	10E11-23
Handy Box Cover	10E12-11	10E12-11	10E12-11	10E12-11
Evaporator Coil	86C10-32	86D10-19	86D10-23	86D10-24
Honeycomb	16A16-17	16A16-18	16A16-11	16A16-11
Lag Bolt Support Angle	54V11-109	54V11-109	-----	-----
Guidance System BQD	54Y10-18	54Y10-18	-----	-----
Front Panel	-----	-----	51A12-61	51A14-50
Bumper Rail	-----	-----	15J11-13	15J11-15
Kickplate	-----	-----	51A12-62	51A14-51
Floor Pan L.H.	-----	-----	54S13-33*	54S13-33*
Floor Pan R.H. & Center	-----	-----	54S13-34*	54S13-34*
Deck Pan	-----	-----	54N18-109	54N18-109
Back Panel R.H.	-----	-----	54H28-83*	54H28-83*
Back Panel L.H. & Center	-----	-----	54H28-84*	54H28-84*
Shelf Light Receptacle	-----	-----	10C12-14	10C12-14
Air Return Grille	-----	-----	56B20-49	56B21-42
			*JQD, JQXD Only	
Lower Fan Motor (5 W)	9A10-17	9A10-17	9A10-17	9A10-17
Lower Fan Blade (OU-740-5)	9B10-27	9B10-27	9B10-27	9B10-27
Curtain (1 per Bay)	13A10-39	13A10-39	13A10-40	13A10-40
Track	18J10-17	18J10-17	18J10-17	18J10-17
Roller	17A11-20	17A11-20	17A11-20	17A11-20
Guidance System	54Y10-19	54Y10-19	-----	-----
Floor Pan L.H.	-----	-----	54S13-35	54S13-35
Floor Pan R.H. & Center	-----	-----	54S13-36	54S13-36
Lower Fan Wiring Harness L.H.	10M10-83	10M10-83	10M10-83	10M10-83
Lower Fan Wiring Harness R.H. & Ctr.	10M10-84	10M10-84	10M10-84	10M10-84



