FRIGIDAIRE SERVICE

Tech-Talk

Quality Products — Backed by Quality Service

Volume 65, No. 6 | APPLIANCE—REFRIGERATORS | October 1964

J Line
FRIGIDAIRE
REFRIGERATORS



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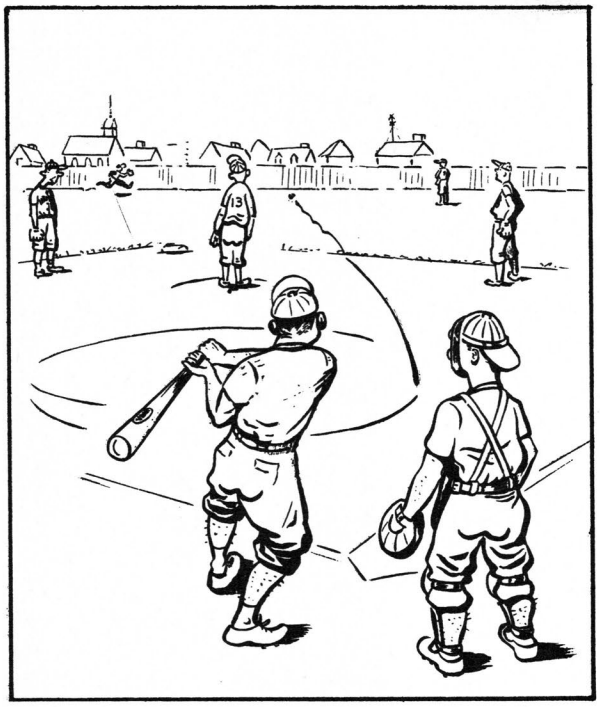
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A DESIRE FOR PERFECTION

Can you imagine going to a football game, now that the season for that sport is with us, and, after paying around six dollars a seat to see a professional game, have a bunch of second and third rate players consistently fumble, get signals crossed or fall over their own interference? Wouldn't you and thousands of others complain loudly enough for management to hear and wouldn't you stay away from the team's future contests?

Can you imagine going to a professional basketball game where one or both teams committed foul after foul, sank only a very low percentage of shots from the floor and from the foul line or had enough turnovers in one game to last a full season? Wouldn't you feel cheated and agree with the sports editor who writes that the team needs a new coach, new players or both?



Can you imagine going to see a world's series baseball playoff where the players committed numerous errors, the pitcher walked the bases full each inning, where the second baseman left first base open on a sacrifice bunt play or where an outfielder lost fly ball after flyball in the sun just because he wouldn't wear sun glasses? Don't you think the ball park would be mighty empty for the remainder of the series games?

Can you imagine following a golf tourney where the players were constantly in the rough or in traps, where each shot either sliced or hooked into another fairway or where they took four or five putts on every green? Wouldn't you be about twenty degrees hotter on the inside than you would be on the outside from the sun's rays?

Don't you expect the same high degree of perfection from your doctor, dentist, plumber, garage mechanic, your wife's hair dresser, school teachers, religious leaders and politicians? If you have never raised your voice in protest concerning the ineptness of any of the above—if you have never complained about the money you have thrown away on them, this editorial certainly is of no interest to you.

If, however, you do expect perfection in the foregoing and do want value received for your money, put yourself in the shoes of the appliance customer who expects every appliance serviceman to be a pro and who, to her dismay sometimes finds one who doesn't even belong in the minor leagues. It's really discouraging to the customer when the serviceman has to make two, three or even four calls to remedy a complaint that a pro could have fixed on the first call.

And do you realize that, in many instances, the initial service charge, not including parts and additional work time, is often in excess of what your family doctor would charge for a house call to help a member of your family get well? These charges are necessary and justified but the customer is entitled to the very best in service for her money.

Right now there are many times as many pros as rookies in the Frigidaire servicing organization but the fact remains that one inexperienced serviceman in a crew can cast a shadow over the entire team. Actually, this is serious but more serious is the fact that the inept serviceman is depriving himself of the privileges and satisfaction which he could reap from a job well done. Everyone, from top management down through district personnel is eager and waiting to help the rookie develop into a first class professional. There's a lot more ahead for the man who would become a pro than for the rookie who refuses to improve and thus drops lower and lower as professional requirements rise.

You don't have to follow Horace Greely's suggestion of "Go west, young man, go west." You can become a success right where you are.

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TABLE I
SPECIFICATIONS FOR 1965 J LINE REFRIGERATORS

	Super	DeLuxe							Custom DeLuxe	DeLuxe Frost-Proof							Imperial Frost-Proof				
	S-10 J	D-10 J	D-12 J	D-14 J	FD-12TJ	FDA-13TJ	FD-13TJ	FD-14BJ	FCDM-14J	FPD-12TJ	FPDA-14TJ	FPD-14TJ	FPDA-14BJ	FPD-14BJ	FPD-16BJ	FPD-19BJ	FPI-12TJ	FPI-14TJ	FPI-14BJ	FPI-16BJ	FPI-19BJ
Net Refrigerated Volume—NEMA (cu. ft.)	10.00	10.00	11.6	13:8	12.1	13.1	13.1	14.0	13.6	12.1	13.6	13.6	13.8	13.8	15.9	18.9	12.1	13.6	13.7	15.9	18.8
Food Compartment Refrigerated Volume—Includes Door (cu. ft.)	8.38	8.38	9.76	11.69	8.7	10.32	10.31	9.29	13.0	9.1	10.72	10.72	9.48	9.48	11.02	12.88	9.1	10.72	9.33	11.02	12.8
Freezer Compartment Refrigerated Volume—Includes Door (cu. ft.)	1.62	1.62	1.88	2.14	3.44	2.78	2.78	4.69	.58	3.04	2.92	2.92	4.34	4.34	4.9	6.04	3.04	2.92	4.33	4.90	6.03
Exterior Finish:																					
Baked Acrylic Enamel	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Optional Colored Acrylic Enamel	—	CP	Yes	CP	CP	—	Yes	CP	Yes	Yes	—	CP	—	CP	CP	CP	Yes	Yes	Yes	Yes	Yes
Optional White Porcelain	No	No	No	No	No	No	Yes	No	No	No	No	Yes	No	No	No	No	No	Yes	Yes	Yes	Yes
Cabinet Front Edge Trim:																					
Bright Stainless Steel	No	No	No	No	No	No	No	No	Yes	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes
Food Compartment Door, Exterior:																					
Raised Vertical Strip—L & R Edges	—	—	Yes	—	Yes	—	—	—	—	Yes	—	—	—	—	—	Yes	Yes	—	—	—	Yes
Raised Vertical Band Under Handle	—	—	—	Yes	—	Yes	Yes	Yes	Yes	—	Yes	Yes	Yes	Yes	Yes	—	—	Yes	Yes	Yes	—
Vinyl Trim on Vertical Band	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Yes	Yes	Yes	—
Upright Vinyl Covered Bar Handle—Black	Yes	Yes	—	—	—	Yes	—	—	—	—	Yes	—	Yes	—	—	—	—	—	—	—	—
Upright Vinyl Bar Handle—Wood Grain	—	—	Yes	Yes	Yes	—	Yes	Yes	Yes	Yes	—	Yes	—	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Door Open Angle (approx. °)	190	190	160	160	160	150	150	150	160	150	150	150	150	150	150	150	150	150	150	150	150
Freezer Door Exterior:																					
Raised Vertical Strip—L & R Edges	—	—	Yes	—	Yes	—	—	—	—	Yes	—	—	—	—	—	Yes	Yes	—	—	—	Yes
Raised Vertical Band Under Handle	—	—	—	—	—	—	Yes	Yes	Yes	—	Yes	Yes	Yes	Yes	Yes	—	—	Yes	Yes	Yes	—
Vinyl Trim on Vertical Band	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Yes	Yes	Yes	Yes
Upright Vinyl Bar Handle—Black	—	—	—	—	—	Yes	—	—	—	—	Yes	—	Yes	—	—	—	—	—	—	—	—
Upright Vinyl Bar Handle—Wood Grain	—	—	—	—	Yes	—	Yes	Yes	—	Yes	—	Yes	—	Yes	Yes	Yes	Yes	Yes	—	—	—
Pedal—Bottom Door Opening	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Yes	Yes	—
Hinges, Shoulder Type—Nylon Bearings	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Door Seal, Magnetic—All Four Sides	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Shelves—Food Compartment:																					
Full Width, Removable—Including Hydrator Cover	3	3	3	3	3	4	4	3	4	3	4	4	3	3	3	4	3	4	3	3	4
Stationary Full Width—Removable	3	2	2	2	2	3	2	1	1	1	3	1	2	1	1	1	1	1	1	1	1
Sliding Full Width—Removable	—	—	—	—	—	—	1	1	—	1	—	2	—	1	1	2	—	—	—	—	—
Gliding Full Width	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	1	2	1	2	2
Half-Shelf—Including Meat Tender Cover	—	—	—	1	—	—	—	—	1	—	—	1	—	1	1	1	1	1	1	1	1
Shelf Material—Zinc Plated Steel	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No
Anodized Aluminum Rod	No	No	No	No	No	No	No	No	Yes	No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes

TABLE I
SPECIFICATIONS FOR 1965 J LINE REFRIGERATORS (cont'd)

	Super	DeLuxe							Custom DeLuxe	DeLuxe Frost-Proof							Imperial Frost-Proof				
	S-10 J	D-10 J	D-12 J	D-14 J	FD-12TJ	FDA-13TJ	FD-13TJ	FD-14BJ	FCDM-14J	FPD-12TJ	FPDA-14TJ	FPD-14TJ	FPDA-14BJ	FPD-14BJ	FPD-16BJ	FPD-19BJ	FPI-12TJ	FPI-14TJ	FPI-14BJ	FPI-16BJ	FPI-19BJ
Hydrators:																					
Full Width—Capacity (qt.)	—	18.3	25.1	—	25.1	—	—	—	—	25.1	—	—	—	—	—	—	25.1	—	—	—	—
Partial Width—Number	—	—	—	2	—	2	2	2	2	—	2	2	2	2	1	1	—	2	2	1	1
Capacity of Each (qt.)	—	—	—	11.7	—	11.7	11.7	11.7	11.7	—	11.7	11.7	11.7	11.7	21.9	22.1	—	11.7	11.7	21.9	22.1
Apron:																					
Painted—Color	Gray	Gray	—	—	Gray	Black	Gray	Gray	—	Gray	Black	Gray	Black	Gray	Gray	—	—	—	—	—	—
Anodized Aluminum	—	—	Yes	Yes	—	—	—	—	Yes	—	—	—	—	—	—	—	Yes	Yes	Yes	Yes	—
Steel Grille—Gray	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Yes	—	—	—	—	Yes
Separate Meat Tender—Capacity (lb.)	—	—	—	—	—	—	—	—	14.1	—	—	9.9	—	9.9	16.3	16.3	9.9	9.9	9.9	16.3	16.3
Sliding Chill Drawer	Yes	Yes	Yes	Yes	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Two Stop Position for Control of Air Circulation	Yes	Yes	No	Yes	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Seasonal Control Baffle—3 Positions	No	No	Yes	No	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Egg Storage:																					
Number of Eggs	16	16	19	21	17	21	21	23	23	17	21	21	23	23	26	25	17	24	24	26	28
Interior Lights:																					
Round Lamp, 40 Watts	1	1	1	1	1	1	1	1	2	1	1	1	1	2	2	2	1	1	2	2	2
Tubular Lamp, 25 Watts	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	2
Freezer Lamp, Tubular, 25 Watts	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	1	1
Utility Compartment	—	—	—	—	—	—	—	—	Yes	—	—	—	—	—	Yes	—	—	Yes	Yes	Yes	Yes
Butter Storage:																					
Compartment, Not Removable	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Compartment, 4 Position Heat Control	—	—	—	—	—	—	—	—	Yes	—	—	—	—	—	—	—	Yes	Yes	Yes	Yes	Yes
Butter Dish	—	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ice Ejector	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Yes	Opt.	Opt.	Opt.	Opt.	Opt.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ice Trays:																					
Standard 1 9/16 lb. Trays—Number	2	2	2	2	2	2	2	2	—	2	2	2	2	2	—	—	—	—	—	—	—
Ice Ejector 1 1/3 lb. Trays—Number	—	—	—	—	—	—	—	—	2	—	—	—	—	—	2	2	2	2	3	3	4
Plastic Grids	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Aluminum Grids	No	No	No	No	No	No	Yes	Yes	Ejector	Yes	Yes	Yes	Yes	Yes	Ejector	Ejector	Ejector	Ejector	Ejector	Ejector	Ejector
Moist-Minder:																					
Drain in Bottom of Liner	—	—	—	—	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No	No	No	No	Yes	Yes	No	No	No
Drain Trap in Machine Compartment	—	—	—	—	Yes	—	—	Yes	Yes	Yes	—	—	Yes	Yes	Yes	Yes	Yes	—	Yes	Yes	Yes
Food Compartment Fan (20 Watts)	—	—	—	—	—	—	—	Yes	Yes	—	—	—	—	—	—	—	—	—	—	—	—
Food Compartment Fan (13 Watts)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Yes	—	—	—	—	Yes
Freezer Compartment Fan Cycles with Compressor (20 Watts)	—	—	—	—	—	—	—	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Food Compartment Air Flow Control	—	—	—	—	—	—	—	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No
Food Compartment Fan Cycling Switch	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	F3B (14° to 28°)	—	—	—	—	F3B (14° to 28°)

TABLE I
SPECIFICATIONS FOR 1965 J LINE REFRIGERATORS (cont'd)

	Super			DeLuxe					Custom DeLuxe	DeLuxe Frost-Proof						Imperial Frost-Proof				
	S-10 J	D-10 J	D-12 J	D-14 J	FD-12TJ	FDA-13TJ	FD-13TJ	FD-14BJ	FCDM-14J	FPD-12TJ	FPDA-14TJ	FPD-14TJ	FPDA-14BJ	FPD-14BJ	FPD-16BJ	FPD-19BJ	FPI-12TJ	FPI-14TJ	FPI-14BJ	FPI-16BJ	FPI-19BJ
Cold Control:																					
Model	F3B	F3B	F3B	F3B	F-3	F-3	F-3	F-3	F-3	F3D	F3D	F3D	F3D	F3D	F3D	F3D	F3D	F3D	F3D	F3D	F3D
Set. #1 Position (°F.)	+2 to +18	+2 to +18	+2 to +18	+2 to +18	−7 to +37.5	−7 to +37.5	−7 to +37.5	−1 to +37.5	+1 to +37.5	−4 to +9	−4 to +9	−4 to +9	−4 to +9	−4 to +9	−4 to +9	−4 to +9	−4 to +9	−4 to +9	−4 to +9	−4 to +9	−4 to +9
Spacer (in.)	¼	¼	1/32	⅛	None	.010″	.010″	.010″	⅛	None	None	None	None	None	None	None	None	None	None	None	None
Total Frozen Food Capacity (lb.)	56	56	65	74	120	97	97	164	20	106	102	102	151	151	171	211	106	102	151	171	211
Inner Freezer Door:																					
Side Opening Door	Yes	Yes	Yes	Yes	—	—	—	—	Yes	—	—	—	—	—	—	—	—	—	—	—	—
Material, Plastic Outer Panel	Yes	Yes	Yes	Yes	—	—	—	—	Yes	—	—	—	—	—	—	—	—	—	—	—	—
Removable Ice Tray Shelf—Double Width	No	No	No	No	No	No	Yes	Yes	Single	Yes	No	Yes	Yes	Yes	Yes	No	Yes	Yes	No	No	Yes
Juice Can Holders—No. & Cap. Small Cans	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2/6	2/16	—	—	2/6	2/6	2/14
Freezer Baskets—Number	—	—	—	—	—	—	—	1	—	—	—	—	1	1	1	1	—	—	2	2	2
Relay:																					
115 Volt 50/60 Cycle	YT-4	YT-4	YT-4	YT-4	YT-4	YT-4	YT-4	YT-4	YT-4	YT-4	YT-4	YT-4	YT-4	YT-4	YT-4	YT-5	YT-4	YT-4	YT-4	YT-4	YT-5
230 Volt 50/60 Cycle	YG-2	YG-2	YG-2	YG-2	YG-3	YG-3	YG-3	YG-3	YG-3	*	*	*	*	*	*	*	*	*	*	*	*
Capacitor:																					
115 Volts (Mfd.)	—	—	—	189	—	—	—	189	145	145	189	189	189	189	189	189	145	189	189	189	189
230 Volts (Mfd.)	—	—	—	43	—	—	—	34	34	*	*	*	*	*	*	*	*	*	*	*	*
Defrost Timer—Two Defrosts in 24 Hours	—	—	—	—	—	—	—	—	—	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Defrost Heater (Watts)	—	—	—	—	—	—	—	—	—	600	600	600	600	600	600	625	600	600	600	600	625
Limiter Switch (30° & 55°)	—	—	—	—	—	—	—	—	—	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Refrigeration System:																					
Compressor (HP)	1/8	1/8	1/8	1/8	1/6	1/6	1/6	7/32	1/6	1/6	7/32	7/32	7/32	7/32	7/32	1/3	1/6	7/32	7/32	7/32	1/3
Cyclamatic	No	No	No	No	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No
Gravity Flow	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Flowing Cold	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Refrigerant Charge R-12 (oz.)	14½	14½	14	14½	19½	24	24	21	22	15½	17	17	17	17	17½	19	15½	17	17	17½	19
Line Sizes (in.):																					
Suction	¼	¼	¼	¼	¼	¼	¼	5/16	¼	¼	5/16	5/16	5/16	5/16	5/16	5/16	¼	5/16	5/16	5/16	5/16
Discharge	3/16	3/16	3/16	3/16	3/16	3/16	3/16	¼	3/16	3/16	¼	¼	¼	¼	¼	¼	3/16	¼	¼	¼	¼
Capillary	.072	.072	.072	.072	.072	.072	.072	.081	.072	.072	.081	.081	.081	.081	.081	.081	.072	.081	.081	.081	.081
Drier-Filter	3/16	3/16	3/16	3/16	3/16	3/16	3/16	3/16	3/16	3/16	3/16	3/16	3/16	3/16	3/16	¼	3/16	3/16	3/16	3/16	¼
Oil:																					
Charge (oz.)—525 Viscosity	8¼	8¼	8¼	9¼	11	11	11	15	11	11	15	15	15	15	15	12	11	15	15	15	12
Weight (lb.):																					
Net	188	190	242	271	255	288	288	304	292	269	297	302	314	322	323	381	268	300	323	334	388
Shipping	221	224	278	314	292	331	331	347	335	306	341	345	357	365	366	431	305	343	366	381	438

*—Supplied in 115 Volts only. When 230 Volt operation is required, use step-down transformer.

SERIAL PLATE LOCATION: Behind base panel on left food gusset. On FPD, FPI-19BJ, right side of freezer liner.

Introduction

The 1965 line of Refrigerators consists of the following models:

	Super	
S-10J	Figures 1 and 2	10 cu. ft.
	Deluxe	
D-10J	Figures 1 and 2	10 cu. ft.
D-12J	Figures 3 and 4	11.6 cu. ft.
D-14J	Figures 5 and 6	13.8 cu. ft.
FD-12TJ	Figures 8 and 9	12.1 cu. ft.
FDA-13TJ	Figures 10 and 11	13.1 cu. ft.
FD-13TJ	Figures 10 and 11	13.1 cu. ft.
FD-14BJ	Figures 12 and 13	14.0 cu. ft.
	Custom Deluxe	
FCDM-14J	Figures 6 and 7	13.6 cu. ft.
	Deluxe Frost-Proof	
FPD-12TJ	Figures 8 and 14	12.1 cu. ft.
FPDA-14TJ	Figures 10 and 15	13.6 cu. ft.
FPD-14TJ	Figures 10 and 15	13.6 cu. ft.
FPDA-14BJ	Figures 13 and 20	13.8 cu. ft.
FPD-14BJ	Figures 13 and 21	13.8 cu. ft.
FPD-16BJ	Figures 13 and 24	15.9 cu. ft.
FPD-19BJ	Figures 26 and 27	18.9 cu. ft.

(Continued on page 39)



Figure 2
Model D-10J

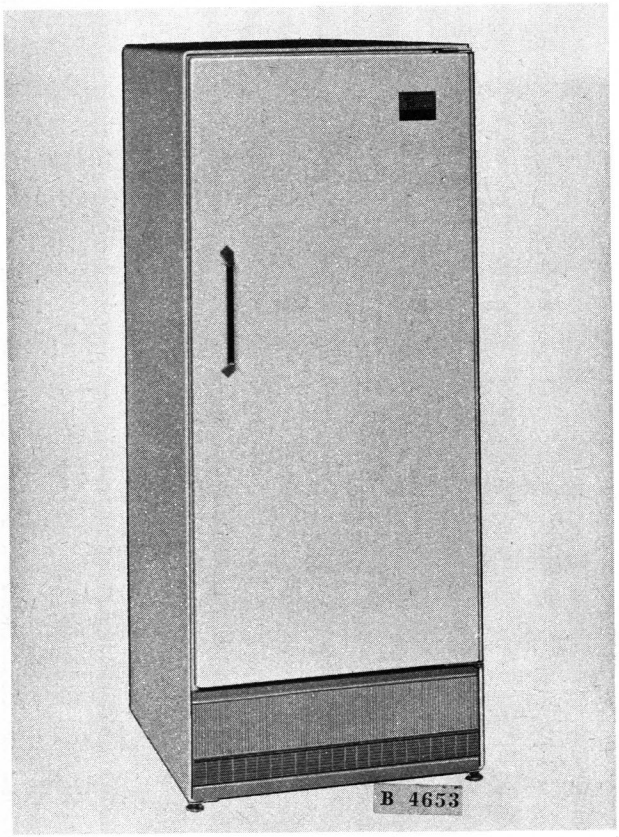


Figure 1
Models S-10J and D-10J

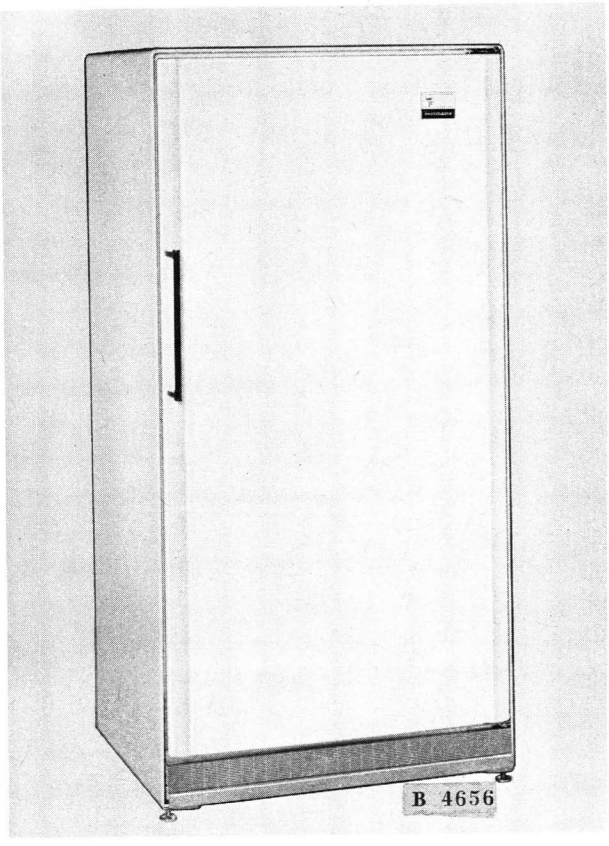


Figure 3
Model D-12J



Figure 4
Model D-12J

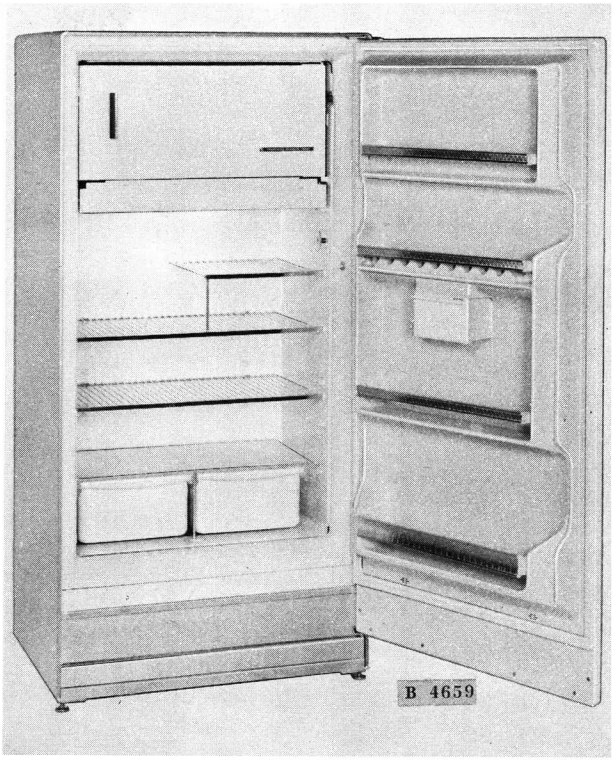


Figure 5
Model D-14J

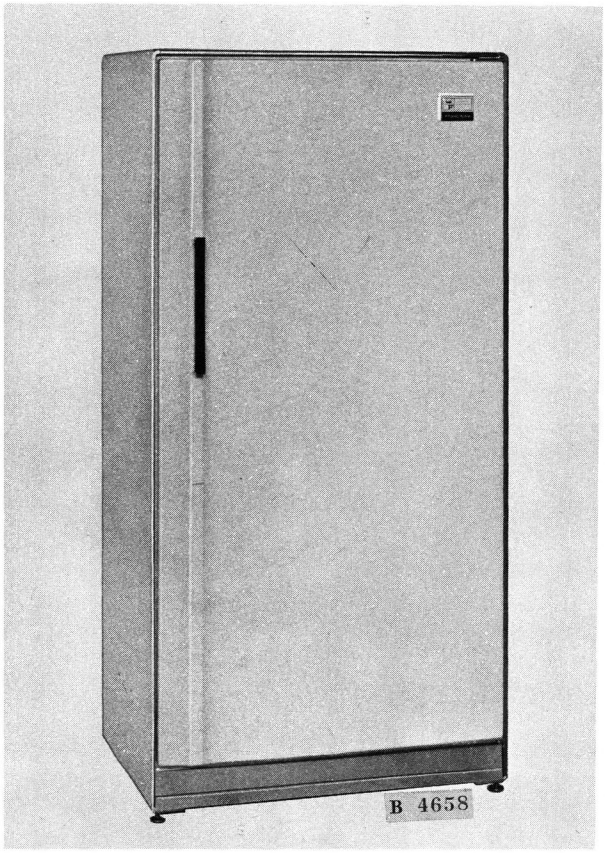


Figure 6
Models D-14J and FCDM-14J



Figure 7
Model FCDM-14J

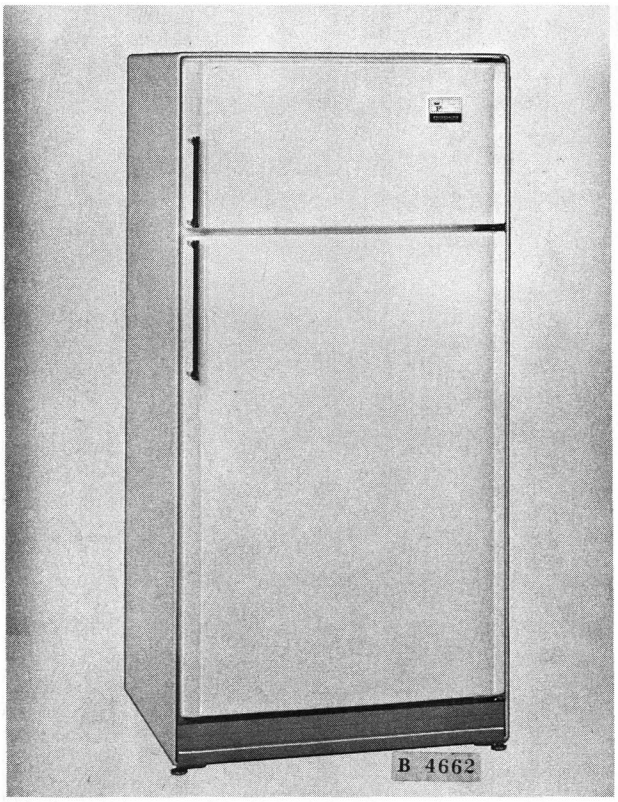


Figure 8
Models FD-12TJ and FPD-12TJ



Figure 9
Model FD-12TJ

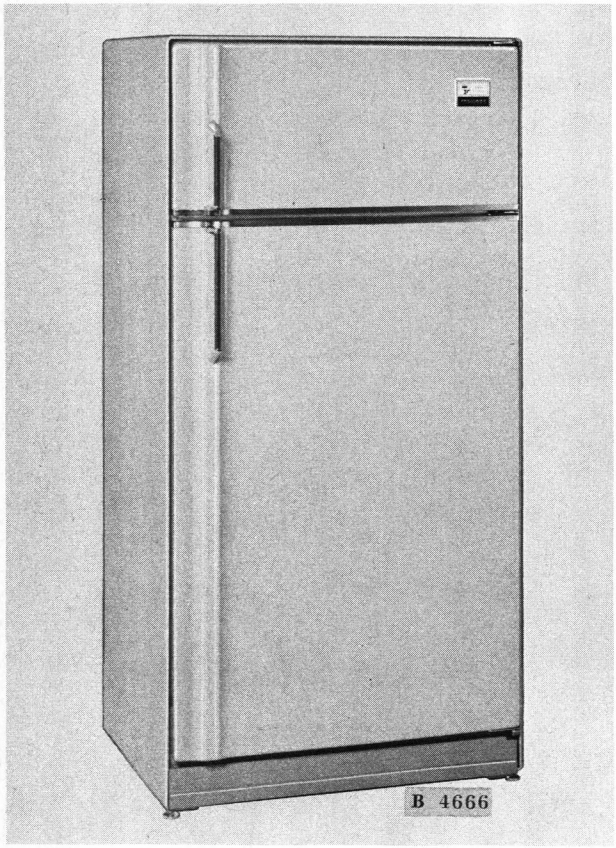


Figure 10
Models FD-13TJ, FPD-14TJ

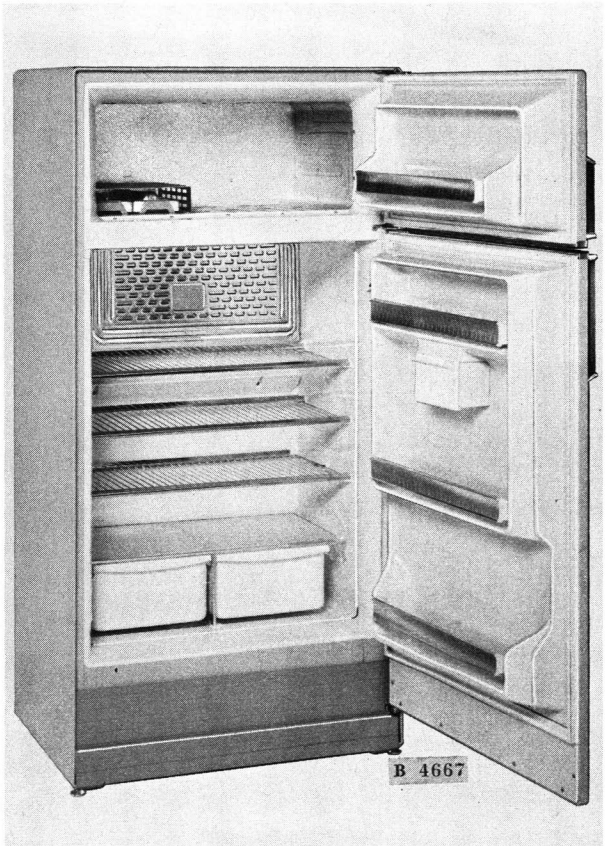


Figure 11
Model FD-13TJ



Figure 12
Model FD-14BJ



Figure 13
Models FD-14BJ, FPD-14BJ, FPD-16BJ



Figure 14
Model FPD-12TJ

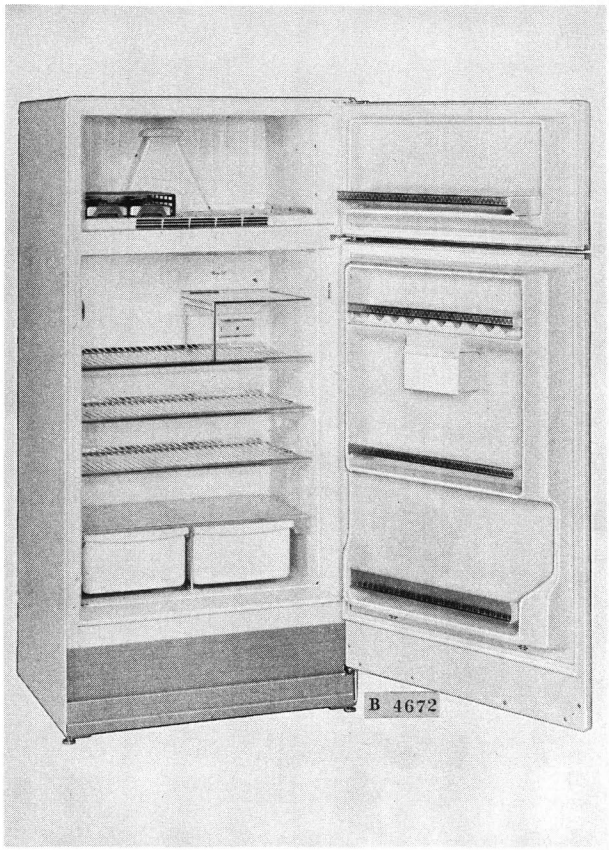


Figure 15
Model FPD-14TJ

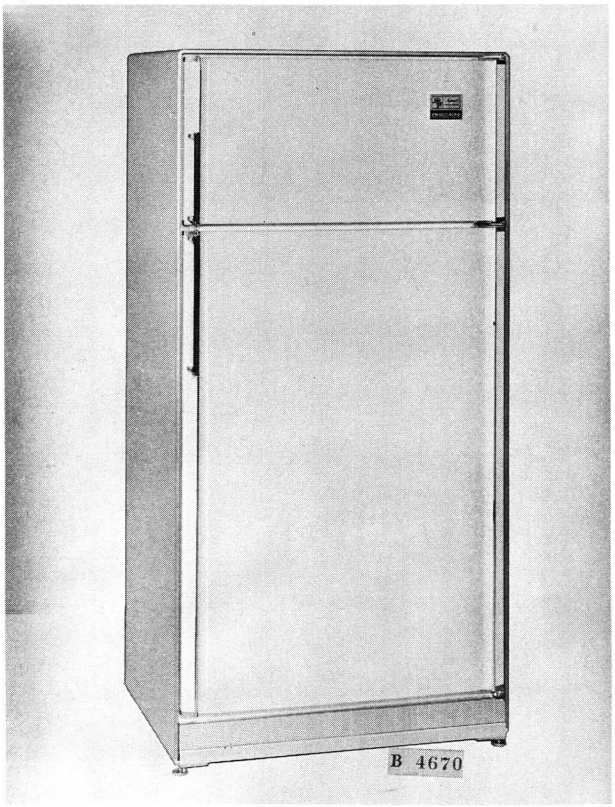


Figure 16
Model FPI-12TJ



Figure 17
Model FPI-12TJ

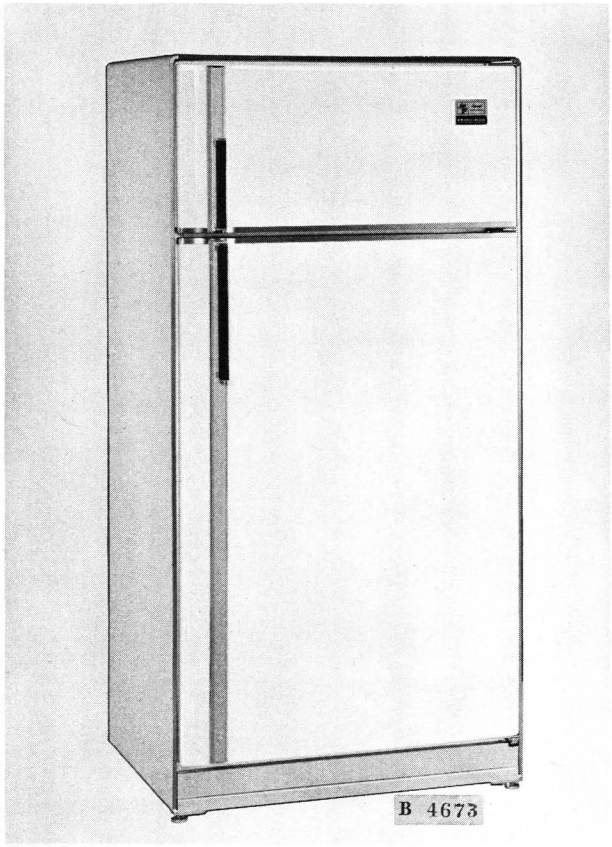


Figure 18
Model FPI-14TJ

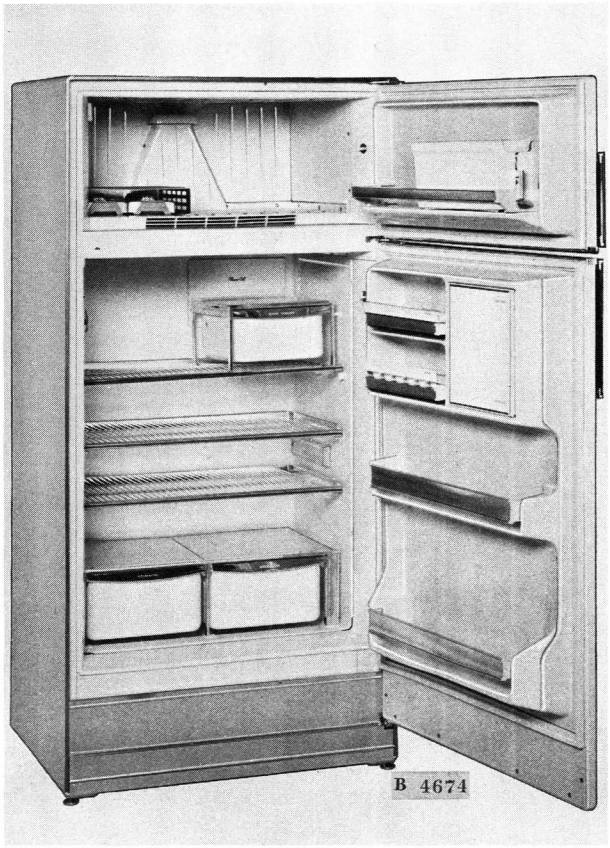


Figure 19
Model FPI-14TJ



Figure 20
Model FPDA-14BJ



Figure 21
Model FPD-14BJ

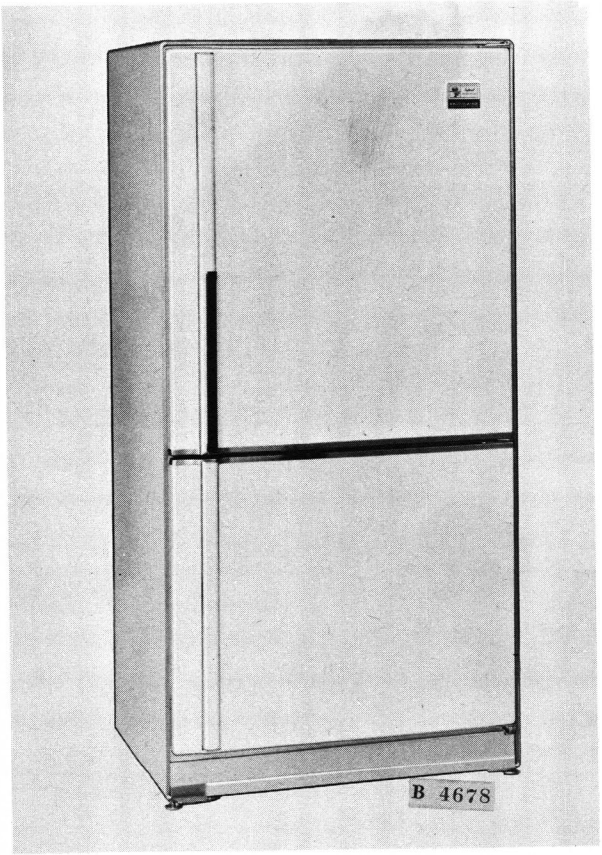


Figure 22
Models FPI-14BJ and FPI-16BJ



Figure 23
Model FPI-14BJ



Figure 24
Model FPD-16BJ

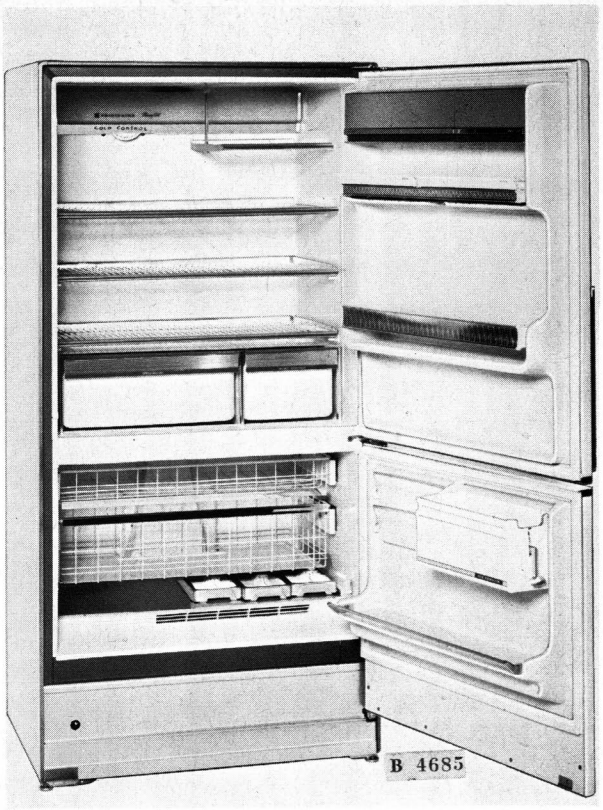


Figure 25
Model FPI-16BJ

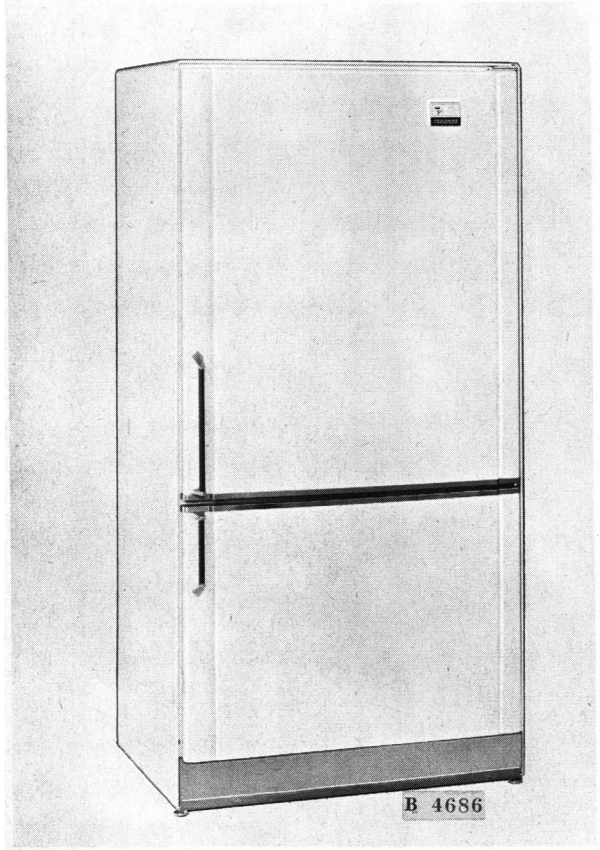


Figure 26
Model FPD-19BJ

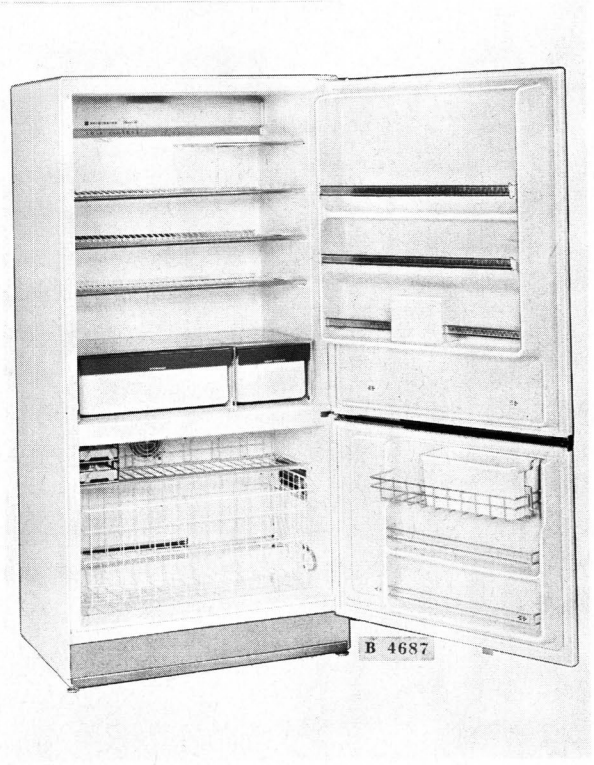


Figure 27
Model FPD-19BJ

Imperial Frost-Proof		
FPI-12TJ	Figures 16 and 17	12.1 cu. ft.
FPI-14TJ	Figures 18 and 19	13.6 cu. ft.
FPI-14BJ	Figures 22 and 23	13.7 cu. ft.
FPI-16BJ	Figures 22 and 25	15.9 cu. ft.
FPI-19BJ	Figures 28 and 29	18.8 cu. ft.

In the model designations, the letters represent:

F=Refrigerator-Freezer
D=Deluxe
C=Custom
M=Mini-Freezer
FP=Frost-Proof
S=Super
A=Special

The first series of numbers represent the cubic feet refrigerated volume to the nearest whole number.

The first letter following the capacity designation identifies the model as a two door refrigerator. If the letter is T, then the two door model has the freezer across the top of the cabinet. If the letter is B, then it is a two door model with a bottom freezer. The model year is shown by the second letter J for the 1965 model year.

Refrigerators with exterior colors other than white are identified by letter suffixes in the model code. These are identified as YW for Sunny Yellow, TQ for Turquoise, PK for Mayfair Pink and CP for Aztec Copper. Example: FPI-19BJ-TQ is a 1965 Imperial Frost-Proof two door model with the freezer across the bottom and with Turquoise exterior.

Six models initially available with white porcelain exterior finish in right-hand or left-hand doors are: PFD-13TJ, PFPD-14TJ, PFPI-14TJ, PFPI-14BJ, PFPI-16BJ and PFPI-19BJ. All models with white or colored baked acrylic enamel finish are available with right-hand or left-hand doors. Two models, the FPI-16BJ-CH and the FPI-19BJ-CH are available with brushed chrome doors on white baked acrylic cabinets.

Construction

Cabinet Shells:

All 1965 models have the same uniformity in cabinet design with the shell sides extending beyond the door sealing surfaces to conceal the door seal. All models, except FPI-16BJ and PFPI-16BJ, can be installed flush to the wall on the hinge side of the cabinet and still allow all shelves, baskets, hydrators, etc., to be removed for cleaning.

The FPD-FPI-16BJ and the FPD, FPI-19BJ models have completely foamed cabinets. With the use of Frigi-Foam insulation, refrigerated volumes are increased such as for the FPI-16BJ which uses basically the same cabinet shell as the FPI-14BJ.

Two adjustable leveling glides at the front corners of all cabinets provide rigid support and a means of leveling the product. A ⅜" open end wrench fits the hex shoulder

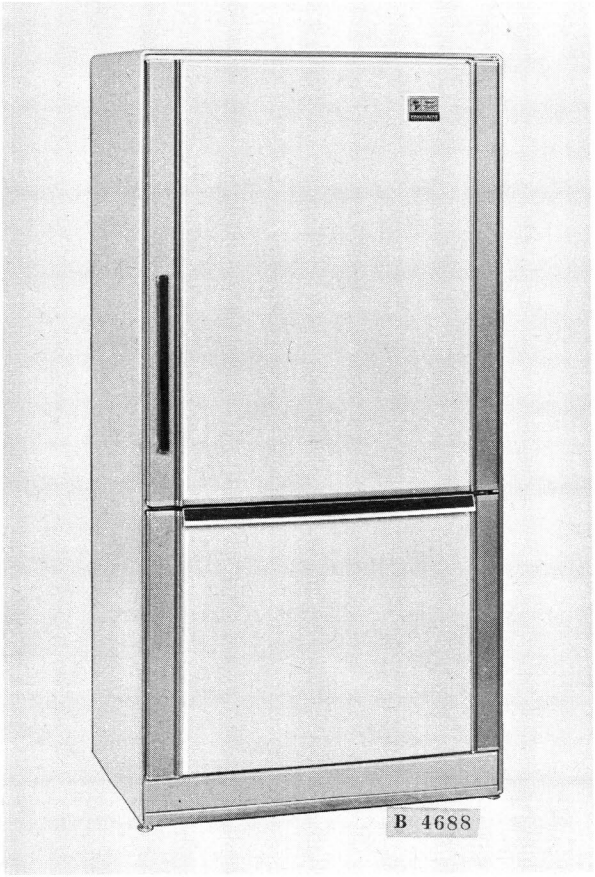


Figure 28
Model FPI-19BJ

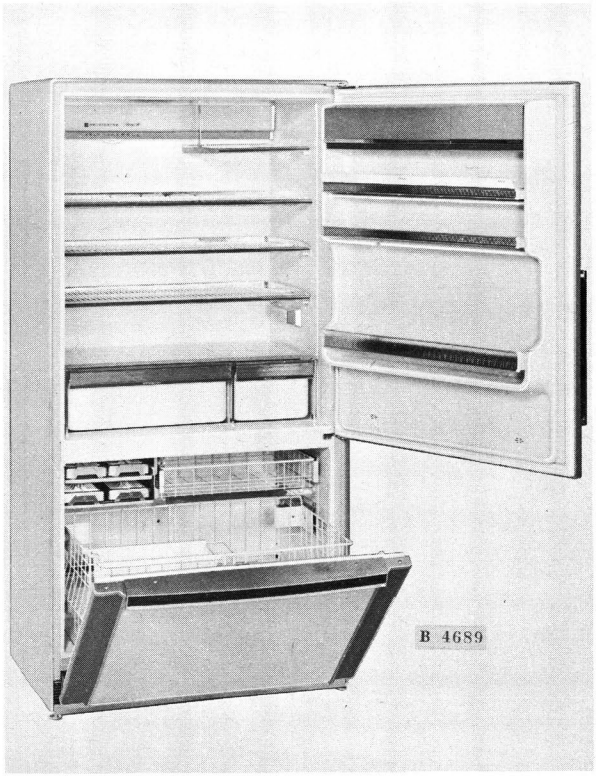


Figure 29
Model FPI-19BJ

on each leveling glide for ease of adjustment.

Steel reinforcements for cabinet hardware are mounted behind the front channel of the cabinet at the sides and at the top corners.

The cabinets, except the 16BJ and 19BJ models, are completely insulated with extra thick fibrous glass or mineral wool insulation—vermin proof and fireproof. Preformed insulation of expanded polystyrene and Frigi-Foam insulation is used around the freezer and in the freezer doors to supplement the bagged insulation.

Food Compartment Door:

The S-10J and D-10J, 24 inch wide cabinets have flat, exterior door panels. The D-12J, 30 inch wide cabinet has a newly designed panel with two raised ridges extending from top to bottom on the front near each side. The new 12TJ models, Figure 30, have individually tooled outside door panels. There is no bottom plate welded in the bottom of the freezer door nor in the top of the food door. Therefore, there is no need for door guards on these models. Full length trim is mounted to both sides from top to bottom on the FPI-12TJ model.

All 32 inch wide cabinets have a sculptured design with a raised verticle band extending the full height of the door near its opening side. The handle is mounted on this raised band. The band is further enhanced by the addition of trim which matches the color of the cabinet. The FPI-19BJ has a different style door trim and handle on both the food door and the freezer door and trim on both sides of the door.

Full-length doors on all cabinets, except the 10 cu. ft. models, extend down over the front of the machine compartment to give a clean, streamlined appearance.

The 1965 models do not incorporate tie rods in the doors. All doors are fully insulated. The 16BJ and 19BJ models have Frigi-Foam food compartment doors. On models that have electrical components inside the doors, the electrical leads are routed inside the doors.

Freezer Door:

On all models that have an inner freezer door, the door is mounted on the side of the food compartment liner, or collar, and is hinged to open sideways. This design allows full utilization of the freezer section with only a 90° food compartment door opening.

On Frost-Proof models, the freezer door uses Frigi-Foam insulation which has excellent insulating qualities as well as being rigid and lightweight. The freezer door on the 12TJ models and the FD-14BJ are also foamed.

On the FPI-19BJ, the freezer door tilts downward to a maximum of 45° and the lower freezer basket rolls out automatically for easy accessibility to foods.

Door Seal:

All models have magnetic door seals with magnetic strips on all four sides to insure positive sealing around the entire perimeter of the door. This door seal allows the door to be opened from the interior by applying a slight amount of pressure on any side but the hinge side.

Door Opener:

On all 1965 models, an upright handle, Figure 30, is used for opening the door. Easy to grasp and mounted on the raised band, where applicable, it tends toward effortless opening of the door. Exterior freezer doors also have a matching handle except where a door opening pedal is provided, FPI-14BJ and FPI-16BJ models.

The pedal arm protrudes through a hole in the base panel and contacts a plate on the inside bottom edge of the freezer door to force the door open. A spring is utilized to return the arm to its concealed position.

Door Hinges:

Shoulder type hinges, at the top and bottom corners of each door, provide a strong door hinging arrangement. The hinges pivot in nylon bearings for smooth, quiet operation.