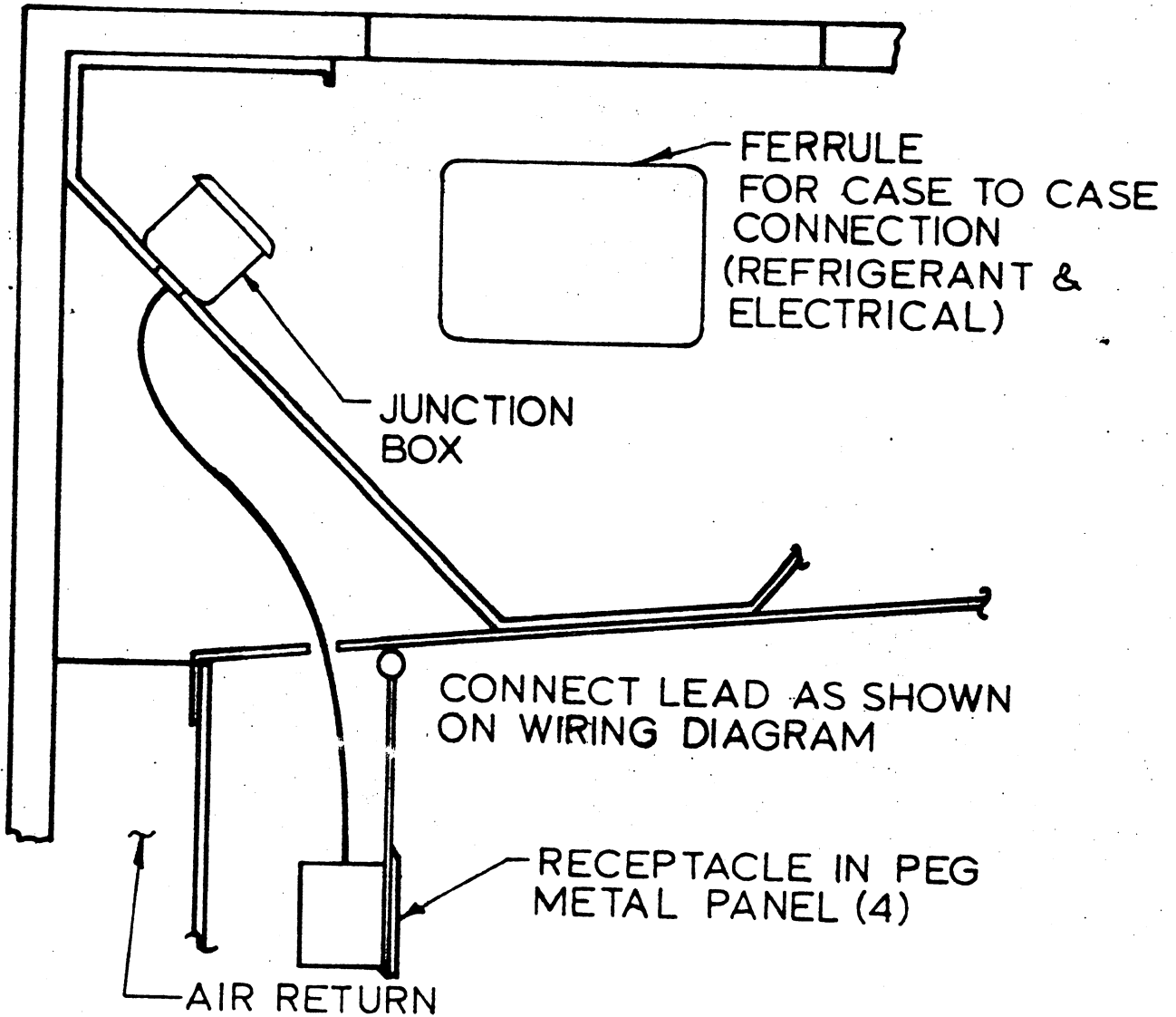




PLAN VIEW

ACC. SHELF KIT  
INSTALLATION

FIGURE 3



WIRING PROVISIONS  
FOR  
FIELD INSTALLATION  
OF SHELVING KIT