The top hinge arrangement on all cabinets is bascially

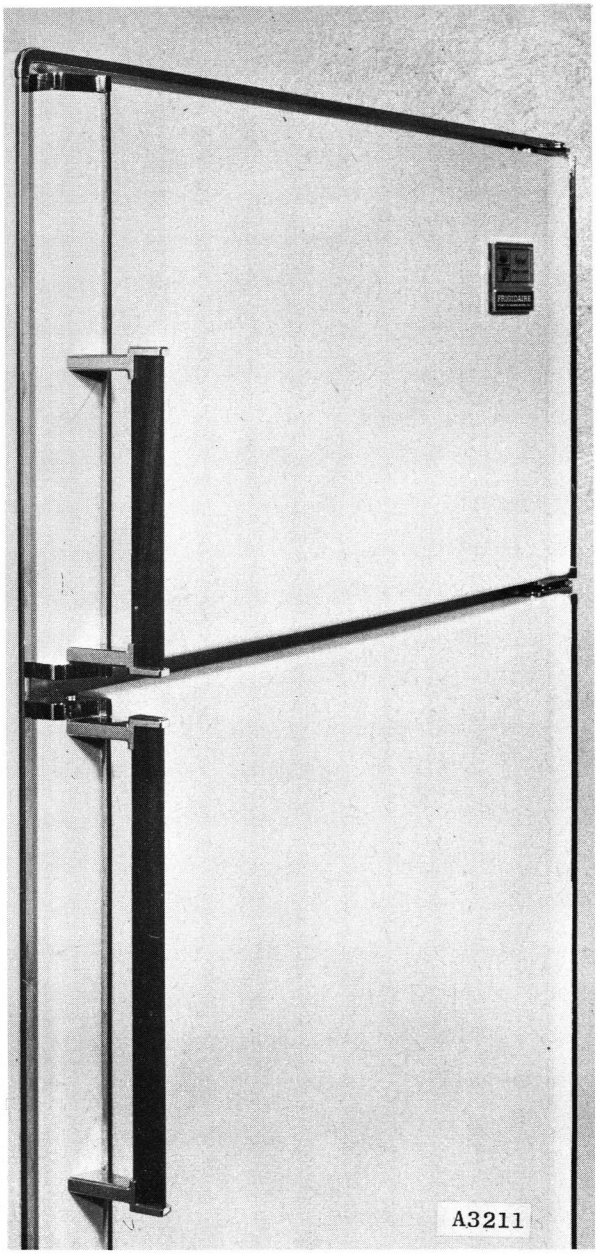


Figure 30
Door Handle and Trim — FPI-12TJ

the same. The screw holes in the top of the cabinet shell are countersunk for flush appearance of the screw heads. A metal spacer is required between the top hinge wing and the top flange of the shell.

The freezer door of the FPI-19BJ model pivots on nylon bushings; with the door closed, the hinges are concealed. The hinge wing is attached to the bottom of the door and bolts to the pivot arm which is under spring tension to aid in opening and closing the door. The hinges swing in an arc with cables attached to the inside door panel to serve as door stops. This sturdy arrangement lends itself to a balanced door for effortless opening and closing.



Figure 31
Hydrator — FPD-12TJ

Hydrators:

All models, except the S-10J, have a Hydrator, Figure 31, for storage of fresh vegetables. The Hydrator cover and guide is made of clear plastic. Rubber plugs in the sides of the drawer can be removed if more air circulation within the Hydrator is desired to reduce moisture.

Meat Tender:

Models S-10J, D-10J, D-12J and D-14J

Although the Chill Drawer is not considered a Meat Tender, foods may be stored in this tray which also serves as a defrost water receptacle during defrost periods. Except on the D-12J, the tray has two positions for temperature and humidity control.

Ten J models have Meat Tenders which utilize Flowing Cold with the discharge air from the air duct entering the refrigerator section directly behind the Meat Tender, Figure 15. Air is directed over, around and through the Meat Tender as well as through the food compartment.

The Meat Tender provides temperatures near the freezing mark. This means that most good quality meats can be stored up to seven days. Ground meats, meat specialties, and poultry can be stored up to four or five days.

To freeze meats solidly for longer storage, use the zero zone section of the refrigerator.

Some ice crystals may be noticed on meats removed from the Meat Tender. This is due to the near-freezing temperature and is perfectly normal. All meats can be cooked immediately without any warm-up waiting period.

Since fruits, vegetables and eggs require somewhat higher temperatures, they should be stored in the special areas provided—*not* in the Meat Tender. Note: For best results, do not remove the Meat Tender to provide additional shelf space. Since this shelf area will still be cooled by near freezing temperatures, more sensitive foods may freeze.

Food Shelves:

All Super and Deluxe models have zinc plated steel shelves. Some models have an adjustable shelf and/or sliding shelf. The Imperial models have aluminum rod shelves with either stationary or gliding design. The shelves glide with ease and quiet operation on a track mechanism on each side of the shelf. They lock into place when pulled forward. The customer can remove these shelves from the liner by grasping the front corners of the shelf and, using the thumb and index finger, pull out and up on the plastic insert that slips over the plastic shelf peg. The shelf can then be removed by pulling out the guide rails from the rear of the liner.

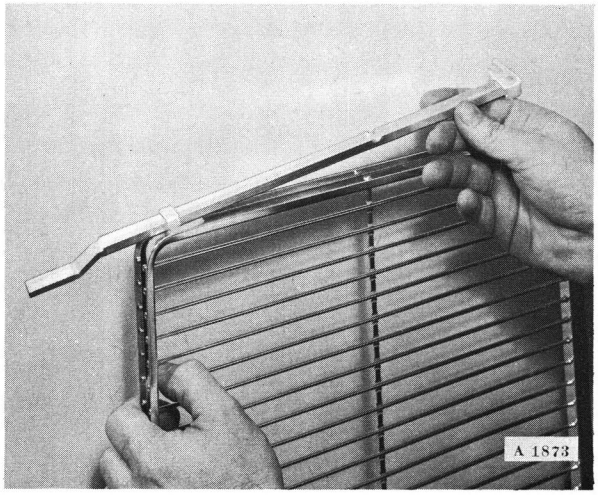


Figure 32
Guide Rails Removal

The guide rails can be removed from the shelf by twisting at the front, lifting up and then pulling the rail through the rear plastic insert, Figure 32.

A slight upward bow is designed into the top aluminum stationary shelf, on models so equipped, so that, when heavily loaded, as with half gallon milk containers, the shelf will be straight. This design also improves the shelf seating area on the peg retainers. On the FPI-16BJ and 19BJ, the top shelves have a double reinforcement across the center and rods on the under side.

Butter Storage:

All models except the S-10J have provisions for storing

butter. All Imperial Frost-Proof models and the FCDM-14J have a butter conditioner. The line on the knob serves as an indicator for the switch position; the knob can be rotated approximately 135°. The four-position switch changes resistance of the heater. On HARD position, the switch is off and, of course, no heat; on MEDIUM HARD a resistance of 3450 ohms for 4 watts; on MEDIUM SOFT a resistance of 2760 ohms for 5 watts; on SOFT a resistance of 1960 ohms for 7.0 watts. This is based on 117 Volts.

Instant Ice Server:

In the basic models which feature the Ice Ejector, storage for the Instant Ice Server is provided in the freezer door and in either side of the lower freezer basket of the FPI-19BJ.

With the ice tray placed upside down in the Server, a slight lift upward on the server handle will cause the actuating bar link to engage and move the grids to free the cubes from the tray. Released cubes drop into the Instant Ice Server. The handle of the Server has a built-in spring to ensure it returning to the normal or down position.

Another feature on the FPI-19BJ is the top ice tray shelf, which slides out for easy accessibility.

For the type of trays and pounds of ice available on models other than the Ice Ejector design, refer to Specifications, Table 1.

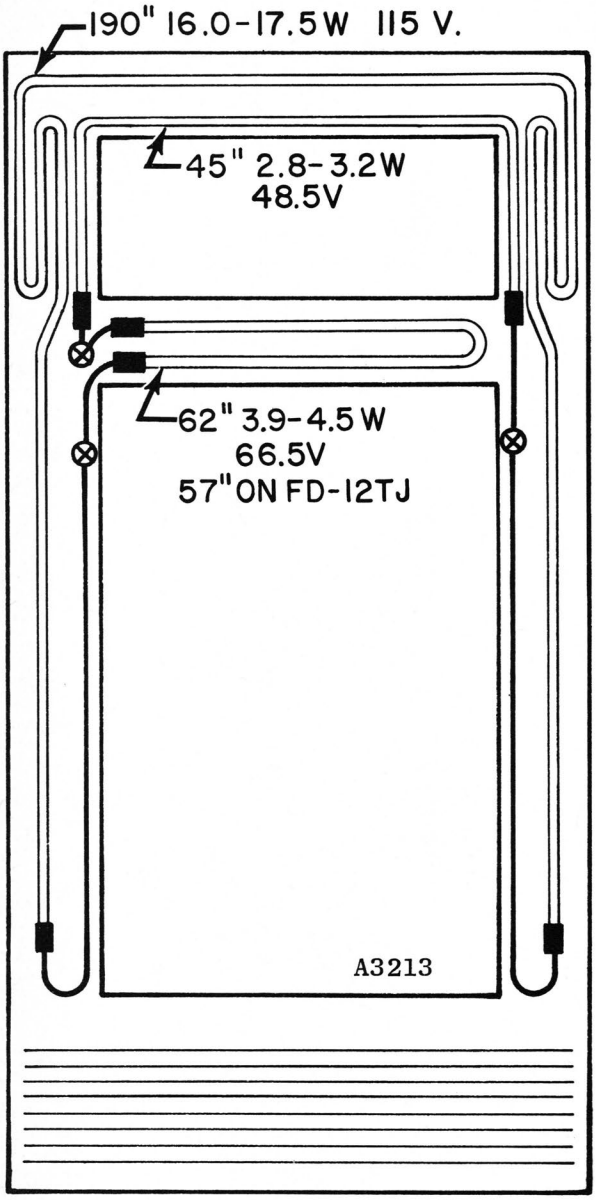


Figure 33
Condensate Driers — Models FDA-13TJ & FD-13TJ

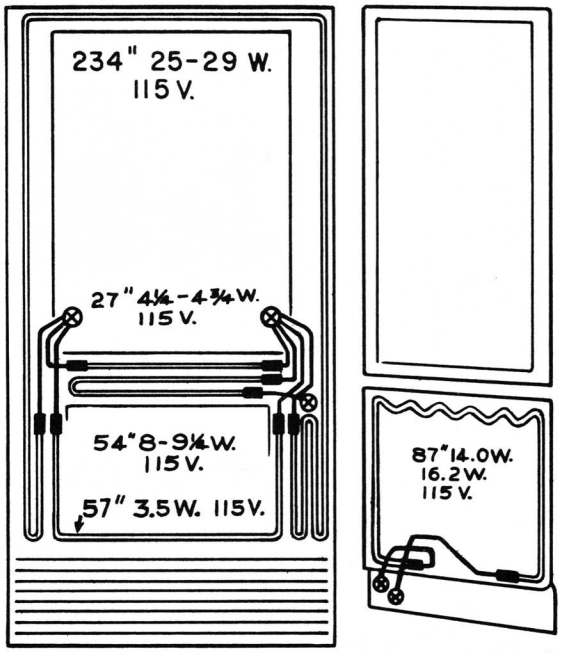


Figure 34
Condensate Driers — Model FD-14BJ

Condensate Driers:

These driers, Figure 33 through 38, are located behind the freezer collar, in the center mullion, in the door and around the perimeter of the cabinet shell. Grooves are provided in the molding of some models for their location and special tape is used to hold them in place. Should a service replacement be necessary, use 5874868 tape to hold the driers in place on plastic parts. If, for example, a shell drier is to be replaced, the template will be held in position by tape and the insulation. For a single wire, use a small piece of blue permagum to locate the wire as the tape mentioned above may pick up small particles of insulation and not adhere to the cabinet shell.

The models and their respective driers, along with drier lengths, wattage and voltage ratings, are shown in the figure references.

In Figures 34 through 38 the center mullion drier has two driers on one template. The smaller drier is en-

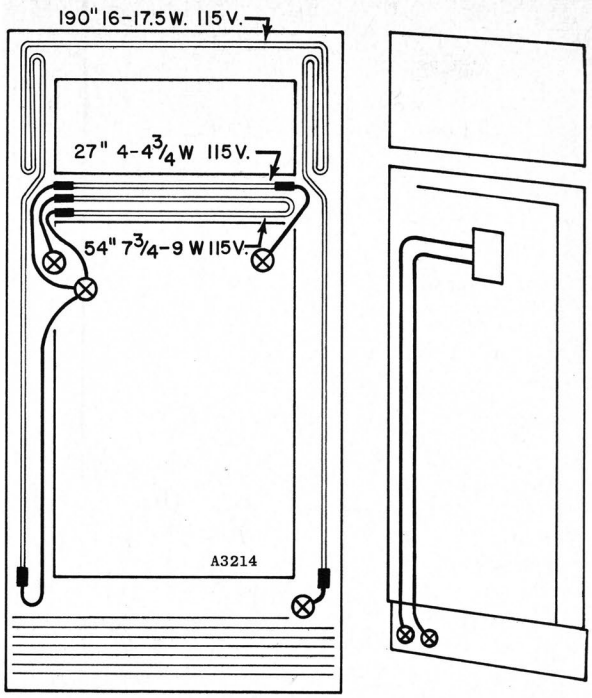


Figure 35
Condensate Driers — Models FPI-12TJ & FPI-14TJ

ergized continuously while the larger drier cycles with the thermostat.

On foamed cabinets, it is suggested that the shell drier replacement be placed in the cabinet channel. Trimming the template slightly to fit will help. On foamed

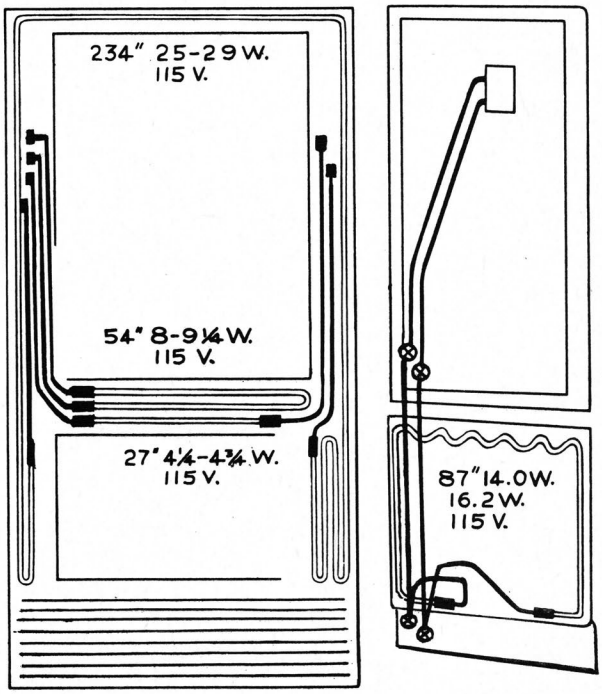


Figure 36
Condensate Driers — Model FPI-14BJ

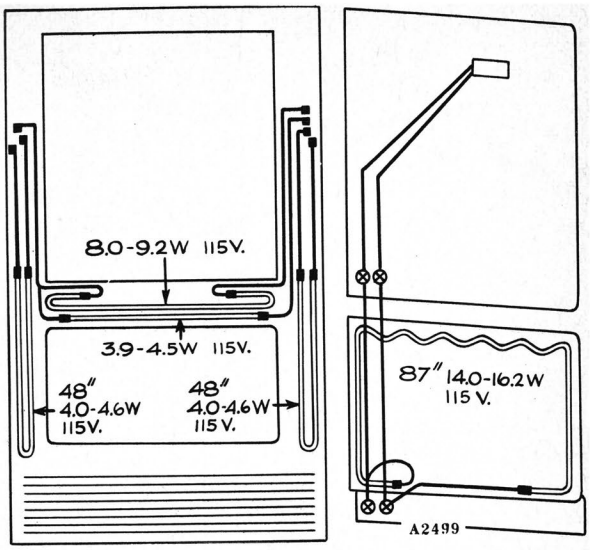


Figure 37
Condensate Driers — Model FPI-16BJ

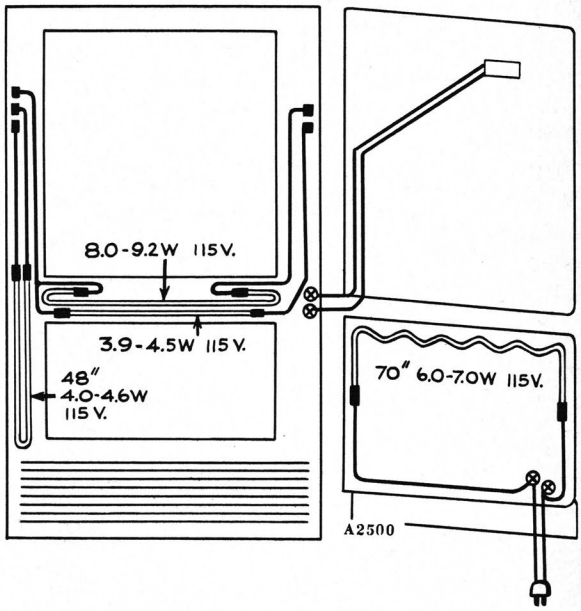


Figure 38
Condensate Driers — Model FPI-19BJ

freezer doors, do not replace the complete door should the drier be open. Remove the inside panel and work the drier under the outside door panel flange as far toward the corner and outer surface of the metal panel as possible.

It is most important that the wires are in direct contact with the metal surface of the shell or door panel.

Operation

The operation of 1965 models is basically the same as outlined in Tech Talk Vol. XV, No. 3, for the 1964 models. The distribution of air throughout the cabinet is illustrated for the various models. The cycle of opera-

tion of the refrigerating system as well as the controls is covered in detail. The purpose, functions and pertinent data relative to controls such as relays, thermostats, defrost timers, limiter switches, etc., can also be found in the Electrical Control Digest. It is suggested that these controls and their function be reviewed if there is and question or doubt as to what part they play in the performance of a normal refrigerating cycle.

The only exception is the defrost timer used on the FPD, FPI-19BJ models. This timer is similar to the one used on Frost Proof Food Freezers in that the fail safe relay is removed. The timer cam is designed so the defrost cycle is terminated in 20½ minutes ±2½ minutes. The limiter switch will open at 55° ± 5° and de-energize the defrost heater, keeping it off until the timer runs out the remainder of the 20½ minutes. This timer still has two defrosts a day—once every 12 hours.

TABLE II

Installation Dimensional Chart in Inches

Use with Figure 39

	S-10J D-10J	D-12J	D-14J FCDM-14J FPDA-14TJ FPD-14TJ	FDA-13TJ FD-13TJ FPI-14TJ	FD-12TJ FPD-12TJ FPI-12TJ	FD-14BJ FPD-16BJ FPDA-14BJ	FPI-16BJ** FPD-14BJ FPI-14BJ	FPD-19BJ FPI-19BJ
A	57½	59¾	64		59¾	64		67
B	24	30	32		30	32		33¾
C	28 15/16	29 3/16	29½		29 11/16	30		26 13/16
D	49½	55	57⅛		55⅝	57⅝		56⅞
E	2½	2½	2½		3	3		0
*F	0	0	0		0	0**		0

*Door Swing Clearance—Everything Removable.
**On the FPI-16BJ—12".

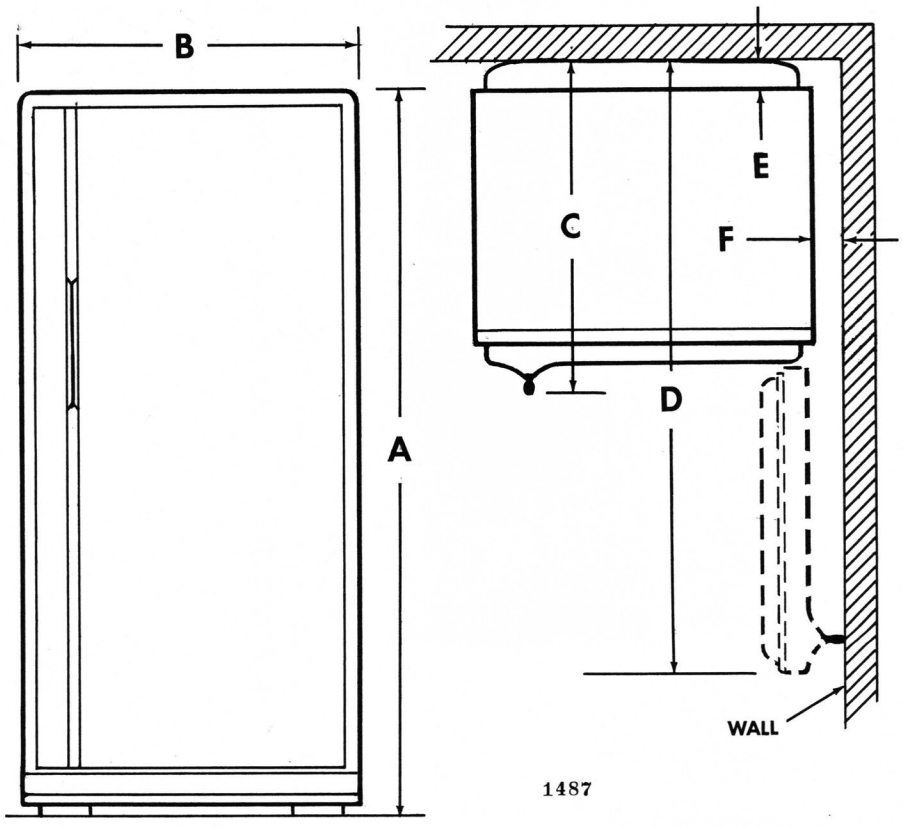


Figure 39
Installation Diagram and Dimensional Chart

Installation Instructions

1. Carefully uncrate the refrigerator and remove all tape securing the shelves, trays, Moist-Minder, etc. Remove the base panel and remove all packing material from the Moist-Minder drain pan and the cabinet.
2. Level the cabinet by adjusting the leveling glides. Using a thin ⅜" open end wrench, turn the wrench counterclockwise on the leveling screw to lower the cabinet or clockwise to raise it. If the floor under the back of the cabinet is lower than at the front, use shims under the back corners.
3. Set the Cold Control to the No. 1 position. The white number 1 on the outer knob will then be in line with the black marker at the inside of the knob, except on the 16BJ and 19BJ models.
4. Plug in the service cord and check for high sound level in the lines. Adjust the lines if necessary.
5. Present the customer with the Use and Care Instruction sheet and booklet. Suggest that it be read thoroughly to understand the proper operation and care of the refrigerator.
6. Remove all packing material from the premises.

Wiring Instructions for Showroom Display

1. Disconnect and tape the White lead from the left-hand terminal of the compressor.
2. On the FPD, FPI-14BJ, FPDA-14BJ and FPD, FPI-16BJ models, remove both side moldings. Disconnect and tape the plain Pink lead on the right-hand terminal board that connects to the relay. If the wrong lead is disconnected, the freezer blower motor will not run. In this case replace the disconnected Pink lead and disconnect the other one. Also disconnect the plain Red lead on the left-hand terminal board.
3. On the FPD, FPI-19BJ, remove the left-hand side molding. Disconnect and tape the plain Red lead and one of the plain Pink leads. There are three other Pink leads on this terminal board but two of them have Gray tracers and one has a Blue tracer to identify the leads. If the wrong Pink lead is disconnected, the freezer and food compartment blower motors will not run. In this case, reconnect the disconnected Pink lead and disconnect the other pink lead.
4. On the 14T models, follow Step 1; pull the terminal block off the defrost timer and snap the Red lead from the terminal block. Tape this lead and replace the block. If the connector block is left disconnected, the freezer blower motor will not run. If the Pink lead is disconnected in the relay or at the thermostat and taped, no other leads need be disconnected.

- Plug in the service cord. Prospective customers can turn the Cold Control to any position without the unit running. Lamps will light and the blower motor will run. The drier strips will be energized but not sufficiently to cause damage to any plastics. Ribbons can be attached to the discharge grilles to indicate air flow.

Service Diagnosis

PROBLEM and POSSIBLE CAUSE	REMEDY
Unit Will Not Run:	
No power to outlet or low voltage. Blown fuse.	Check source with volt-wattmeter. Should check 115 volt ±10%.
Broken service cord.	Check voltage at relay. If none and voltage indicated at outlet, replace service cord or plug on cord.
Inoperative thermostat.	Jumper across terminals of thermostat. If unit runs and connections are all tight, replace thermostat.
Faulty capacitor.	Check capacitor using test cord and 150 watt light bulb. If bad or shows signs of leakage, replace capacitor.
Inoperative relay.	Use starter cord and check unit. If unit runs with normal wattage and above conditions are correct, replace relay.
Stalled unit.	Use starter cord and check unit. If compressor fails to start because it is too hot, allow to cool to room temperature and repeat. If wattage is too high, will not start, or blows fuse, replace the compressor. Take burnt oil check. If not within limits of oil sample indicator, it may be necessary to replace all components.
Broken lead to compressor, timer or thermostat.	Replace or repair broken leads.
Inoperative defrost timer.	Replace timer assembly.
Inoperative condenser fan motor or faulty protector —FPD, FPI-19BJ.	Check out fan motor and also protector on compressor. Replace either if necessary.
Food Compartment Temperatures Too Warm:	
Inoperative thermostat.	Determine product temperatures. If slightly high, adjust control for longer running time. If control is discharged, broken or if recording indicates switch settings are off, replace switch.
Thermoline Touching.	Even though the thermoline has an insulator on it, it must not touch the plate. Also route the line up at an angle to prevent water from entering the plastic covering.
Conventional models liquid line bushing by passing.	Replace component evaporator.
Poor door seal.	Level cabinet. Adjust door seal.
Repeated door openings or overloading of shelves in food compartment.	Instruct user regarding blocking normal air circulation in the cabinet.
Inoperative fan cycling switch on FPD, FPI-19BJ.	Check leads and control. Replace if discharged, broken or other conditions which would warrant replacing the control.
Inoperative fan motors.	Replace motor.
Lights stay on.	Adjust door to engage plunger. If switch is faulty, replace switch.
Food Compartment Air Flow Control.	May be discharged—replace assembly. Check for obstruction in the passage from the freezer to the food compartment. Check for proper sealing around the control and the bellows. Check for bulb spacer on 14B models.
Conventional refrigerator needs defrosting.	Excessive frost accumulation on freezer, slows down heat transfer to refrigerant in line freezer. Excessive frost also resists normal air flow around the freezer. Suggest that customer defrost more often.
Improper bulb spacer.	Check for proper bulb spacer, use thicker spacer to lower switch cut-off point and lower cabinet temperatures by increasing the running time.
Seasonal Control in closed position, or Drip Tray all the way back.	Change Seasonal Control or Drip Tray to the open position to allow more air circulation. around the freezer.
Food Compartment Temperatures Too Cold:	
High altitude installations.	Up to 5,000 feet turn cold control warmer on F-3 switches. On the food compartment air flow control and the fan cycling thermostat, calibrate the control.
Food Compartment temperature control.	Adjust the control as outlined in procedure M. There may be an obstruction causing the damper to remain open.
Inoperative thermostat, Conventional models.	Do not condemn the control until other factors are considered. If control does cycle the unit regularly but foods are too cold, adjust the control warmer. If the unit does not cycle, replace the control. Do not overlook the possibility of electrical terminal connections touching.
Very cold ambient temperature.	If in an extremely cold room, the freezer temperature and cabinet temperature tend to equalize causing cabinet temperature to be below 32°. Refrigerator should be moved to a warmer location.
Improper bulb spacer.	Use thinner bulb spacer to raise the effective switch cut-off point and raise cabinet temperatures by reducing running time.
Seasonal Control or Drip Tray in open position.	Change Seasonal Control or drip tray to closed position to reduce the air circulation over the freezer. Move the chill drawer up also, if applicable.

PROBLEM and POSSIBLE CAUSE	REMEDY
Unit Runs Excessively:	
Air flow around condenser restricted.	Adequate air flow over condenser is necessary. Advise user where cabinet is built in without proper circulation of air.
Poor door seal.	Level cabinet before making any adjustments. Check for interference from packages or foot pedal.
Placing sudden full load on unit such as all fresh water in ice cube trays or heavy loading after shopping.	Explain to customer that this heavy loading will cause long running time until temperatures are maintained. This running period may be several hours after heavy loading of the cabinet. Refer to Use and Care Instructions regarding running time.
Faulty thermostat.	If freezer package temperature is between 0° and 6°F., the thermostat is not at fault.
Freezer drain trap not in place.	This will allow warm air to travel to the freezer. Install trap.
Refrigerant charge.	Too much or too little gas. Discharge, evacuate and recharge with proper charge.
Restriction or moisture.	Replace component where restriction is located. If moisture is suspected, replace drier-filter.
Normal operation.	On Frost-Proof models if freezer package temperatures are below 0° turn cold control warmer.
Noise:	
Blower motor.	Check for motor wheel rubbing housing. Readjust. Replace motor if noise is excessive.
Compressor mounting.	Replace mounts. This type noise usually occurs during starting or during stopping of the unit.
Vibration of tubing.	Run the hands over various lines. This can often help determine the location of the vibration. Gently reform tubing to eliminate vibration problem. Check discharge line from compressor to top of condenser to eliminate possible rubbing of line against condenser.
Superheat coil or condenser.	Tighten all tubing clamps Bend or straighten fins. Check drip disposal pan to see that it is not touching the Superheat coil.
Location of cabinet.	An out-of-level floor may be a factor in causing noise. Also certain types of flooring transmit vibration more readily than others. Investigate type of floor construction where cabinet is located.
Compressor.	Only after all external sources have been checked should the compressor be changed for noise.

PROBLEM and POSSIBLE CAUSE	REMEDY
Freezing Compartment Too Warm, Frost-Proof:	
Inoperative thermostat.	Note running time and freezer package temperatures, adjust control for longer running time. If control is broken or discharged, replace control.
Poor door seal.	Level cabinet. Adjust door hinge wings. Check for interference from packages or foot pedal.
Light stays on.	Adjust door to engage plunger. If switch is inoperative, replace switch.
Blower motor inoperative.	Check to see that the blower motor is free. Check voltage to motor. Replace if inoperative.
Inoperative timer.	Timer may not allow unit to go into defrost causing ice to build up on coil. This cuts down on the air flow. Replace timer if inoperative.
Moist-Minder drain trap not in place.	This allows air to leak into the freezing compartment. Install parts.
Coil iced up.	Check drain heater, defrost heater, limiter switch, and timer. These items could cause the coil to ice up.
Water on the Floor. Suction Line is Frosted or Very Cold:	
First pull down after installing product.	This frost back should stop after first couple of cycles.
Overcharge of refrigerant.	Purge slightly from high side charging port. If too much has been purged, evacuate and recharge system.
Freezer blower motor. inoperative.	Check for voltage supply to motor. If none, check wiring. Remember this motor only runs when the compressor runs.
S & D liquid line bushing by passing.	Replace component evaporator.
Excessive frost build up on freezer coil.	See—Freezing Compartment Too warm.
Oil on the Floor:	
Terminal stud leak.	Check with leak detector. Tighten stud. Evacuate and recharge with proper charge.
Charging screw loose.	Check with leak detector. Tighten screw. Evacuate and recharge.
Broken line.	Replace component or repair with line connector, if possible. Evacuate and recharge.
Unit Hums and Shuts Off:	
Low voltage.	Check electrical source with Volt-Wattmeter. Under a load, voltage should be 115 volts ±10%. Check for possible use of extremely long extension cord, or several appliances on same circuit.
Faulty capacitor.	Replace capacitor.
Inoperative relay.	Replace relay.
Stalled compressor.	Check with test cord. If compressor will not start, replace.

PROBLEM and POSSIBLE CAUSE	*REMEDY*
Frost in the Freezer, Frost-Proof:	
Water spilled when ice cube trays are placed in the freezer.	Caution customer that water spilled will not readily be removed. Tap bottom of cold storage liner and ice will break loose.
Poor door seal.	Level cabinet. Adjust door hinge wing. Check for interference from packages or door opening pedal.
Improper loading.	Packages should not block the air flow at the top in back of the cold storage liner.
Inoperative freezer blower motor.	Check to see that the blower wheel is free. Check voltage to motor. Replace if defective.

PROBLEM and POSSIBLE CAUSE	*REMEDY*
Excessive Moisture Inside Food Compartment. Temperature OK:	
Poor door seal.	Level cabinet. Adjust door hinges.
Normal operation.	During humid weather, moisture will accumulate on cold surfaces within refrigerator, just as it accumulates on a glass containing iced drink on a hot summer day. This is perfectly normal and is particularly noticeable when the refrigerator door is open frequently. Refer user to Owner's Manual.
Seasonal Control or drip tray in closed position.	Open Seasonal Control or position drip tray so more air circulates to pick up moisture.

TABLE III

Discharge Velocities—Coil Clear

MODEL	FPM
FPD, FPI-14TJ and FPI-12TJ	
1. Freezer Discharge	800—1000
2. Meat Tender Deflector—Top	350
3. Meat Tender Deflector—Center	500
4. Meat Tender Deflector—Bottom	700—800
FPD, FPI-14BJ	
1. Freezer Discharge	1150
2. Meat Tender Deflector—Top	650
3. Meat Tender Deflector—Bottom	400
4. Food Compartment Discharge—Left	500
5. Food Compartment Discharge—Center	370
6. Food Compartment Discharge—Right	300
FPD, FPI-16BJ	
1. Freezer Discharge—Top Middle	1400
2. Meat Tender Discharge	380
3. Top Food Compartment Discharge—Deflector Removed—Left	400
4. Top Food Compartment Discharge—Deflector Removed—Middle	400
5. Top Food Compartment Discharge—Deflector Removed—Right	300
FPD, FPI-19BJ	
1. Freezer Discharge—Left Side of Grille	350
2. Freezer Discharge—Right Side of Grille	550
3. Meat Tender Discharge	370
4. Top Food Compartment Discharge—Deflector Removed—Left	400
5. Top Food Compartment Discharge—Deflector Removed—Middle	400
6. Top Food Compartment Discharge—Deflector Removed—Right	300

Air flow can be checked by using a 12228 air velocity indicator. Using Table III as a reference guide, proper air flow through the coil and ducts can be determined. These readings were taken with a cold product, a clear coil and, on the "B" models, with the discharge deflector in the food compartment removed.

TABLE IV

*Wattage Data for 1965 Refrigerators

Model	Total Refrigerator Running Wattage 70° to 90° Room Temperatures
S-10J	110—150
D-10J	110—150
D-12J	110—150
D-14J	130—170
FD-12TJ	170—185
FDA-13TJ	185—300
FD-13TJ	185—300
FD-14BJ	185—365
FCDM-14J	180—240
FPD-12TJ	170—285
FPI-12TJ	170—285
FPDA-14TJ	260—330
FPD-14TJ	260—330
FPI-14TJ	260—330
FPDA-14BJ	305—375
FPD-14BJ	305—375
FPI-14BJ	305—375
FPD-16BJ	305—375
FPI-16BJ	305—375
FPD-19BJ	304—350
FPI-19BJ	204—350

*Operation on 115 volts, 60 cycle power. Readings should be taken near the end of the running cycle.

To provide safety and to avoid repetition of this caution throughout the service operation, ***always break the source of electrical supply before attempting to service an electrical component of the refrigerator.*** Always follow color coding when rewiring or when connecting leads to electrical components. The wiring diagrams show resistance values to assist in diagnosis. Unless otherwise stated, assembly operations are the reverse of disassembly procedures. For rewiring and connecting of leads, refer to the wiring diagrams at the end of this issue or to the wiring diagram on the front of the cabinet. On the FPD-19BJ and FPI-19BJ the diagram is located behind the side door opening molding.

If service should be required, the person taking the call can help both the customer and the serviceman by requesting pertinent information.

One of the most important items is to have the correct model number.

On these models, this can readily be gained by removing the apron or base panel and reading from the model and serial plate on the left-hand, front foot gusset. On the FPD-19BJ and FPI-19BJ it is located on the right side of the freezer liner assembly between the baskets. Be sure the complete model number is secured. For example, PFPI-16BJ, so that the serviceman will have a complete picture in his mind of the product before going on the call.

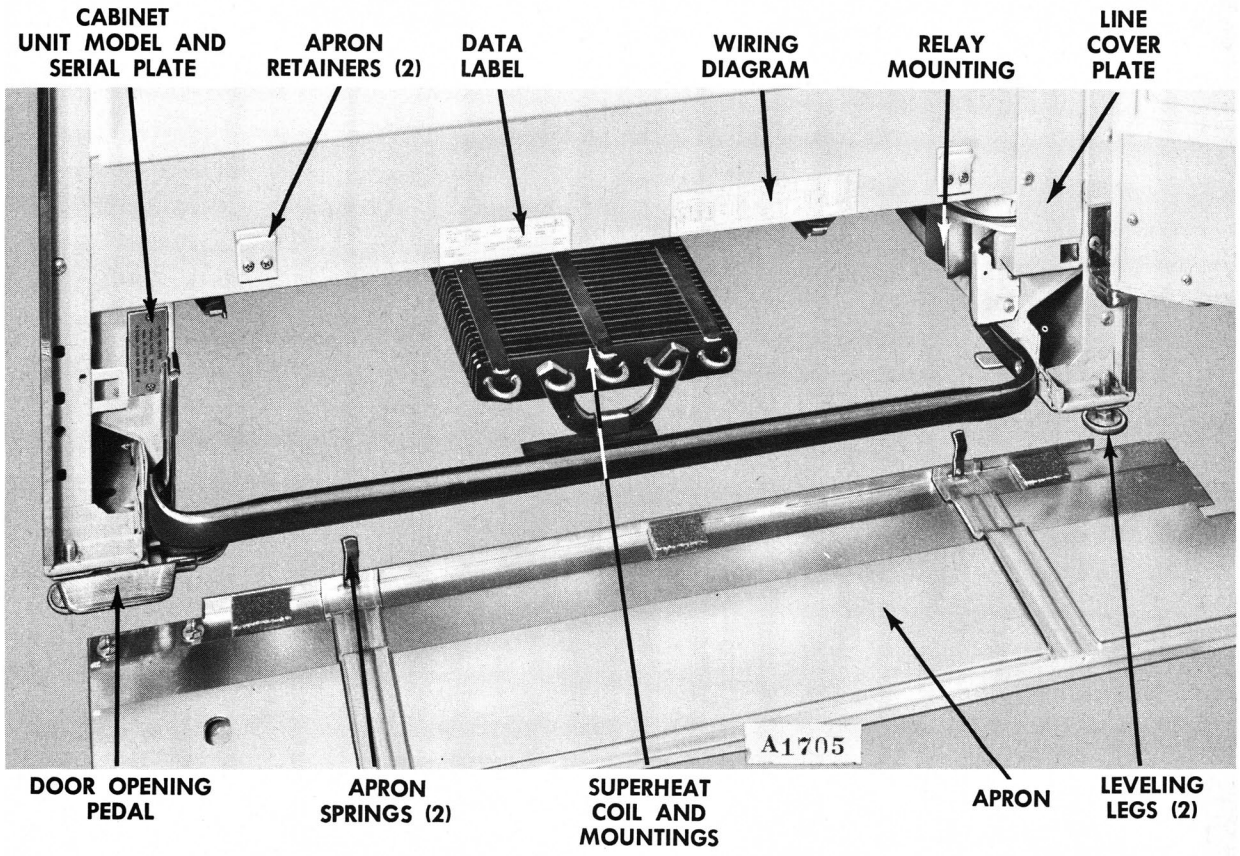


Figure 40
Machine Compartment Detail — FPI-16BJ

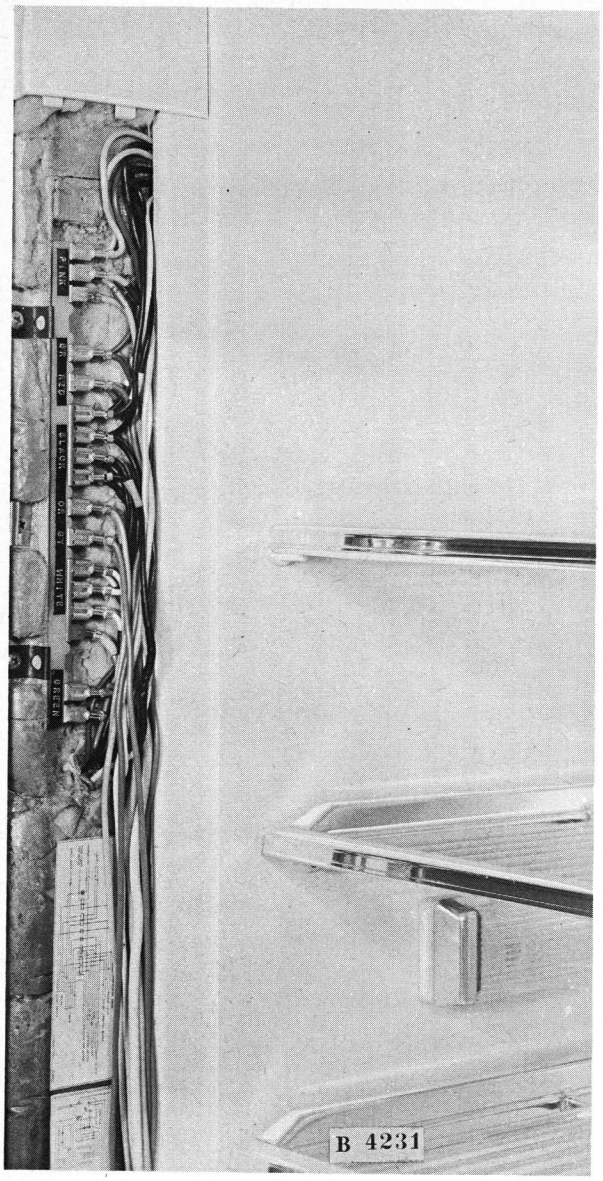


Figure 41
Terminal Board and Wiring Diagrams — BJ Model Frost-Proof

On the bottom freezer Frost-Proof models, terminal boards, Figure 41, for the junction of electrical leads, are located on the right-hand and left-hand sides of the cabinet shell behind the side moldings. These will greatly assist the serviceman in diagnosis of electrical controls and circuits.

A. Lamp and Related Components—Replacement:

There are several designs of lamp shields used in the 1965 models and will cover them by design rather than by models.

Square Plastic Shield:

Lift off the plastic shield and retainer from the rubber socket and replace the bulb with a standard 40 watt appliance bulb. This shield is located in the rear wall of the food compartment liner.

Plastic Escutcheon:

This escutcheon, Figure 42, need not be removed to replace the bulb. To replace the lamp socket, remove the escutcheon and remove the hairpin spring holding the socket to the metal reflector. This type is mounted to the left-hand side of the liner.

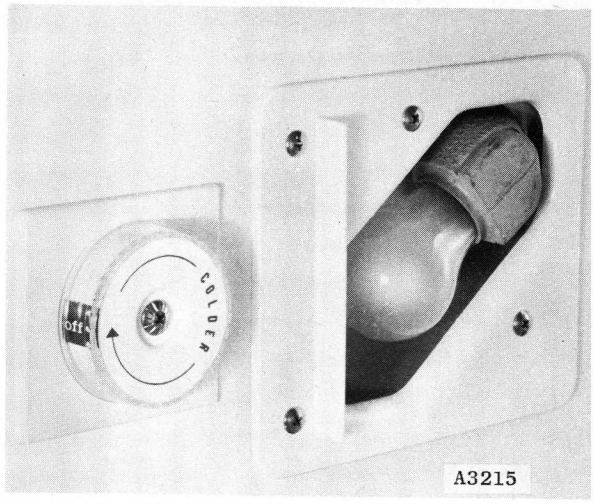


Figure 42
Interior Lamp and Cold Control — Plastic Escutcheon

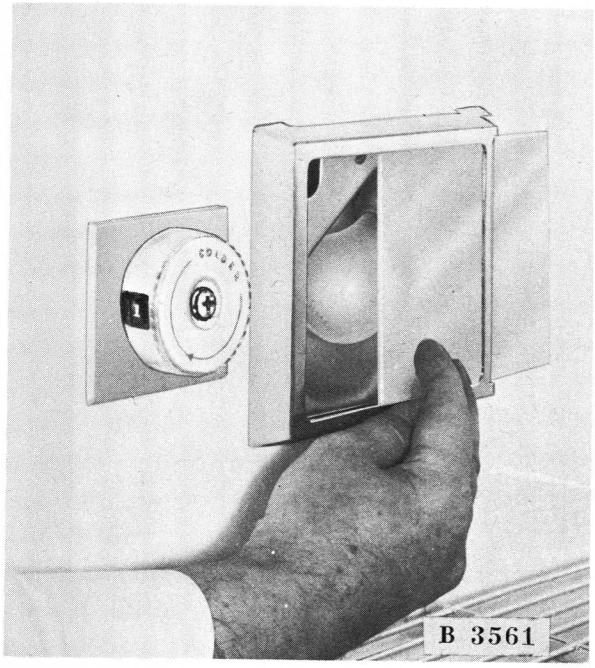


Figure 43
Interior Lamp and Cold Control—Metal Escutcheon

Glass Shield and Metal Escutcheon:

1. Remove the lamp shield, Figure 43, by sliding it toward the rear of the liner and lifting it out. Replace the bulb with a standard 40 watt appliance bulb.
2. To replace the lamp shield escutcheon, slide the shield out, remove the two mounting screws and remove the escutcheon.
3. To replace the lamp socket, remove the escutcheon and remove the two mounting screws. The socket

is held in place by a hairpin spring mounted to the metal reflector. This type is mounted to the left side of the liner.

Full Width Lamp Shield:
Remove the full width lamp shield and air deflector located at the top, rear of the liner by lifting up and out. Replace the bulb with a standard 40 watt appliance bulb.

Tubular Lamp Shield:

1. Remove the lamp shield by pushing it toward the rear of the cabinet and lifting it out. Replace the bulb with a 25 watt tubular bulb.
2. To replace the lamp shield bracket, turn the plastic mounting studs 90° in a clockwise direction. Use a ½" blade screwdriver or a small piece of ¼" bar stock. This tubular socket can be replaced without pulling the liner. Refer to TECH-TALK Vol. XV, No. 3, page HH-33, for procedures.

B. Door, Evaporator—Removing:

Models S-10J, D-10J, D-12J and D-14J

1. Remove the two bottom hinge wing screws.
2. Lift the door down and out to remove.

Model FCDM-14J

1. Loosen the three mounting screws, Figure 44.

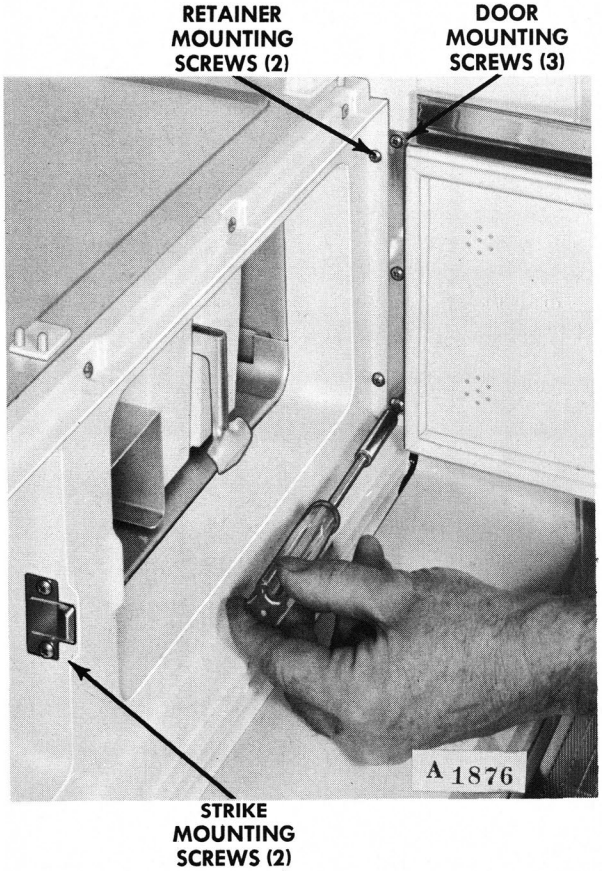


Figure 44
Freezer Door Mounting — FCDM-14J

Note: Do not remove the two retainer mounting screws that secure the retainer behind the liner.

2. To disassemble the door, once removed, remove the screws behind the door seal, remove the hinge mounting screws and also the latch mounting screws.

C. Door Evaporator—Adjusting:

Models S-10J, D-10J, D-12J and D-14J

The door can be adjusted for alignment by loosening the bottom hinge screws. The roller on the door can be adjusted for tighter tension by loosening the two screws and sliding the roller in or out.

Model FCDM-14J

The evaporator door can be adjusted in or out for proper sealing by loosening the hinge mounting screws. The Meat Tender door can be adjusted in a like manner. To adjust doors up or down, spring the door hinge slightly or add shims behind the hinge.

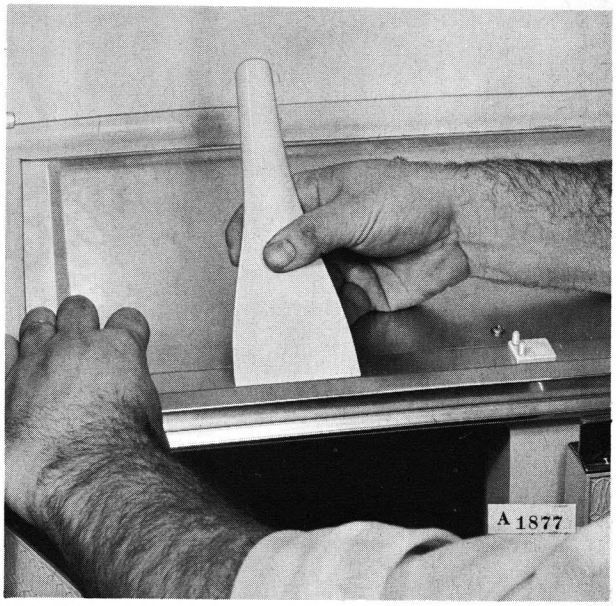


Figure 45
Freezer Collar Trim Removal — FCDM-14J

D. Trim, Freezer Collar—Removal:

Model FCDM-14J

Using a 6583741 plastic frost scraper, engage the edge of the trim, Figure 45, being careful not to catch the edge of the plastic collar. Start near the left-hand side and work toward the right, using the other hand to pull up and out on the trim.

E. Molding, Door Opening—Replacement:

Note: Remove the side molding before removing the top or the bottom molding. Remove the evaporator door strike first to prevent breakage of the side molding.

1. Using both hands, pull out the inside bottom edge of the side molding—the edge next to the liner.
2. After the molding is free at the bottom, move the hands up the molding, a little at a time, and pull the

inside edge away from the liner. Slide the molding down to free it from the lip of the top molding.

3. After the side moldings are removed, the top and bottom moldings can be removed by pulling either end of the molding away from the liner. In removing the top molding, pull down one corner; for the bottom molding, pull one corner up and free from the liner edge. On the bottom molding, lift up in the center first to break the permagum seal from the bottom of the liner.
4. When replacing the molding, install the top and bottom moldings first. Be sure there is permagum completely across the bottom of the liner to prevent water entering the insulation from the liner section. Place the outer edge behind the cabinet shell flange. Engage the inner edge by squeezing the molding toward the shell with one hand and bumping the inside edge of the molding with the heel of the other hand, at each tab location, until all tabs are securely fastened under the liner flange. For ease of replacing the side molding, slide the molding under the lip of the upper molding and work downward. Due to the standardization of moldings, there may be an occasion to file ⅛" of the bead on the side molding for it to slip under the top molding.

F. Collar, Freezer—Replacement:

Models FD-12TJ, FD-13TJ, FDA-13TJ

1. Remove the top molding from the top and sides of the freezer by removing the screws located around the inside of the molding.
2. Pull the molding down in the center to break loose the permagum seal and then down on one corner. Pull out the other side. Remove the drier and transfer the drier to the new molding. Reinstall the molding.
3. The mullion, located across the bottom front edge of the freezer, is made in three sections. If necessary to replace, the top and bottom can be removed separately after removing screws on each side of the top molding. The top and bottom pieces are plastic while the center piece is metal. The condensate drier is taped to the center piece of styrofoam. Access to the connections can be gained by removing the side moldings. Use new electrical connectors.

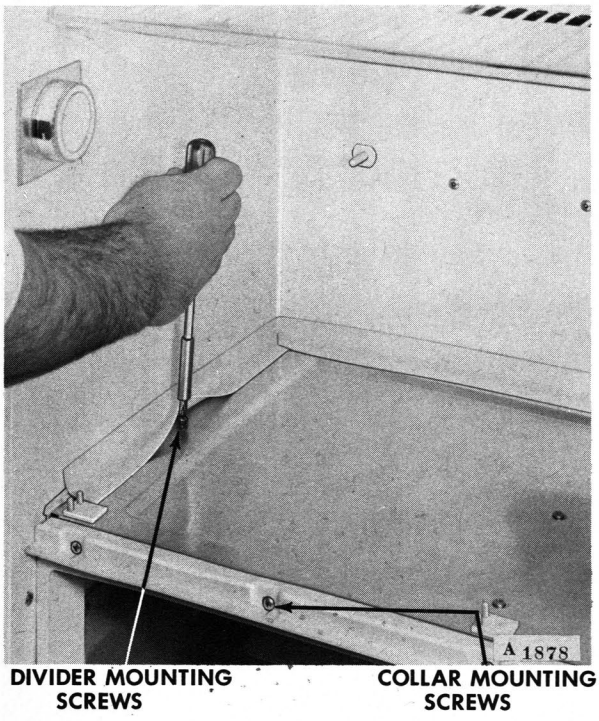


Figure 46
Divider and Collar Mounting — FCDM-14J

Note: When installing a service replacement drier, use 5874868 tape to hold it in place.

Model FCDM-14J

1. Remove the freezer doors, Procedure B.
2. Remove the collar trim, Procedure D.
3. Remove the five screws across the top of the collar, Figure 46.
4. Remove the collar by pulling it out at the top and past the two retainer screws on each side.

Model FD-14BJ

This collar is of a design requiring no screws. Remove the bottom of the center mullion, after removing the retaining screws, and remove the collar by pulling out at the tab locations. Use the plastic frost scraper to help get a start. Remove the sides first and then the bottom. Be sure to reseal the edges with permagum.

Frost-Proof Models

To remove the freezer collar on the Frost-Proof models, refer to Procedure SS.

G. Divider Assembly—Removal:

Model FCDM-14J

1. Remove the two inner doors, Procedure B.
2. Remove the collar trim, Procedure D.
3. Remove the freezer collar, Procedure F.
4. Remove all screws around the sides, back and the center of the divider, Figure 46.
5. Raise up on the back and front of the divider, pull straight out, Figure 47, and remove the divider assembly.

H. Condensate Driers—Replacement:

Refer to the article on condensate driers under Construction in the forepart of this manual before proceeding with any replacements.

Center Mullion Drier

Models FD-12TJ, FD-13TJ and FDA-13TJ

Refer to Procedure F, for replacement of the collar drier or the center mullion drier.