FIGURE 6



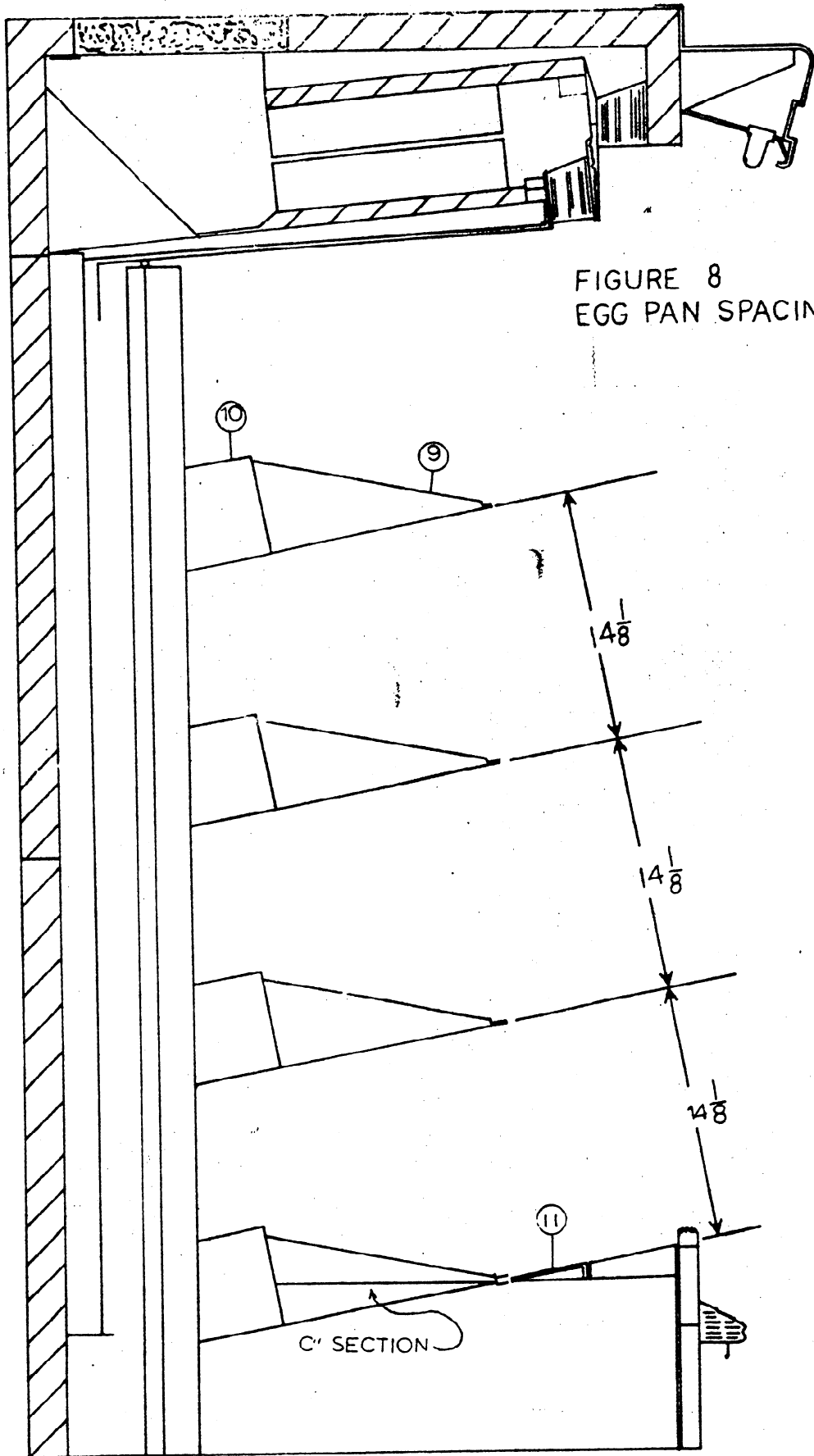
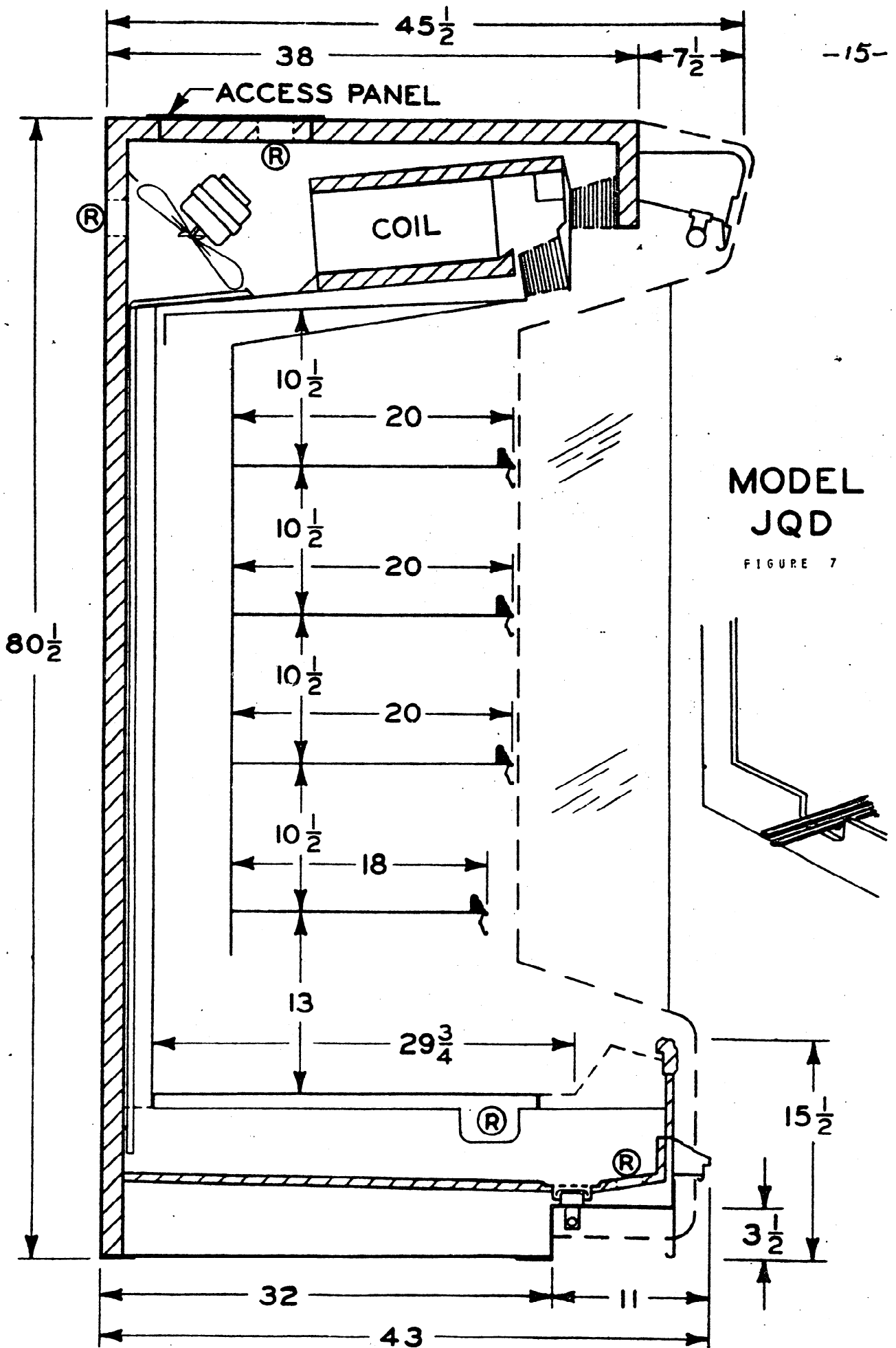


FIGURE 8  
EGG PAN SPACING



MODEL  
JQD  
FIGURE 7