Center Mullion Drier

Models FPD-13TJ, FPI-12TJ, FPD-14TJ, FPDA-14TJ and FPI-14T

1. Remove the right-hand and left-hand side food compartment door opening moldings. Locate the light

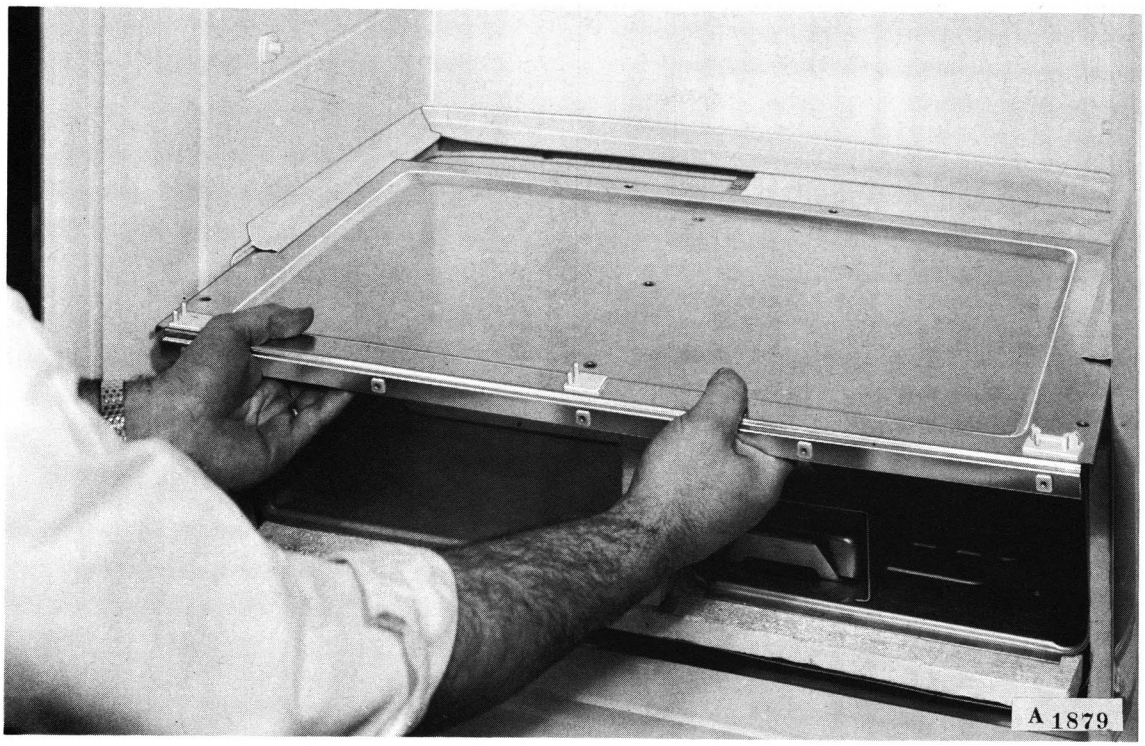


Figure 47
Divider Assembly Removal — FCDM-14J

Blue drier leads in the insulation space. Cut one of the leads approximately four inches from the connector and check with an ohmmeter. If inoperative, proceed.

2. Remove all food, ice trays and cover in the freezer section.
3. Remove the cold storage liner bottom and freezer collar.
4. Remove the center mullion top and bottom plastic pieces. Remove the rear, tapered piece of polystyrene and then the front piece. Remove the old drier.
5. Install the new drier template with the three leads on the left-hand side. Reinstall the polystyrene pieces removed in Step 4.
6. Reconnect the electrical leads as they were disconnected, using new connectors.

Center Mullion Drier

Models FPD-14BJ, FPDA-14BJ, FPI-14BJ, FPD-16BJ, FPI-16BJ, FPD-19BJ and FPI-19BJ

1. Follow steps 1, 4, 5 and 6 as outlined for the Frost-Proof 12TJ and 14TJ models. Remove the metal strip from across the bottom front of the liner.
2. Remove the center styrofoam insulation to gain access to the drier template.
3. Disconnect the leads from the terminal boards.

Cabinet Shell Drier

Conventional and Some Cycla-Matic Models

These models do not have shell driers. However, should moisture condense on the shell under extreme humidities, 6590489 service drier may be installed to reduce the condition. Follow the general instructions outlined below.

Cabinet Shell Drier

All Top Freezer Models Except FD-12TJ

1. Remove the left-hand and right-hand side door opening moldings.
2. Locate the light Blue drier lead in the insulation space and check the drier with an ohmmeter. Cut one wire so a false reading will not be made. If inoperative, proceed.
3. Remove all foods, ice trays and the cover in the freezer section.
4. Remove the cold storage liner bottom and freezer collar.
5. Remove the top corner freezer-to-liner gussets.
6. Pull out the insulation around the top of the cabinet shell channel and on both sides to gain access to the drier. Remove the old drier by cutting the leads approximately 4 inches from the connectors. In some instances the side liner-to-shell supports should be removed.
7. Locate the center of the shell drier template and start assembly at the top, center of the shell. Use small balls of 5877995 permagum and/or 5874868 tape to fasten the drier to the shell. Replace the insulation. *Note:* To gain maximum benefit from the drier, be sure the wires are in contact with the metal shell completely around the perimeter of the cabinet.
8. Reconnect the leads, using new connectors.

Models FPD-14BJ, FPDA-14BJ, FPI-14BJ and FD-14BJ

This drier is located around the perimeter of the cabinet shell approximately one inch back from the front edge. It is mounted to two templates—one has one loop, two passes, while the other has two loops, four passes. The template with two passes is located on the door opening side while the one with four passes is located on the hinge side. Use 5874868 tape and/or 5877995 permagum rolled into small balls approximately the size of a quarter for locating the drier.

To Replace:

1. Remove all door opening moldings and freezer collar and locate the light Blue drier leads. Disconnect one wire so a false reading will not be made and check with an ohmmeter. If inoperative, proceed.
2. Remove food, baskets, etc., from the freezer section and remove the freezer bottom plate. Remove the freezer collar.
3. Pull out the insulation to gain access to the drier template. Disconnect the old drier leads from the terminal board.

Note: Upon reassembly, the drier leads should be in contact with the cabinet shell and not the aluminum foil template. Be sure the drier is positioned properly.

Models FPD-16BJ, FPI-16BJ, FPD-19BJ and FPI-19BJ

These models are foamed cabinets and it is not practical to replace the drier should it become inoperative. It is suggested that replacement be installed in the cabinet shell flange. 7516388 drier can also be installed on the hinge side should it be necessary to do so to improve the condition of exterior condensation in this area. To install, proceed as follows:

1. Remove the right-hand or left-hand side food compartment door opening moldings and the bottom food compartment molding (top of center mullion).
2. Remove the freezer baskets and the complete freezer door assembly on the FPI-19BJ model. This drier can be added without the removal of the freezer door but, with the freezer door removed, the installation is made easier.
3. Remove the freezer basket roller assembly on the 19BJ models.
4. Partially remove the side of the freezer collar to gain access to the cabinet shell channel. Remove the filler insulation. Use 5874868 tape and install a 7516388 heater and template in the cabinet shell channel, starting about 18" from the floor and continuing up to the center mullion gusset. Loop the template around the gusset and continue with the drier template in the cabinet shell channel above the center mullion as far as it will go. The white drier leads should be in contact with the metal channel. When a molding retainer clip is encountered, place the drier leads behind the clips, Figure 48. Tape over the template to hold it in position.

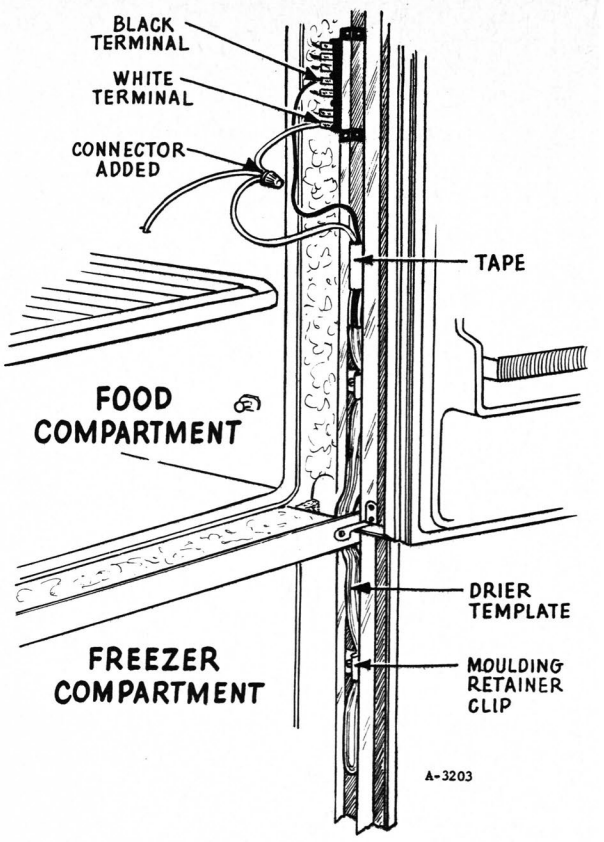


Figure 48
Hinge Side Drier — FP-19BJ

5. Connect the drier to 115 volts at the terminal board for continuous operation. If all terminals are used, cut one of the existing leads approximately six inches from the terminal and splice the drier lead to it.
6. In extreme cases, the center mullion driers may be transposed so that the *small* center mullion drier cycles with the thermostat and the larger center mullion drier is on continuously.

Door Drier

Frost-Proof Models

Should one of these driers become inoperative, it is not practical to replace it due to the fact that it is foamed in place. It is suggested that the door be removed and the inside panel be taken off. Leave the inoperative drier in place and install a 7513756 service drier adjacent to the turned over flange of the outside door panel. The above drier may have a tag on it which rates the drier at 4 watts-67 volts. It can safely be used on 115 volts with a resultant wattage of 12-14 watts. The resistance value per foot is such that either voltage can be safely applied and obtain these different wattages.

J. Switch, Thermostatic—Adjusting:

The importance of diagnosing the problem thoroughly before an adjustment of a thermostatic switch is made cannot be emphasized too strongly. First, read the articles on controls in the Control Digest before attempt-

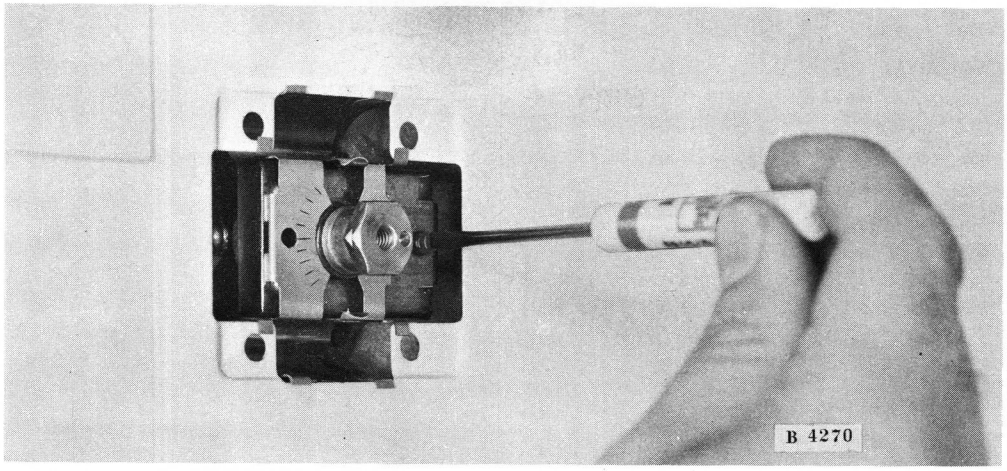


Figure 49
Thermostat Switch Adjustment

ing to make an adjustment. A summary of a few items to consider is as follows:

- Know the product—complete knowledge of how the product functions is necessary.
- Check the doors for proper seal.
- Check low or high ambients and room temperatures which affect the running time of the product.
- Excessive usage relative to heavy loads and/or door openings.
- Position of the drip tray and humidity control baffle, where applicable.
- Record food product temperatures and not air temperatures or evaporator skin temperatures.
- Place a reasonable load on the product—particularly in the freezer compartment for "ballast" effect.
- Don't place too much emphasis on switch settings but more on food product temperatures.
- If instruments are used to check the calibration of a switch, allow sufficient time for them to ensure the accuracy of the readings.

The cutin and cutout points are independently adjustable, Figure 49. Turning the adjusting screws clockwise gives the switch a colder setting and turning counterclockwise gives a warmer setting.

When the Cold Control knob is turned, both the cutin and cutout settings change. On conventional models the food compartment as well as freezer temperatures are affected to a greater degree than would be the case on Cycla-Matic or Frost-Proof models.

The switch shaft hex head has a small hole drilled in it, Figure 50. The plastic knob has a small pin molded on it which aligns with the hole in the switch shaft. This automatically aligns the knob with the switch to prevent internal damage to the switch when turned to the OFF or No. 3 position. The correct knob must be used or alignment or settings will be incorrect with resultant internal damage to the switch.

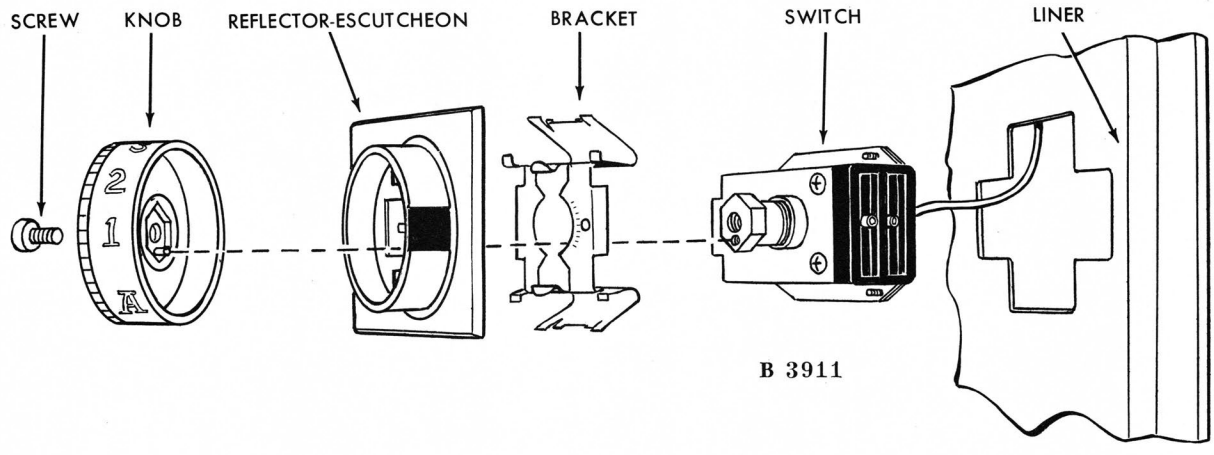


Figure 50
Thermostat Switch Mounting Detail — Conventional Models Illustrated

All Frost-Proof Models

It is recommended that diagnosis of the F-3D control be made on the basis of freezer product temperatures. Package temperature should be between 0° and + 6°F. The settings of this switch on No. 1 setting is −4°F. cutout and + 9°F. cutin.

No altitude adjustment is necessary up to 5,000 ft. other than turning the Cold Control to A position. Above this, compensation can be obtained by turning the control to a still warmer setting. There are only one or two areas that exceed 5,000 ft. and they are aware of the necessary adjustments to be made.

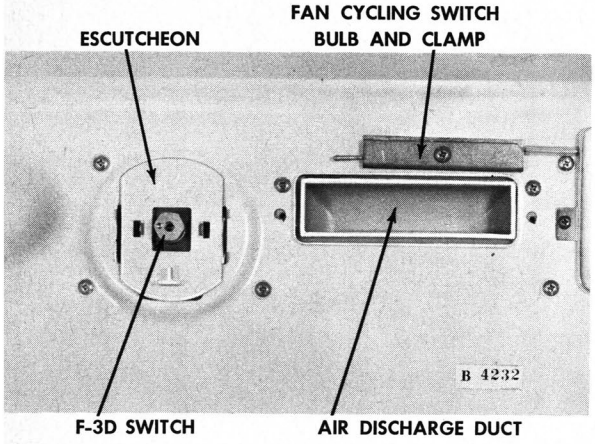


Figure 51
Temperature Control and Fan Cycling Switch Bulb Mounting — FPD-19BJ, FPI-19BJ

K. Switch, Fan Cycling—Adjusting:

Models FPD-19BJ and FPI-19BJ

The fan cycling switch, Figure 51, prevents freezing temperatures in the food compartment by controlling the running time of the food compartment blower motor. It is connected in series with the motor winding and if temperatures drop, the switch opens. The fan cycling switch can be adjusted as follows:

The bracket that mounts the switch has graduations on it. The small hole in the ⅝" hex shaft is used as a pointer. Factory setting has this hole in line with the center mark of the mounting bracket. For field adjustment turn the ⅝" hex shaft one graduation for each 1°F. change. Turn clockwise for colder and counterclockwise for warmer.

For altitude adjustment of this control, turn the ⅝" hex shaft counterclockwise one graduation for each 2,000 ft. elevation.

L. Switch, Cold Control—Replacement:

Conventional and Cycla-Matic Models

It should be noted here that some models have two thermobulb serpentines, Figure 52. It is important that the bulb spacer (when used) is located under the proper serpentine. If the serviceman does not have an exact replacement switch with two serpentines on his truck he can use a service replacement switch of the same setting and form a loop in the thermoline to form the second serpentine. Install the serpentine on the end of the thermoline. Be sure the plastic sleeve is pushed all the

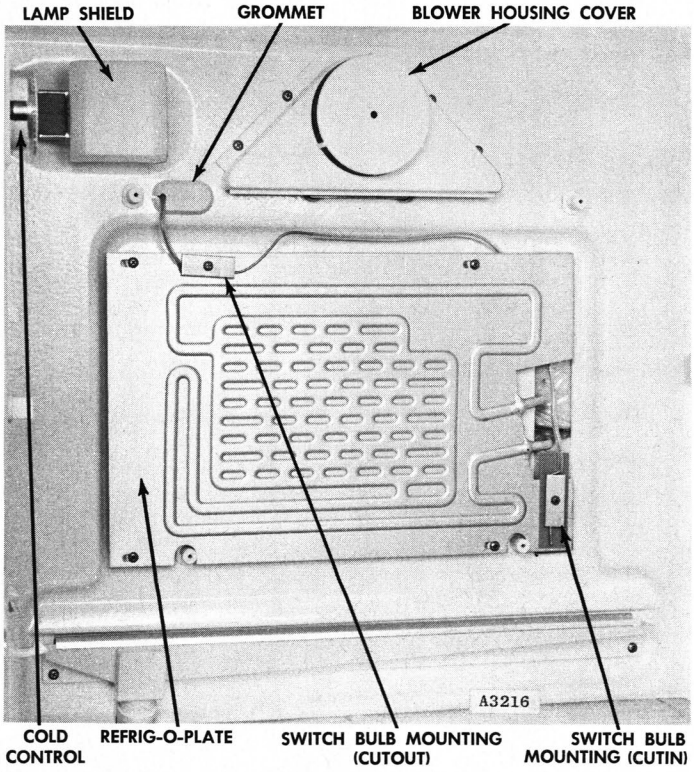


Figure 52
Interior Detail — FD-14BJ Food Compartment

way to this serpentine. Carefully cut the plastic sleeve in the area of the second serpentine and pull the sleeve away. Form a 2½" to 3" loop in the thermoline and install the clamp and screw over this loop. Push the sleeve back to this second serpentine. It is always best to prevent the plastic sleeve from coming in contact with the Refrig-o-plate wherever possible. To replace the switch proceed as follows:

Note: On the FD-12TJ, FDA-13TJ and FD-13TJ, the C.C. switch is an F-3 type, but the #1 position is shifted 45° (uses same knob as FPD-14TJ). This requires replacement in like kind and not by the standard —7°/37.5° F. F-3 service switch.

1. Remove the screw and knob. Pull the reflector-escutcheon straight off.
2. Insert a small, flat bladed screwdriver between the liner opening and the stainless steel bracket, Figure 53, and pry lightly until the bracket snaps out. Repeat for the other side.
3. The bracket can then be removed from the switch by releasing the tabs that engage the slots of the switch housing.
4. Disconnect the leads and remove the grommet where the thermoline goes through the liner.
5. Disconnect the thermostat bulb clamp(s) from the freezer or Refrig-o-plate and remove the switch from the cabinet.

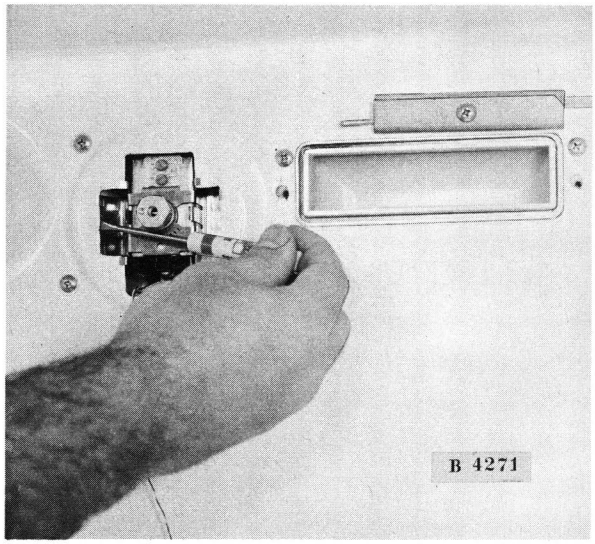


Figure 53
Thermostat Switch Mounting — FPI-19BJ

Note: Attach a cord to the old switch bulb before pulling the switch tube out of the liner. This cord can then be used to pull the new switch tube to the bulb mounting location. A little soap on the rubber grommet aids in its reassembly.

On conventional models, remove the side molding to free the tube from its location on the right-hand side of the freezer. On Cycla-Matic models, the bulb(s) is located on the front or rear of the Refrig-o-plate.

On the FD-14BJ there are two serpentines on the original switch mounted at different locations on the Refrig-o-plate, Figure 52. The one in the upper corner of the plate is the controlling point for cutoff. The one in the lower right-hand corner is to ensure complete defrosting on the OFF cycle.

Model FCDM-14J

1. Remove the left-hand side molding.
2. Repeat steps 1, 2 and 3 for conventional and Cycla-Matic models.
3. Remove the Meat Tender and remove the two screws that secure the intake duct.
4. Remove both bulb mounting clamps, Figure 54, and pull out the switch.

Frost-Proof Models

On the top freezer Frost-Proof models, the freezer collar must be removed to gain access to the thermoline. The thermoline is inserted into a ¼" tube on top of the freezer

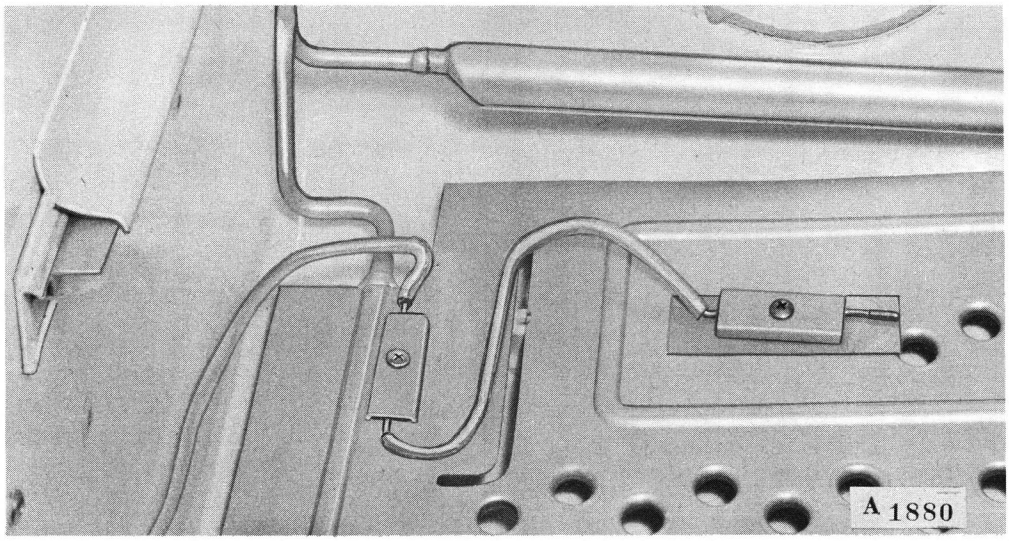


Figure 54
Thermostat Switch Mounting — FCDM-14J

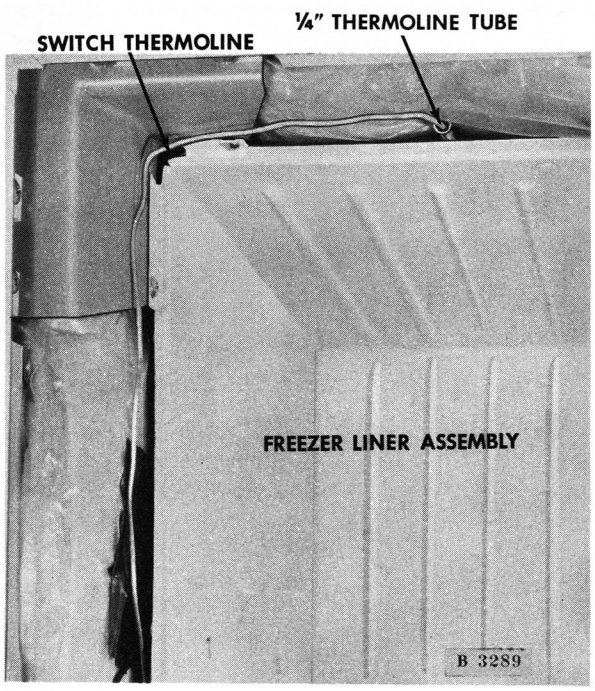


Figure 55
Switch Bulb Location — Top Freezer Frost-Proof Models

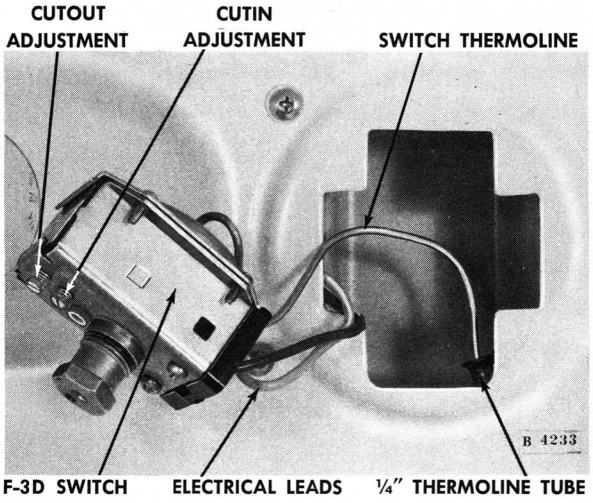


Figure 56
F3D Switch Mounting Detail — 16BJ & 19BJ Models

Altitude (ft.)	No. of Marks
2,000	1
3,000	2
4,000	3
5,000	4
6,000	5
7,000	6

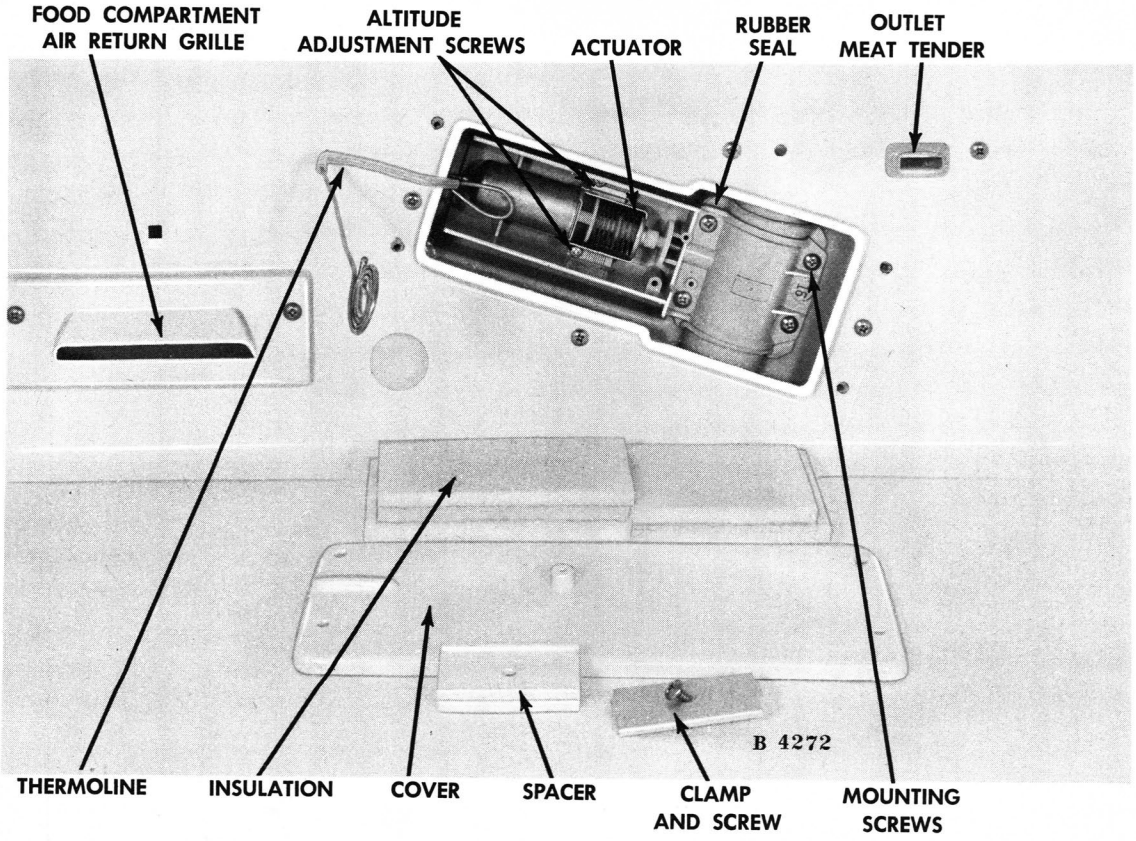


Figure 57
Air Flow Control Mounting — FPD, FPI-16BJ

liner assembly, Figure 55. The new switch thermoline should be inserted to the purple paint marking on the thermoline.

On the 14BJ models, the top of the center mullion must be removed to gain access to the thermoline. The thermoline is also inserted into a ¼" tube on top of the freezer liner assembly. The new switch thermoline should be inserted to the Red paint marking on the thermoline.

On the 16BJ and 19BJ models, the F3D switch, Figure 56, is mounted at the top, rear liner wall. The switch is mounted the same as for the 14BJ models. The thermoline of the 16BJ models replacement switch is inserted in the ¼" tube to the Red mark on the thermoline which is 42½" from the end. On the 19BJ models, insert the thermoline to the purple mark which is 46$\frac{3}{16}$" from the end.

M. Control, Food Compartment Temperature-Adjusting:

Frost-Proof Models Except FPD, FPI-19BJ Models

Before attempting to adjust or replace the air flow control, study its function as outlined in TECH-TALK Volume XV, No. 3. This control is subject to altitude adjustments above 2,000 ft. For practical purposes, Dayton, Ohio is 1,000 feet above sea level so the control setting at the factory would be for this altitude.

Refer to Figure 57 and its accompanying table in order to make a proper adjustment of the control. Loosen the two adjustment screws and lock washers and shift the actuator away from the butterfly valve as follows:

Align the top of the actuator mounting ears with the correct calibration mark on both sides and tighten the lock screws. On the 14BJ models, swing the control out, Figure 58, to gain access to the adjusting screws.

Caution: Do not attempt to adjust the knurled plastic wheel which is the calibration adjustment for factory use only.

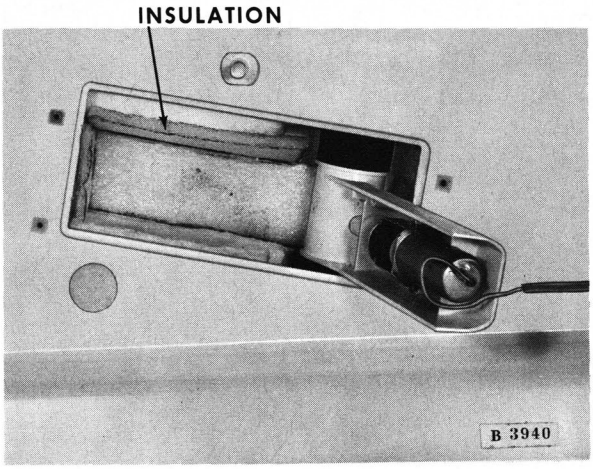


Figure 58
Access to Adjustments — FPD, FPI-14BJ & FPDA-14BJ

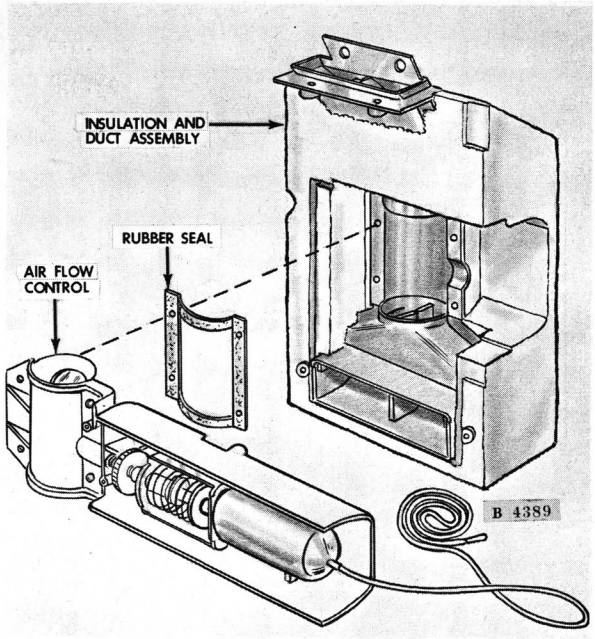


Figure 59
Air Duct and Control Detail — FPD, FPI-12TJ and FPDA, FPD, FPI-14TJ

The bellows of this control is charged with R-142B. Individual parts will not be supplied; the complete assembly must be replaced should it become discharged. Field adjustment is permitted but the serviceman should have a thorough understanding of its function and not arbitrarily try to adjust.

If the food compartment temperature is too warm, check for any obstruction of the passage from the freezer to the food compartment. Also check for proper sealing around the housing. If cold air comes into contact with the bellows, the controlling point would be at the bellows and not at the bulb. The air duct from the freezer section to the food compartment section is molded in styrofoam, Figure 59, on the 12TJ and 14TJ models. There is no insulation between the bellows and the back of the cabinet shell on these same models. They are designed to have just enough heat loss at this point for proper performance of the bellows. On the 14BJ models, be sure the bulb spacer is installed between the liner and the bulb.

The fan motor in the freezer section may not be running. This would affect freezer temperatures as well. Check the fan and lamp switch. Remember when the food compartment door is opened, the fan motor stops.

If the food compartment is too cold, adjustment is made the same as for altitude. This control is factory set to close at a minimum of 34° in the food compartment. One mark adjustment of the actuator changes the temperature approximately 1°F.

In other words, factory settings allow the control damper to close off any air from the freezer section when the temperature reaches 34° at the control bulb.

No other adjustments are permitted other than those outlined in the foregoing.

N. Control, Food Compartment Air Flow—Replacement:

Models FPD, FPI-12TJ, FPD, FPI-14TJ and FPDA-14TJ:

1. Remove the screws securing the discharge grille. Be careful not to break the top plastic pins of the cover which secure it at the top. Pull the grille straight out and evenly at the top.

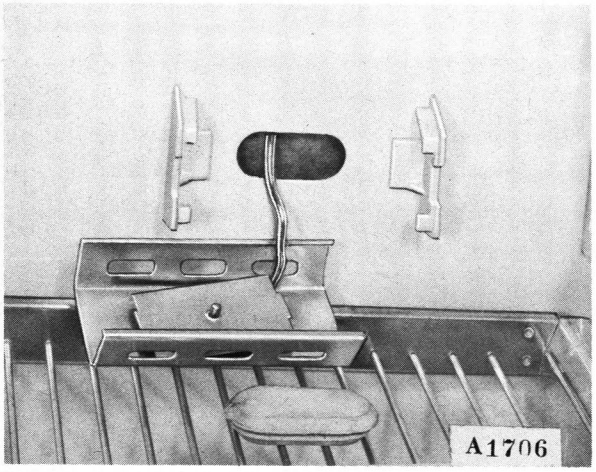


Figure 60
Food Compartment Air Flow Control Bulb Location — FPD, FPI-12TJ; FPD, FPI-14TJ; FPDA-14TJ

2. Using a small, flat-bladed screwdriver, unsnap the control bulb mounting bracket, Figure 60, and remove the screw and bulb clamp. Remove the grommet from the liner.
3. Remove the housing mounting screws that secure the control to the air duct. Remove the assembly and pull out the thermoline. Tie a heavy string to the thermoline to aid in pulling the new control bulb through.

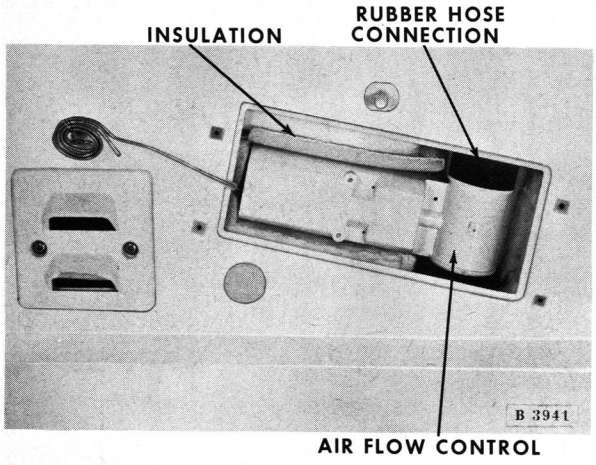


Figure 61
Air Flow Control Mounting — FPD, FPI-14BJ; FPDA-14BJ

4. Form the thermoline and replace the thermoline insulator in the same location as the one removed. Be sure the rubber seal is positioned properly to prevent air leaks.

Models FPD, FPI-14BJ and FPDA-14BJ:

These models have the air flow control mounted with rubber hose as shown in Figure 61.

1. Remove the cover plate, styrofoam insulation covering the control, and the bulb mounting clamp.
2. Use a finger or small flat-bladed screwdriver and remove the top rubber hose by pulling up and off the plastic housing cylinder. Tilt the control assembly and pull the control out of the lower rubber hose.

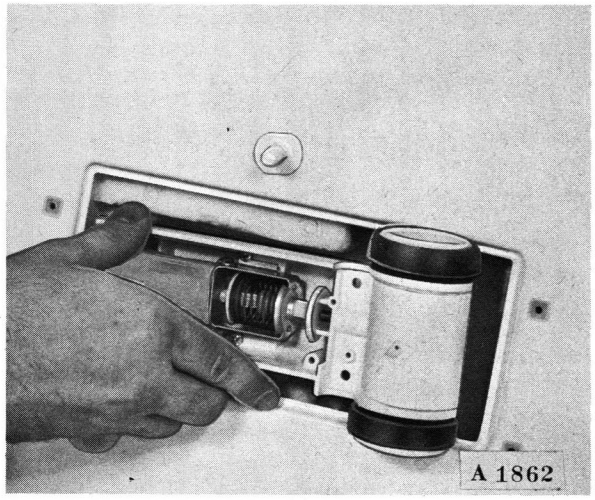


Figure 62
Installing Air Flow Control — FPD, FPI-14BJ; FPDA-14BJ

3. Remove the two rubber hose from the ducts. Install them on each end of the new control cylinder and roll up the ends as shown in Figure 62.
4. Tilt the control and install it in the opening. Align the control with the duct. Hold the control steady with the left hand and, using the index finger, roll up the rubber hose onto the top air duct. Roll the bottom hose off onto the lower duct in the same manner. If the hose fits loosely, replace with a new one.
5. Reinstall the insulation and cover.

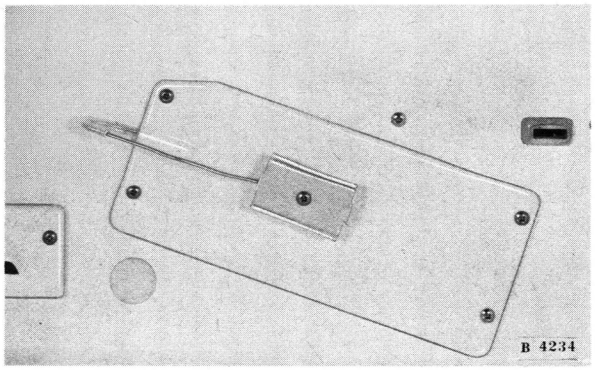


Figure 63
Air Flow Control Bulb Location — FPD, FPI-16BJ

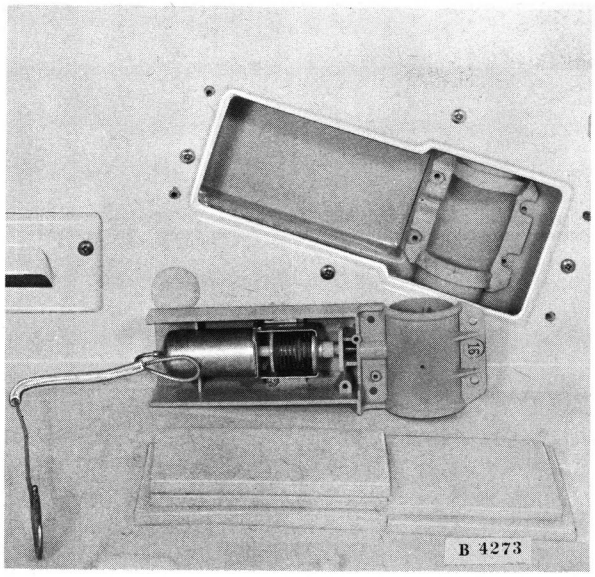


Figure 64
Air Flow Control Removed — FPD, FPI-16BJ



Figure 65
Removing Apron

Models FPD, FPI-16BJ:

1. Remove the bulb clamp and screw, Figure 63.
2. Remove the cover and insulation, Figure 57.
3. Remove the four screws that mount the control to the air duct and remove the control, Figure 64.

O. Apron—Removal:

All aprons are basically the same design for 1965. This lends toward standardization of parts and simplified design. To remove the apron, grasp the apron at the bottom, Figure 65, and pull out. Slide the apron to the left and lift up and off the apron retainers.

To replace, start at the right-hand side and slide the apron around the hinge butt; position the apron top into the nylon retainers and push in at the bottom. Be sure the hole in the apron lines up with the door opening pedal arm on models so equipped.

The nylon apron retainers are adjustable. Simply loosen the screws and slide them up or down for the

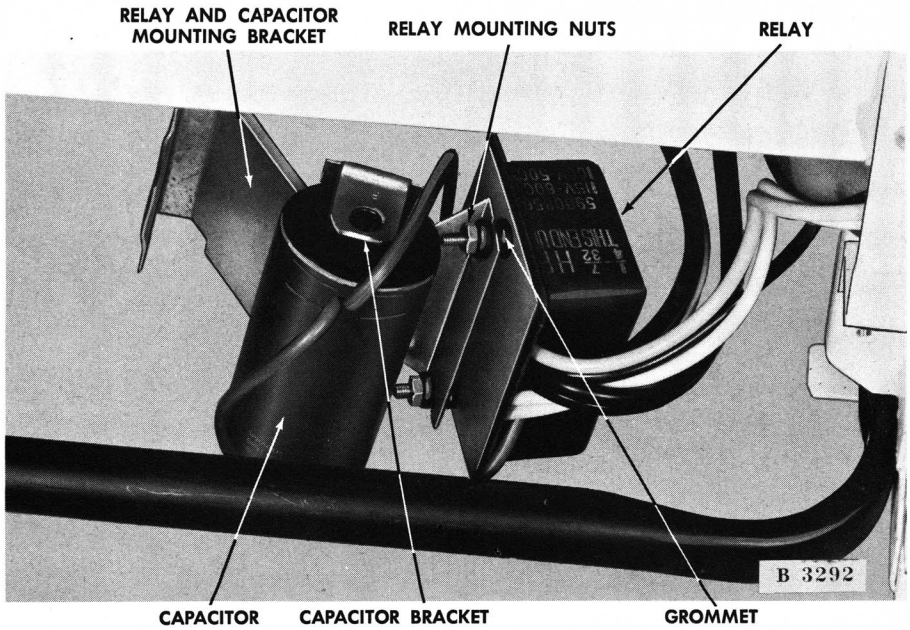


Figure 66
Relay Removed

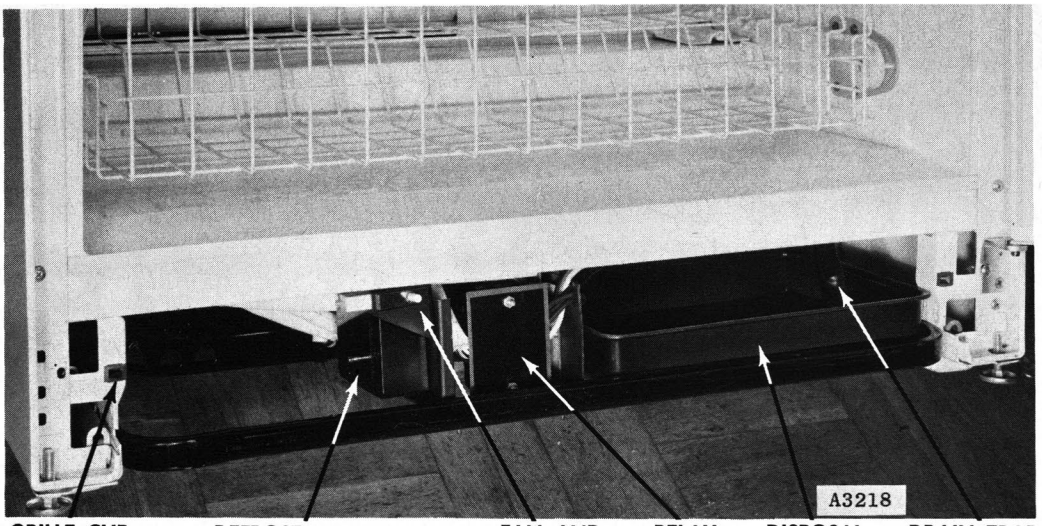


Figure 67
Machine Compartment Detail — FPD-19BJ

desired tightness of the apron. Should one of the springs, Figure 40, break off, it is not necessary to replace the entire apron. Use a 5⁄32" drill and drill out the rivet. Use a 6-32 pan head screw, ¼" long, and install the new spring, placing the nut on the bottom of the apron for clearance of the tubular frame.

P. Relay—Replacement:

All Models But FPD, FPI-19BJ

1. Remove the base panel.
2. Remove the screw, Figure 40, that secures the relay bracket to the right-hand, bottom corner of the cabinet.
3. Pull out the relay bracket assembly, Figure 66, remove the relay mounting nuts and disconnect the leads. It may be easier in some cases if the capacitor is removed from its bracket before removal of the relay.

Models FPD, FPI19BJ

1. Remove the base grille.
2. Remove the nuts, cover plate and insulator, Figure 67, and remove the relay.

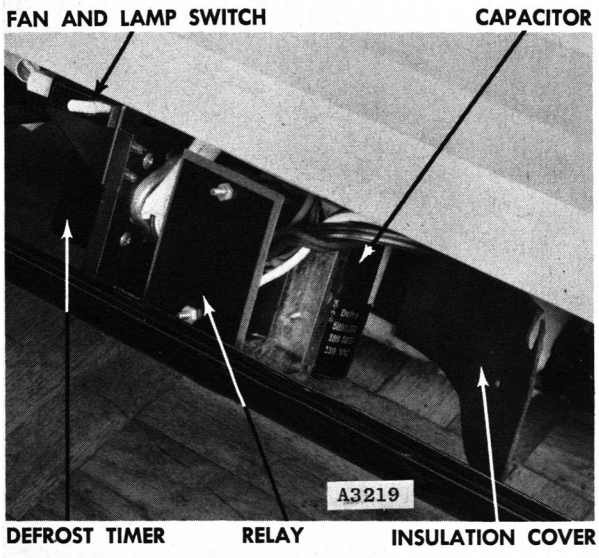


Figure 68
Control Mounting Detail — 19BJ Models

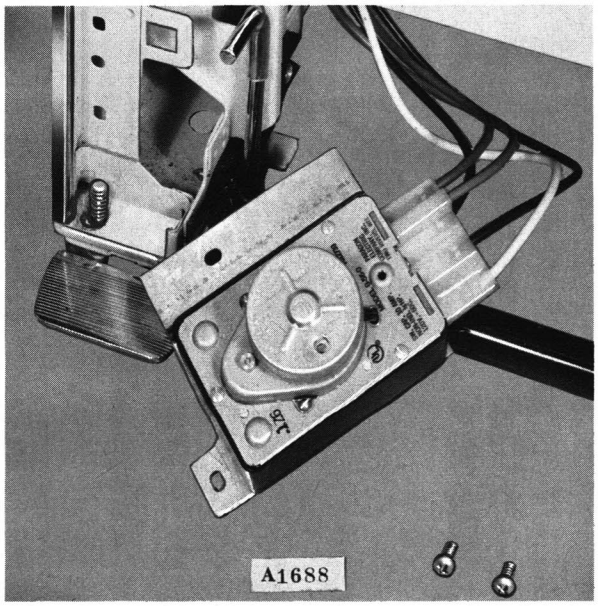


Figure 69
Defrost Timer Removed

Q. Capacitor—Replacement:

The capacitor and relay are mounted to the same bracket. To replace, follow Procedure P and replace only the capacitor on all models except the FPI-19BJ.

Models FPD, FPI-19BJ

1. Remove the insulation board by gently swinging to the right, exposing the capacitor. A push nut holds the insulation to the bracket and can be removed by prying off.
2. Unsnap the capacitor from its mounting bracket, Figure 68.

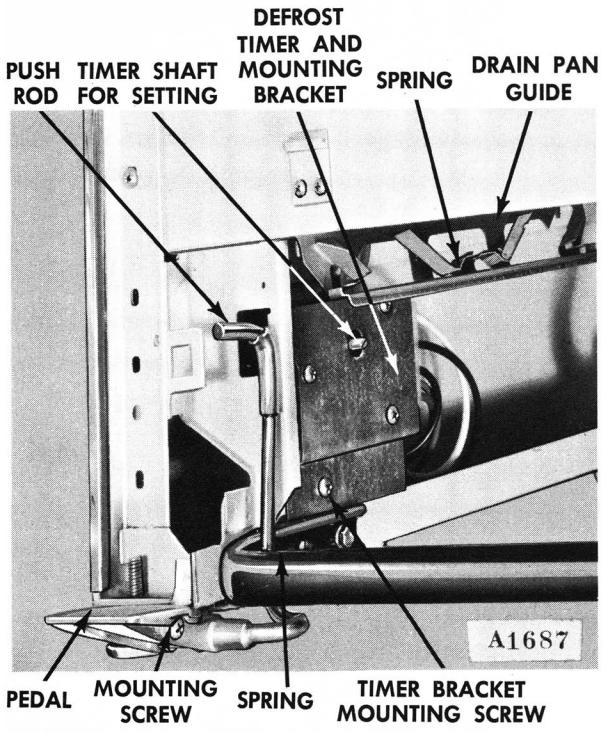


Figure 70
Door Opening Pedal and Defrost Timer — FPI-14BJ; FPI-16BJ

R. Timer, Defrost—Removal:

All Models Except FPD, FPI-19BJ

1. Remove the apron and the drain pan.
2. Remove the two bracket mounting screws and remove the timer assembly, Figure 69.
3. Remove the mounting bracket by removing the three screws, Figure 70.
4. Disconnect the terminal block by pulling it straight off.

Note: A terminal block connector, Figure 71, is used to ensure better connections and to prevent terminals from being accidentally pulled off. Should it be necessary to replace the block or one of the terminals, this can be done by placing a small, flat screwdriver into the end of the terminal block, depressing the terminal flange and removing the terminal and lead.

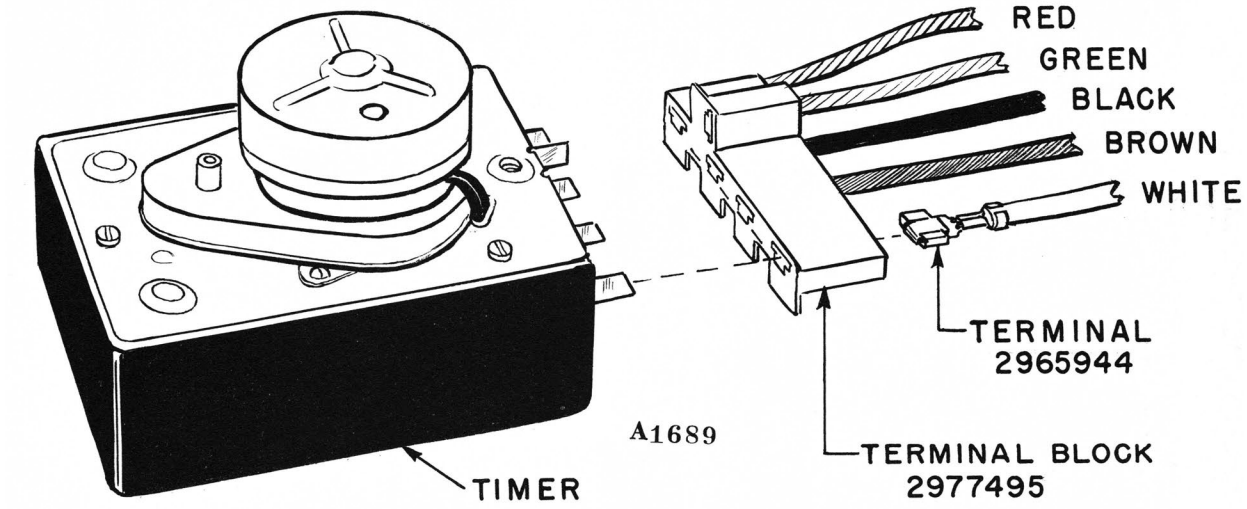


Figure 71
Defrost Timer Connections

Models FPD, FPI-19BJ

1. Remove the two timer bracket mounting screws, Figure 72, and swing the timer and insulation to the left, being careful not to damage the insulation. Push nuts hold the insulation to the timer bracket and can be removed by prying them out.
2. Remove the timer from the mounting bracket.
3. Disconnect the terminal block.

S. Pedal, Door Opening—Removal:

1. Remove the apron.
2. Remove the return spring, Figure 70.
3. Remove the mounting screw and pull out the push rod assembly. The pedal comes off at the same time.

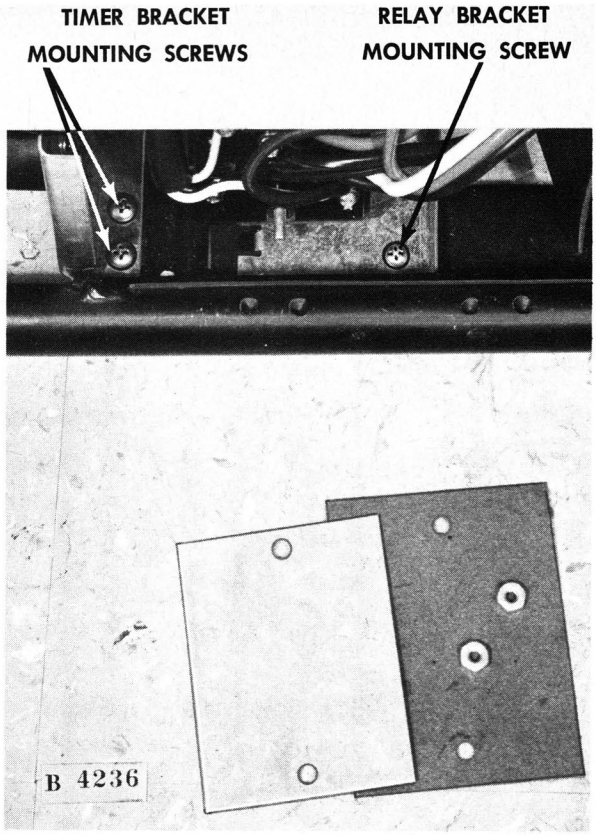


Figure 72
Relay and Timer Mounting — FPD, FPI-19BJ

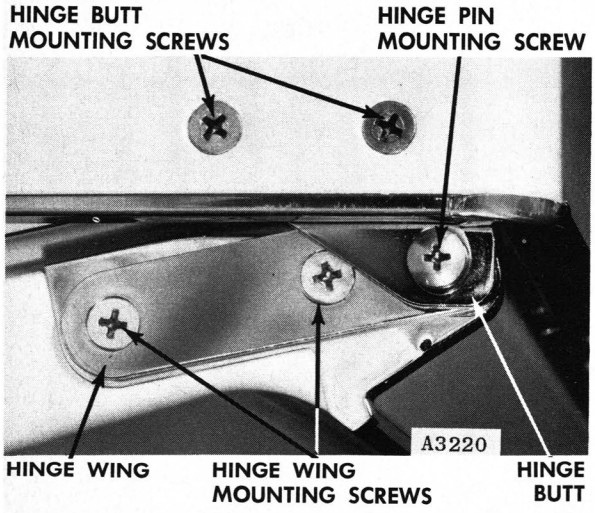


Figure 73
Upper Hinge Detail — All Models

T. Door, Outside—Removal:

All Single Food Compartment Doors and Freezer Doors on Top Freezer Models.

1. Remove the screw, Figure 73, which threads into the hinge wing pin. This screw prevents the door from accidentally coming off.
2. With the door closed, loosen the one screw on the left and remove the other screw that mounts the hinge butt to the top of the cabinet.

3. Remove the door by swinging it out and disengaging the hinge pin from the hinge butt. Lift the door up and off the lower hinge butt. See Figure 74 for door hinge detail.

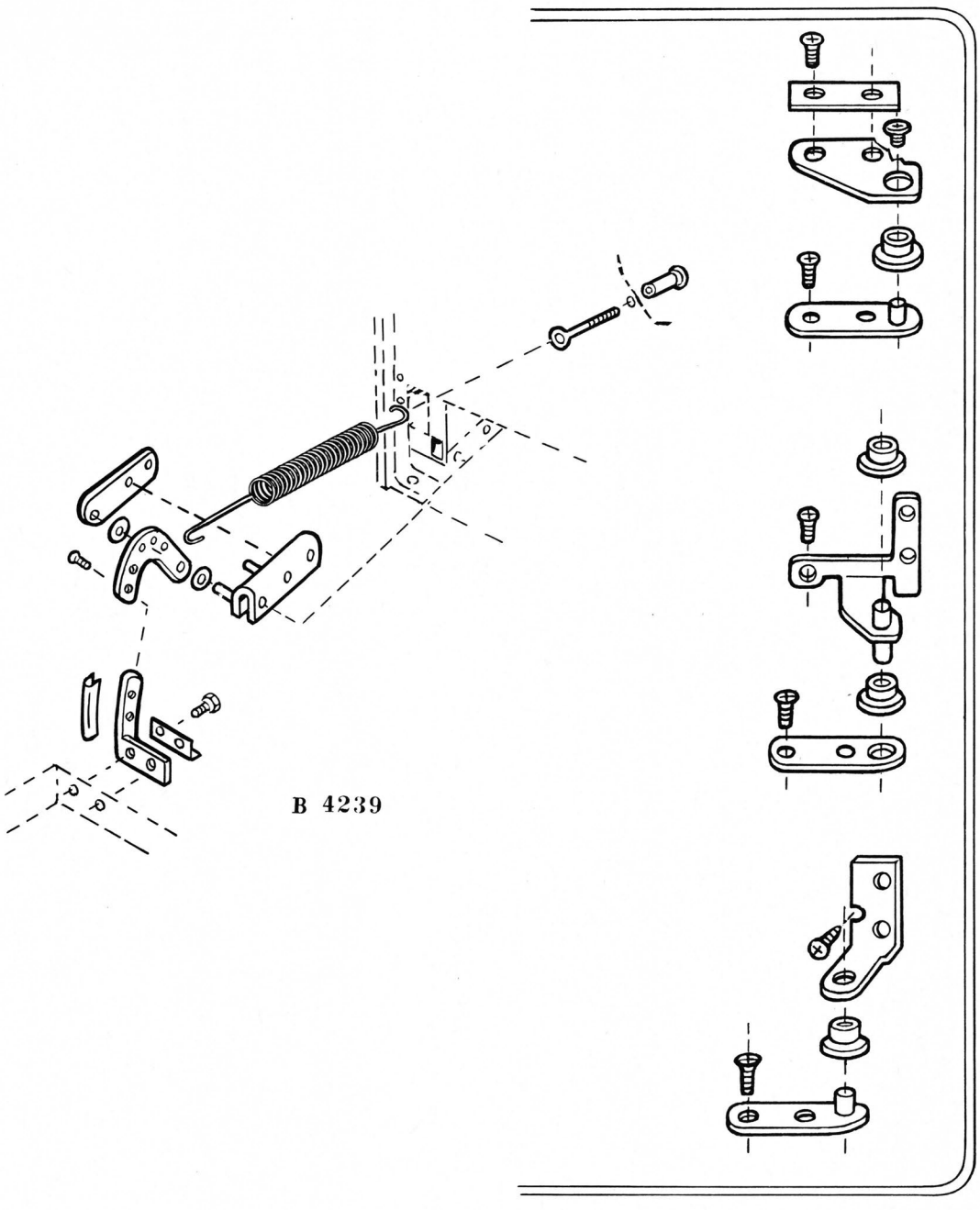


Figure 74
Exploded View — Door Hinges

Food Compartment Door

Bottom Freezer Models

1. Remove the access cap for the electrical leads, Figure 75 in the bottom of the food compartment door on the hinge side. Pull the leads out and cut the leads for the freezer door condensate drier.
2. Remove some insulation from the end of the leads and tie a string or wire to these leads so they can be pulled back through the hinge butt. On the 16BJ and 19BJ models, the right-hand side molding must be removed. Disconnect the food compartment door leads. Attach a string or wire to them and pull the leads out. Use the string or wire to pull the leads back through.
3. Remove the hinge pin screw, Figure 73.
4. With the door closed, loosen the one screw on the left-hand side and remove the other screw that mounts the hinge butt to the top of the cabinet.
5. Remove the door by swinging it out and disengaging the hinge pin from the hinge butt. Lift the door up and off the lower hinge butt.

Freezer Door

All Bottom Freezer Models Except the FPD-19BJ and FPI-19BJ
Food Doors on Top Freezer Models

1. Remove the bottom access panel, Figure 75, and the electrical lead trim.
2. Disconnect the electrical leads here as well as from the food door. Attach a string or wire to the leads for assembly.
3. Remove the bottom hinge wing screws and remove the door.
4. Remove the two top wing mounting screws and the guard screws to remove the door guard.

Note: There is an alternate way which may be easier as far as the electrical leads are concerned. Follow Steps as outlined above, except *do not* cut the electrical leads in the bottom of the food door. Follow Step 4 and pull out enough wire at the top of the freezer door and cut them off. Upon reassembly, connect the wires together and push the connectors down into the foamed door assembly. The connectors and leads in the food door are not touched.

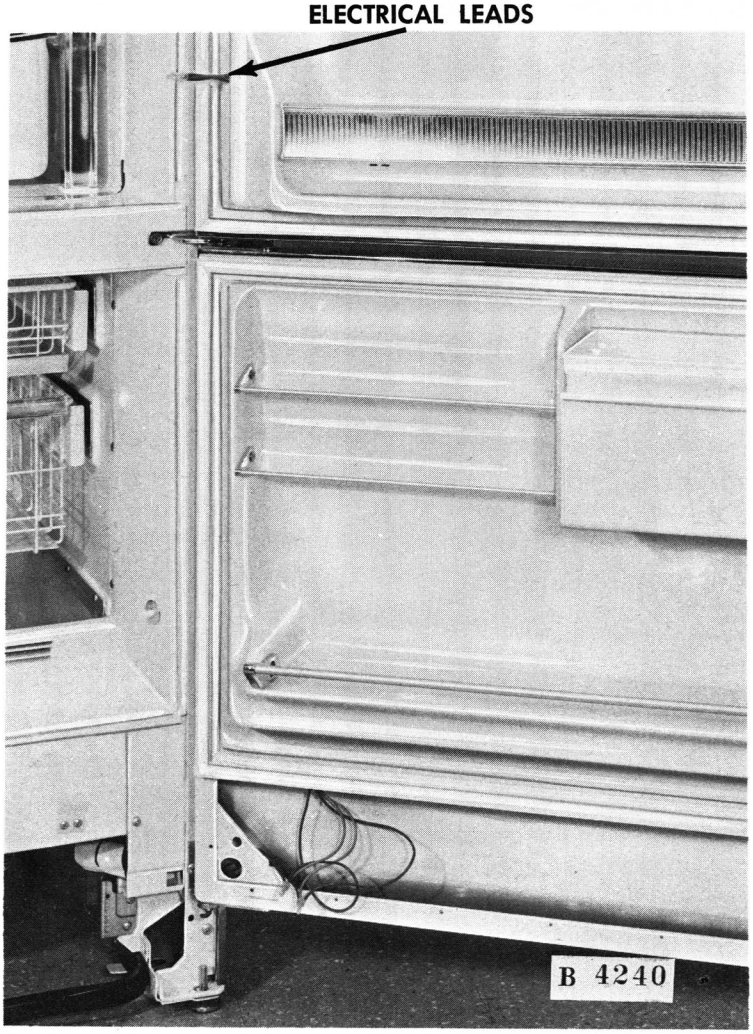


Figure 75
Door Hinge and Electrical Lead Detail — FPI-14BJ

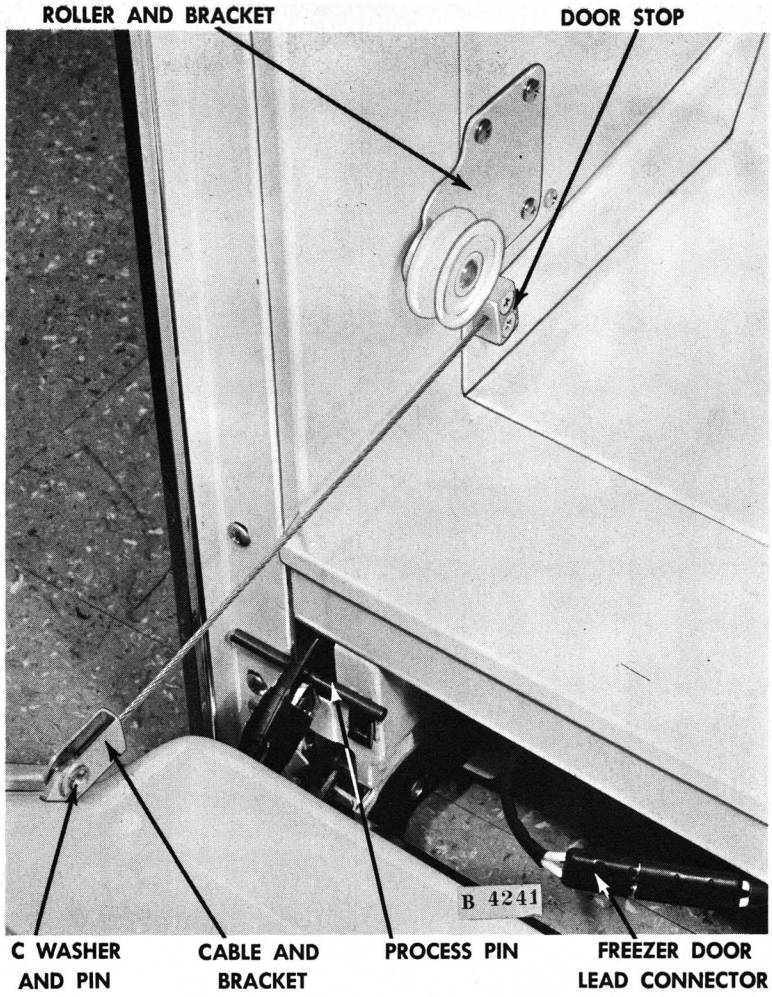


Figure 76
Freezer Door Detail — FPI-19BJ

Freezer Door

Model FPI-19BJ

1. Open the freezer door and install the two 14031, ¼" processing pins, Figure 76, in the hinge pivot arm.
2. Remove the door stop cable and bracket from both sides of the inside door panel by removing the C washer and pin.
3. Remove the trim that covers the electrical leads on the hinge and disconnect the electrical lead connector.
4. Remove the inside hinge screw first and then the two outside screws, Figure 77. Remove the door.

Model FPD-19BJ

This door is removed the same as outlined above for the bottom freezer models except for disconnecting the electrical leads in the door. These leads pass through a vinyl sleeve in the machine compartment. Pull out the leads sufficiently to gain access to the connectors. Cut the leads to free the door and pull them out. When reconnecting the leads, use Marr or crimp connectors and then

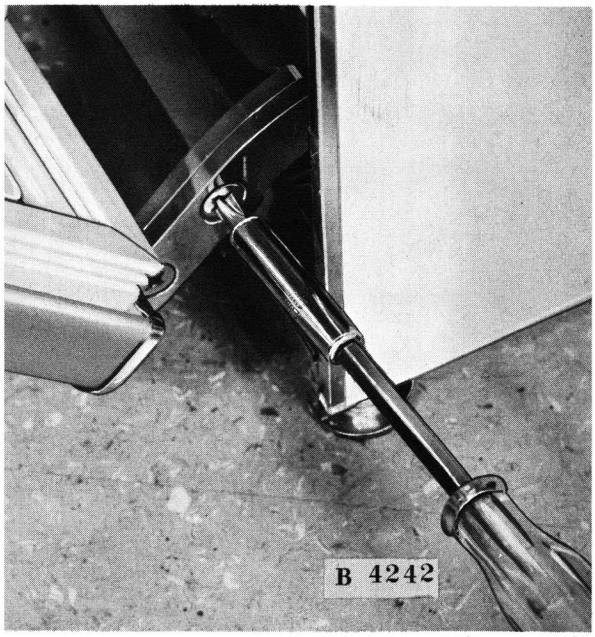


Figure 77
Freezer Door Hinge — FPI-19BJ

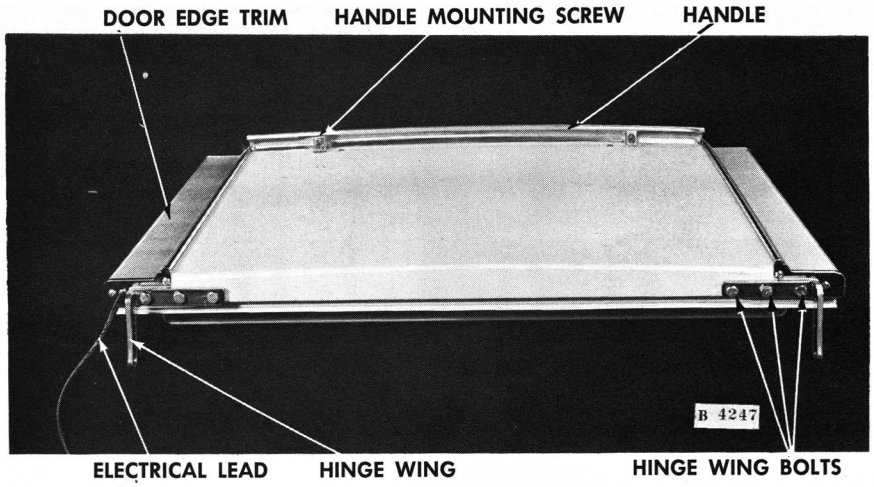


Figure 78
Freezer Door Removed — FPI-19BJ

pull back on the leads so the connectors are inside the plastic sleeve.

U. Door, Outside—Adjusting:

The magnetic seal on all four sides will conform to surface variations and will require little, if any, adjustment. Before proceeding with a door adjustment, be sure the cabinet is properly leveled. Moving the cabinet by means of the handle can twist the door or cause the hinge to slip. Evaluation of these factors will help determine the adjustment necessary, if any.

The door can be adjusted at the top by loosening the hinge wing screws and adjusting it from side to side.

The bottom of the door can be adjusted in the same manner by loosening the screws on the lower hinge wing.

There are no tie rods in the doors on the 1965 models. If the door is twisted to the point of no sealing, loosen the door seal retainer screws and flex the door in the opposite direction to ensure that the door seal contacts the shell flange at all points. Retighten screws.

The freezer door on the FPI-19BJ can be adjusted sideways for alignment by loosening the three ½" bolts, Figure 78, on the bottom of the door, which secure the hinge wings. Tension of the springs can be lessened or increased by adjusting the threaded ferrule on the back of the cabinet, Figure 127.

V. Trim, Cabinet Shell—Replacement:

The cabinet trim is held in place by friction fit over the extended edge of the cabinet shell and can be readily removed by pulling the trim straight out and rolling it off the edge. To prevent damaging the trim, do not pull too rapidly, as it may hold more firmly at one point than at another.

The handle side trim consists of the vertical side trim and the top corner. The corner overlaps the top trim. The top trim consists of the top edge trim and the hinge side corner piece. The top, hinge side corner of the trim overlaps the hinge side trim. The hinge side is simply one piece and the top slips under the corner cap which is part of the top trim.

Trim, Food Door—Replacement:

In replacing the trim on the raised vertical band of the door, it is suggested the door be removed first. Lay the door on a pad on the floor or table and remove all door seal retainer screws. Remove the inside door panel.

Straighten the twist tabs that secure the trim to the door panel and remove the trim.

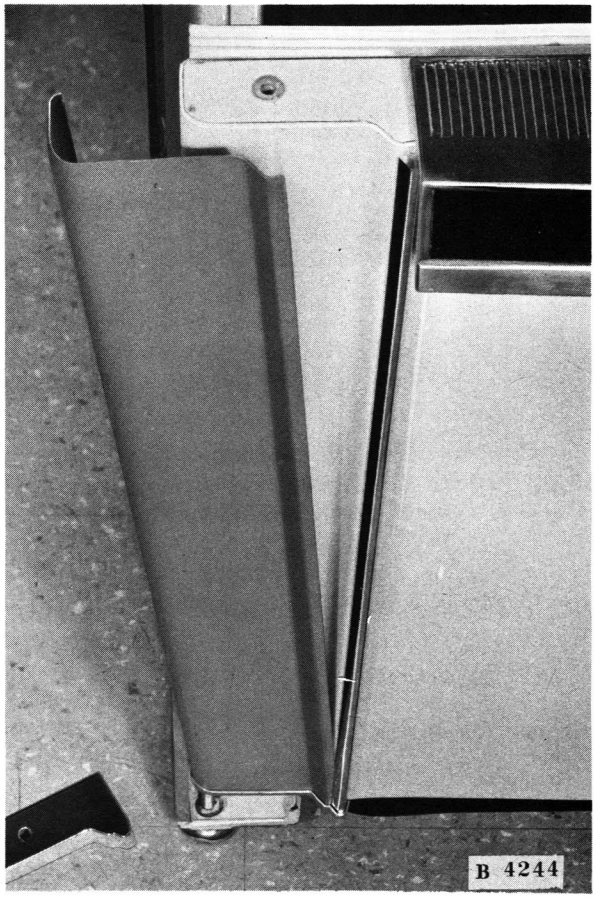


Figure 79
Freezer Door Edge Trim Removal — FPI-19BJ

On the 16BJ and 19BJ models, the food doors as well as all exterior freezer doors on all models except the 13TJ models are foamed. Sections of the Frigi-Foam must be cut out at the locations of the twist tabs to gain access to them. Use the new trim as a template to locate these twist tabs.

The FPI-19BJ has a different trim on each side of both doors. To replace the trim on the food door, Procedure W should be followed because the handle must be removed first. To replace the freezer door edge trim:

1. Remove the top, left door guard mounting screw, trim cap and screw.
2. Remove the left, handle mounting screw and loosen the other one.
3. Lift up and pull the door edge trim out, Figure 79.

W. Handle, Door—Removal:

All Two Door Models Except Foamed Doors

Top Door:

1. Remove approximately four seal retainer screws each way from the lower corner nearest the handle mounting.
2. Remove the bottom handle retainer screw and remove the retainer. The handle then can be removed from the top retainer.

Bottom Door:

Remove the top handle retainer screw after removing the four screws each way from the corner and insert a screwdriver through the hole in the outer door panel. Remove the handle from the bottom retainer.

Single Door Models:

Remove the door seal retainer screws from the latch side and across the top and bottom of the door. Use a short cross-recessed screwdriver, push the insulation back and remove the screw mounting one of the retainers. The other end of the handle can then be pulled off.

Foamed Doors:

On these doors the inside panel should be removed to gain access to the mounting screw. On the 16BJ and 19BJ models, the food compartment inside panel is not foamed to the door. Partial removal is all that is necessary to gain access to the mounting screw. One field suggestion on completely foamed door assemblies was to drill a hole in the turned over flange of the outer door panel, large enough to accept the screwdriver shaft. The foamed insulation would also be drilled carefully so as not to hit the screw head. The hole is then plugged with permagum and covered by the door seal.

On the FPI-19BJ freezer door, the handle can be removed by removing the two screws on top and the two screws on the underneath side, Figure 78.

X. Seal, Door—Replacement:

Loosen all the screws and retainers around the door panel and pull off the seal. To replace, insert the mounting lip under the retainers. Start across the top and work down each side. Do not tighten the screws until the door is aligned for proper seal. Try the door a few times, tightening a few screws after each check.

Y. Panel, Inside Food Compartment Door—Replacement:

1. Remove all door shelves.
2. Remove all door seal retainer screws and remove retainers and seal as an assembly.
3. Remove the inside door panel. Transfer all parts to the new panel.
4. Upon reassembly, do not tighten the retainer screws until proper alignment of the door is maintained.

Note: Some of the replacement panels will not have the holes in the hinge side of the panel for access to the electrical leads. These holes are primarily for production purposes and are not necessary for an inside door panel replacement. The same panel can be used for right-hand or left-hand cabinets.

Frost-Proof Models

It is recommended that, where the door is insulated with Frigi-Foam insulation, the panel be replaced instead of replacing the entire door. This can be accomplished by removing the door assembly and placing it on a rug or cloth for protection of the painted surfaces. Disconnect the electrical leads as necessary. The door seal and retainers must then be removed.

1. Use a flat-bladed screwdriver with plastic tape wrapped around the bit end to protect the painted surface and follow around the edge of the door to break the bond between the inner and outer panels.
2. Pry up on all four corners, Figure 80, breaking the foam loose. Finish separating the panels, using one hand to pull on the inside panel while the other hand holds the outside panel stationary.

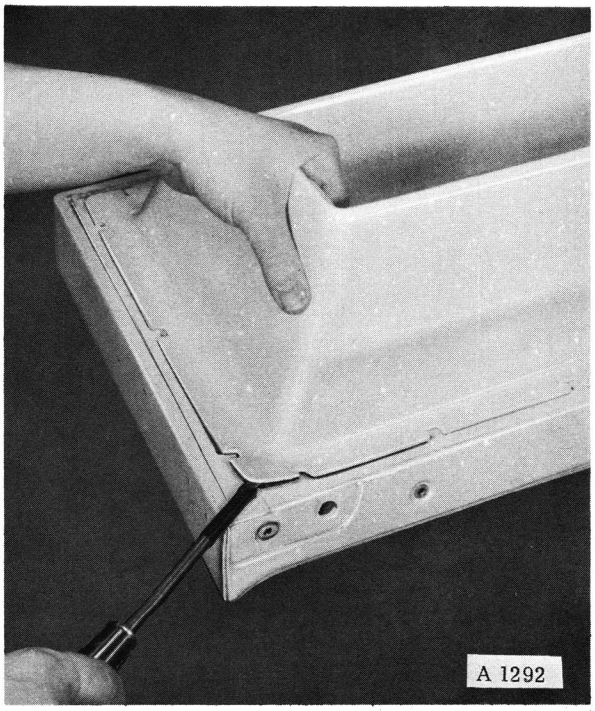


Figure 80
Prying Off Inside Panel

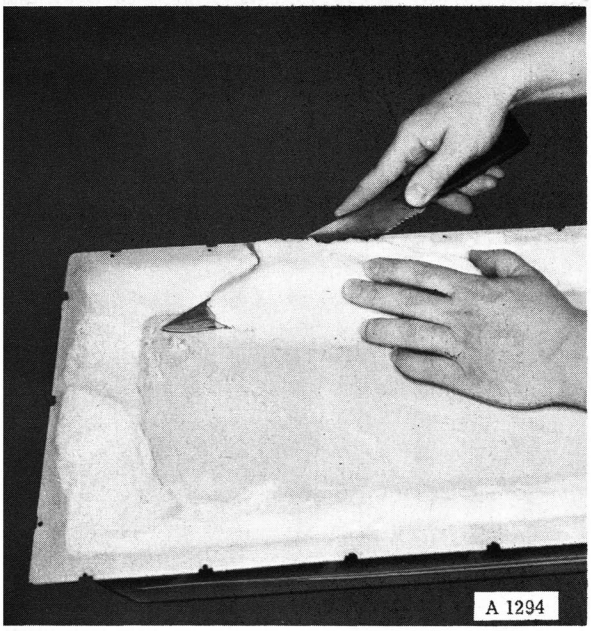


Figure 81
Trimming Excess Insulation from Inside Panel

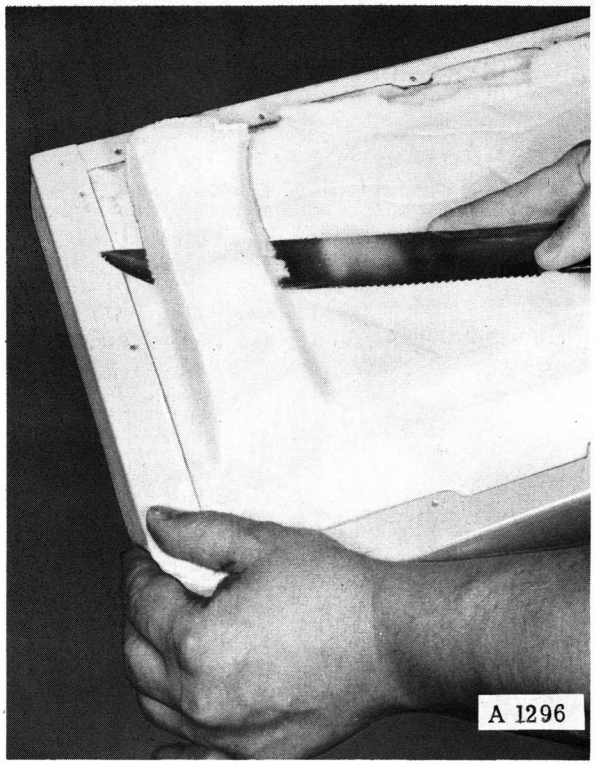


Figure 83
Trimming Excess Insulation from Outside Panel

3. Note how the replacement inner panel is foamed. Some Frigi-Foam will adhere to the old panel. Use a large knife or coarse toothed hacksaw blade and trim off these large portions of insulation, Figure 81. Place these pieces in the relative position of the foamed door where voids were created, Figure 82.
4. In some instances, depending on the model, the insulation will have to be shaved from the foamed door, Figure 83, to match the replacement panel. The replacement panel should fit evenly without voids being present.
5. Transfer any parts not supplied from the old panel to the new and reassemble the door. Reinstall the door to the product and check for proper seal.

Z. Plate, Name—Replacement:

1. Remove the door seal and the inside door panel.
2. Pull the insulation out at the top to gain access to the speed nuts and sealers. Turn the speed nuts counterclockwise and remove them with 12962 tool.
3. Replace the nameplate and reassemble the door. Check for proper seal. On foamed door assemblies, replace the nameplate as outlined for replacement of the door trim.

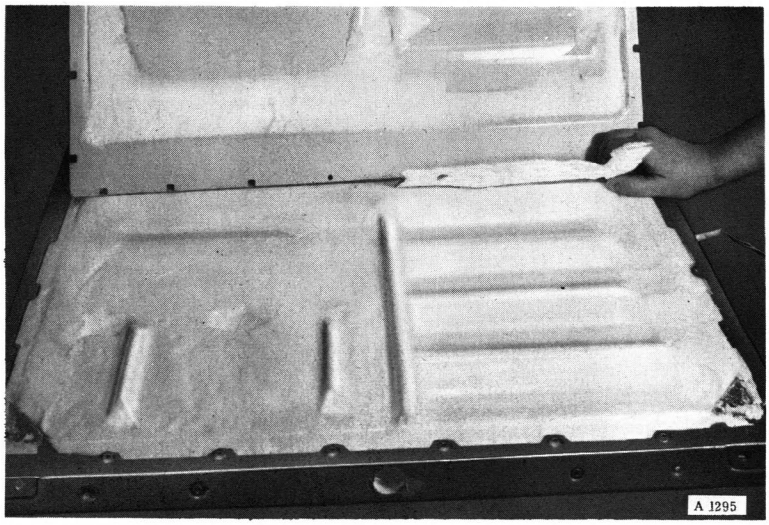


Figure 82
Filling Insulation Voids

On the S, D-10J and D-12J the nameplate has an adhesive back and can be activated with toluol.

AA. Guard, Door—Removal:

These are die cast pieces and the doors must be removed first. Refer to Procedure T, Outside Door Removal.

To replace the door guard on the top freezer door, remove the door completely and then remove the guard by removing one screw.

To replace the door guard on the food compartment door of TJ models, remove the freezer door as above. Remove the two top hinge wing screws, remove the guard screw and pull the door out slightly. Hold the bottom of the door or use a block until the door guard is removed and replaced.

To replace the food compartment door guard on B models, remove the door completely after disconnecting the electrical leads. These leads go through the guard. After the door is removed, the guard is easily replaced. Be sure to remove a little insulation from the leads, twist them together and tie with a string to pull them back through the hinge butt.

To replace the door guard on the freezer door of BJ models, refer to Procedure T. On the FPI-19BJ, refer to Procedure W on Door Handle Removal.

BB. Switch Fan Motor and Lamp Switch—Removal:

All Frost-Proof Models Except FPD, FPI-19BJ

1. Use a small screwdriver or knife blade and pry outward at the bottom. Use care not to mar the plastic side molding. Remove the switch, Figure 84.

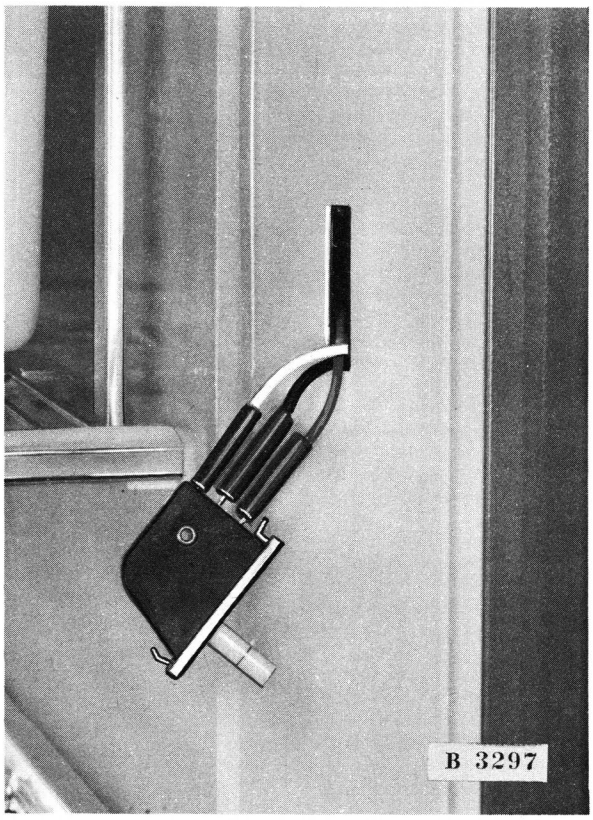


Figure 84
Fan Motor and Lamp Switch — Frost-Proof Models

2. Transfer the switch leads to the replacement switch, one at a time, to prevent error in wiring.

To test this switch, jumper across from the White terminal to the Orange lead. The light should light. Jumper across the White and Black terminals and the fan should run.

Models FPD, FPI-19BJ

The fan and lamp switch for the food compartment is basically the same as described above except there is a fan cycling thermostat switch also connected in series with the fan switch.

On these models there is another fan and lamp switch, Figure 67 and 68, located in the machine compartment. This controls the freezer blower motor and freezer lamp. To replace this fan and lamp switch, remove the grille and disconnect the leads to the switch. Push the switch through from the back side and remove the switch.

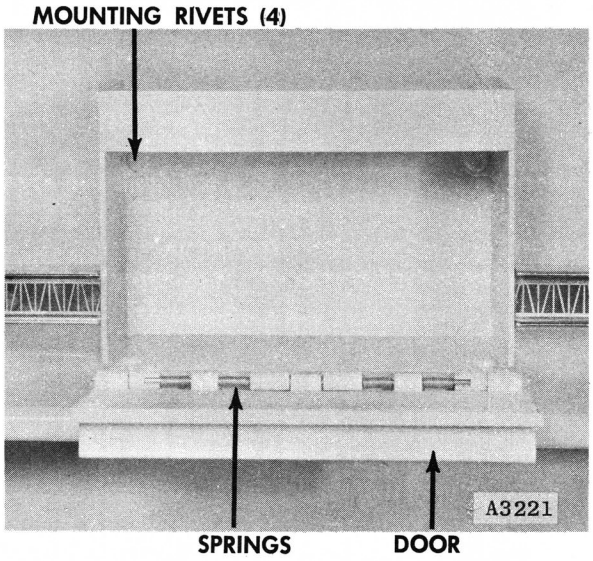


Figure 85
Butter Compartment — Deluxe Models

CC. Butter Compartment—Replacement:

Deluxe Models

The butter compartment, Figure 85, can be replaced without removing the inside panel.

1. Punch out the center pin of the plastic mounting rivets which are located in the top, back and bottom of the compartment. These pins can be retrieved from the insulation and reused in reassembly.
2. Remove the rivets and the butter compartment.

Note: Be careful punching out the bottom rivets so the pin is not driven through the inside door panel on the underneath side. Another method is to use a sharp knife between the rivet head and compartment and tap sharply with a hammer. New rivets are required, however.

Control, Butter—Replacement:

Model FCDM-14J and Imperial Models

The control and heater assembly will be replaced as an assembly.

1. Remove the knob by pulling it off.
2. The escutcheon and switch is held on by the switch mounting nut.
3. Remove the inside door panel and seal or remove the seal retainer screws from the top, bottom and door opening side and pull out the panel far enough to gain access to the heater and control assembly. Be careful not to put a strain on the panel as it may crack.
4. Remove the insulation from around the heater and remove the control and heater assembly. Cut the lead wires at least three inches from the assembly.

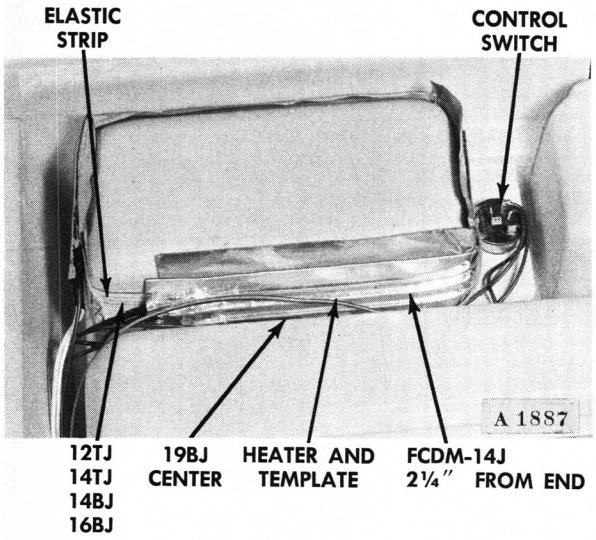


Figure 86
Butter Control Assembly — Elastic Strip Location

5. Reinstall the new assembly in the same position as the one removed. It is important that the elastic strip be positioned properly. See Figure 86 for correct location by model in reference to switch location. Install insulation in the "draws" of the inside door panel.
6. Connect the leads, using new solderless or Marr connectors.

DD. Doors, Butter and Utility Compartment—

Removal:

Models FPI-14BJ, 16BJ and 19BJ

1. Use a sharp pointed awl and place it in the groove on the underneath side of the door, Figure 87, against the rod; push to the right to disengage the rod on the left side of the panel.
2. Pull off the utility door, being careful not to lose the small spring inside.
3. To remove the butter door, the utility door must be removed first. Then simply pull out the other rod.

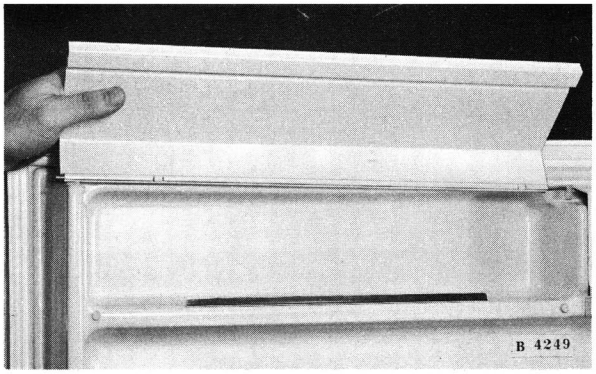


Figure 87
Utility Door Removal

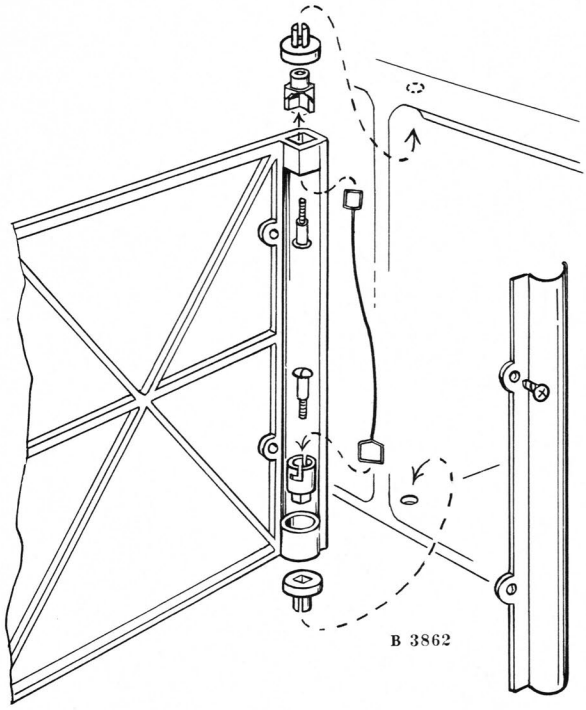


Figure 88
Exploded View — Butter and Utility Door — Model FPI-14TJ

Model FPI-14TJ

1. Remove the two screws and cover plate, Figure 88.
2. Remove the spring from the top hinge of the door. Turn the bottom loop of the spring to align with the slot on the bottom insert.
3. Remove the two shoulder screws at the top and bottom of the hinges and remove the inserts and door.

Note: When reinstalling the spring, install the lower loop first and twist the spring approximately 180° for proper retention when the door is closed.

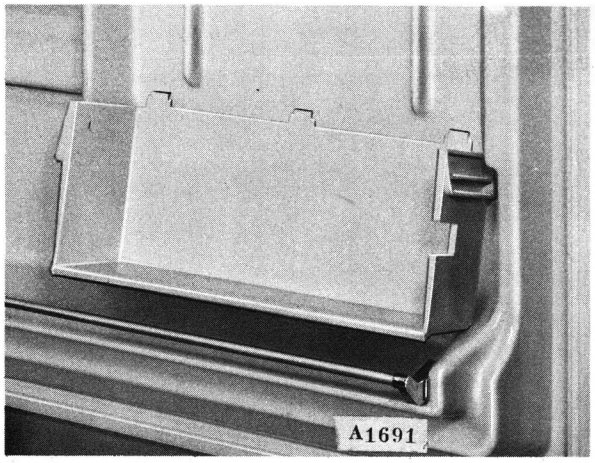


Figure 89
Ice Server Compartment — Partially Removed

EE. Compartment, Ice-Server—Removal:

Model FD-14BJ, FPD-14BJ, FPDA-14BJ and FPD-16BJ

Grasp both ends of the wire compartment and spring them in slightly to disengage them from the holes in the inside door panel.

Models FPI-14B and FPI-16BJ

Remove the two screws at the top, on each side, drop the compartment down, Figure 89, and lift it out of the slots.

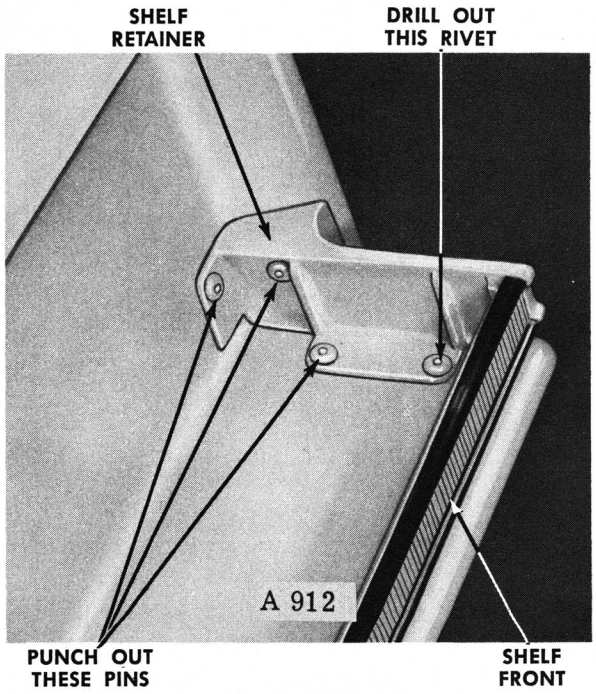


Figure 90
Freezer Shelf Mounting Brackets — FPI-12TJ, FPD, FPI-14TJ, FPDA-14TJ

FF. Front, Freezer Shelf—Removal:

Models FPD, FPI-12TJ, FPD, FPI-14TJ and FPDA-14TJ

The freezer shelf front is not removable from the plastic retainers. Refer to Figure 90 and the procedure below for removing either the shelf or retainers on each end.

1. Drill out the plastic rivet heads of the front rivets securing the retainers to the inside panel. Only one retainer need be removed to remove the shelf front.
2. Punch out the remaining rivet pins which secure the retainer and remove the retainer.

Caution: Be careful if you try to punch out the front rivets because the pin may go through the bottom of the inner door panel. Order new rivets when replacing the front or retainers.

Another method is to use a sharp knife between the rivet head and the retainer and tap sharply with a hammer. New rivets are required, however.



Figure 91
Juice Shelves — FPD, FPI-16BJ

GG. Juice Can Shelves—Removal:

Models FPD, FPI-16BJ

These shelves, Figure 91, flip up to prevent interference from the roll out baskets if the door swing is restricted due to a wall, etc. The rods can be sprung slightly to remove. The retainers are held to the inner door by push rivets and therefore are removable. Push the pins through and use a pair of long nose pliers to retrieve them from the insulation.

HH. Food Compartment Liner—Removal:

Liner removal from Conventional and Cyla-Matic mod-

els is basically the same. The evaporator must be removed and placed on the floor in front of the cabinet. The general procedure otherwise is comparable to one of the procedures that follow.

Note: Since all plastic shelf pegs must be transferred to the replacement liner, it is suggested that they be removed prior to the removal of the liner to prevent tearing the insulation. To remove and replace these pegs, always turn them clockwise.

Upon reassembly, be sure to seal all areas with blue permagum or adhesive backed insulation strips. Two sizes are supplied. 6592876 consists of 16 pieces ¼" x ⅜" x 30". 5878011 consists of 22 pieces ⅛" x 9/32" x 12".

Models FPD, FPI-12TJ, FPD, FPI-14TJ and FPDA-14TJ

1. Remove all shelves, hydrators, meat-tender, etc., from the interior.
2. Remove the bottom piece of the center mullion.
3. Remove the food compartment side and bottom moldings. Disconnect the fan and lamp switch leads.
4. Remove the discharge air grille by removing the screws and carefully pulling out at the top of the grille to remove the pins, which are a part of the grille, from the plastic inserts.
5. Remove the air flow control bulb and mounting. Disconnect the bulb and remove the grommet. Push the bulb back behind the liner.
6. Remove the F-3D control knob and screw.
7. Snap out the switch mounting bracket and remove it from the switch. Push the switch back into the insulation.
8. Remove the liner top by removing all screws around the sides and back.
9. Remove the screws from the gussets at the top of the liner at each corner.
10. Completely remove the two bottom corner gussets which secure the liner to the shell. This is done to prevent the leads from catching on the gussets.
11. Remove the Moist-Minder trap, float assembly and drain tube.
12. Remove the liner and place it on the floor.

Models FPD, FPI-14BJ and FPDA-14BJ

1. Remove all shelves, Hydrators, Meat Tenders, etc., from the interior.
2. Remove the lamp shield, air deflector, Meat Tender, outlet grille and the return air grille.
3. Remove the air flow control bulb clamp, cover and insulation. The control need not be removed.
4. Remove the fan and lamp switch and disconnect the leads.
5. Remove the sides and top door opening moldings.
6. Remove the center mullion by removing the three screws on each side of the freezer collar. Remove the top and bottom pieces. Remove the screws on each end of the center mullion. Remove the screw from the center hinge.
7. Remove the F-3D control and pull it into the liner. This prevents tearing the insulation when the liner is removed. Remove the thermoline from its tube.
8. Disconnect any leads that may cause interference.
9. Remove the liner top corner gussets completely and remove the screws at the center corner gussets that secure the liner.
10. Remove the liner by alternately pulling out at the bottom and pulling out at the top. Place the liner to one side on the floor.

Model FCDM-14J

1. Remove all shelves; remove the lamp shield and the door opening moldings.
2. Remove the two inner doors.
3. Remove the freezer collar trim.

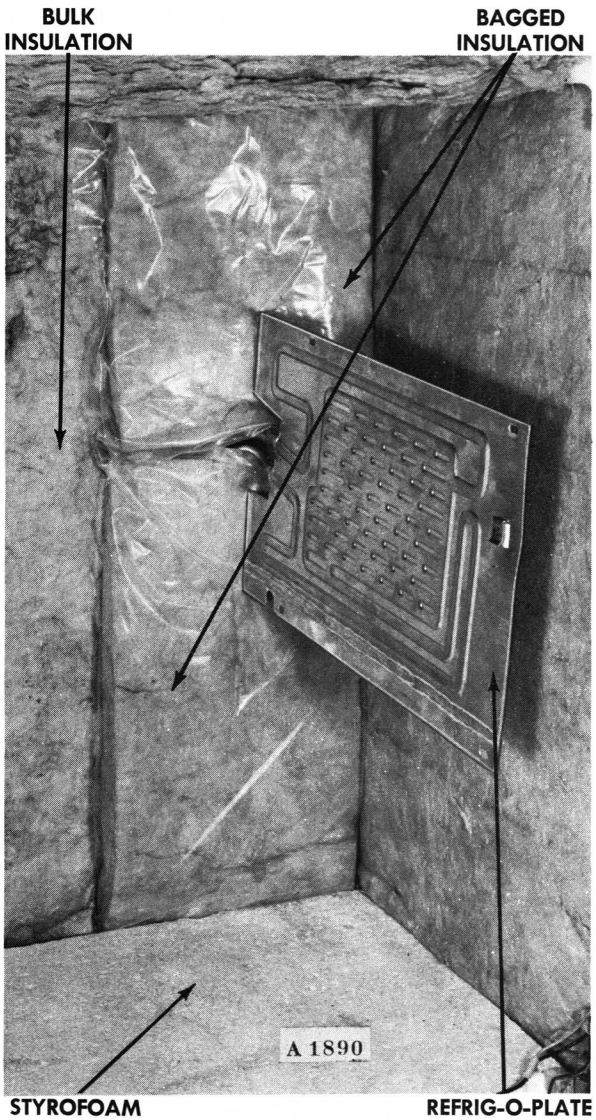


Figure 92
Liner Removed — FD-14BJ

4. Remove the freezer collar.
5. Remove the divider assembly.
6. It is best to remove the thermostatic switch from the liner to prevent tearing the insulation when the liner is removed. The switch bulb clamps must be removed.
7. Remove the intake duct.
8. Remove the fan housing cover.
9. Remove the liner-to-cabinet shell supports.
10. Remove the four screws from the bottom of the freezer coil under the Ice Server.
11. Remove all insulation from around the evaporator coil.
12. Remove the Moist-Minder tube.
13. Remove the evaporator coil and plate assembly and lay it on the floor face down.
14. Disconnect leads as necessary and pull out the liner.
15. Transfer parts from the removed liner to the new liner. Be sure the air duct is properly sealed.

Model FD-14BJ

1. Remove all shelves, lamp shield and door opening moldings.
2. Remove the Refrig-o-plate baffle.
3. Remove the drain trough.
4. Remove four screws that mount the Refrig-o-plate.
5. Remove the switch bulbs, clamps and screws.
6. Remove the complete center mullion by removing the top and bottom portions first and then the center metal piece. Remove the center hinge butt screw and, if necessary, loosen the other two screws.
7. Swing out the Refrig-o-plate carefully to align with the slot in the back of the liner.
8. Remove the liner corner gusset screws.
9. Disconnect any electrical leads necessary.
10. Remove the F-3 switch mountings and pull them into the liner to prevent tearing up the insulation.
11. Remove the liner, Figure 92. Notice the location of the bagged insulation relative to the refrigerant lines.

Models FPD, FPI-16BJ and FPD, FPI-19BJ

These food compartment liners are foamed in place and will rarely need replacing. However, the procedure below can be followed should the situation ever arise that the liner need be removed.

It will be necessary to make certain aids prior to attempted removal of the liner.

- Two pieces of ¾" plywood with dimensions shown in Figure 93.

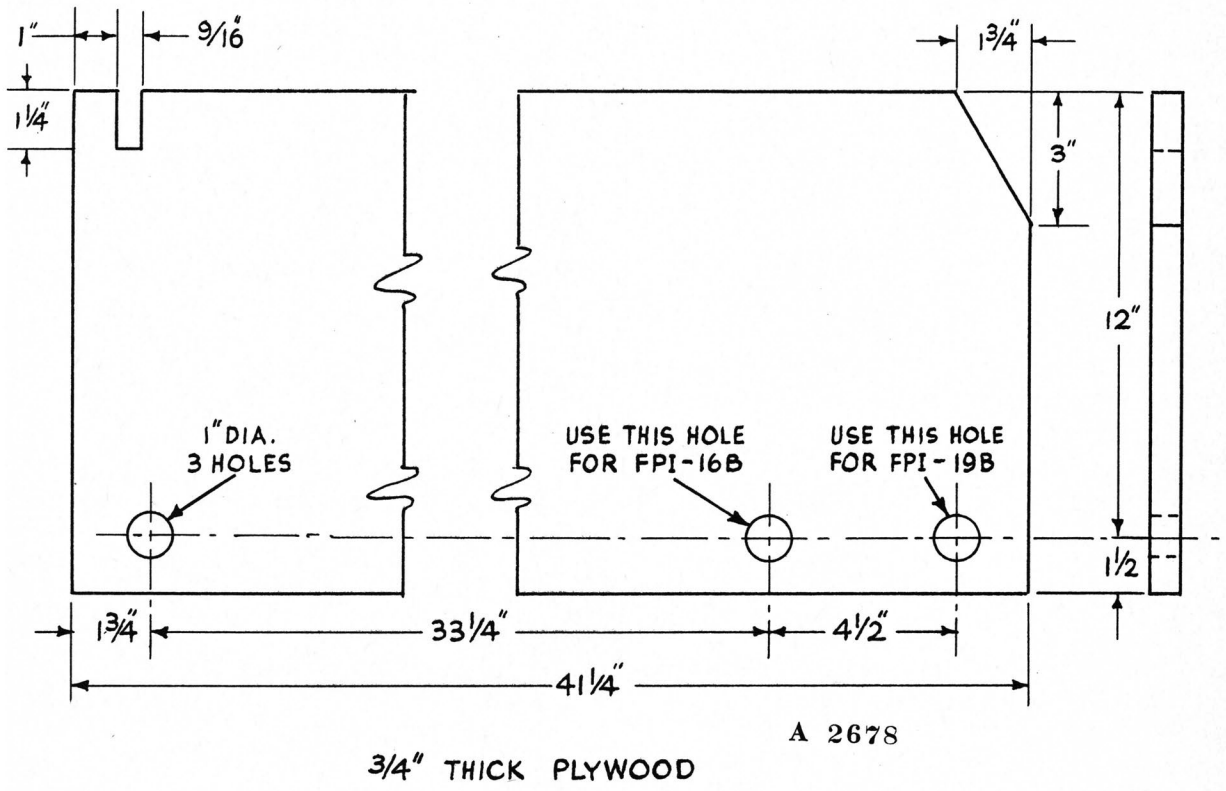


Figure 93
Liner Removal Tool Dimensions

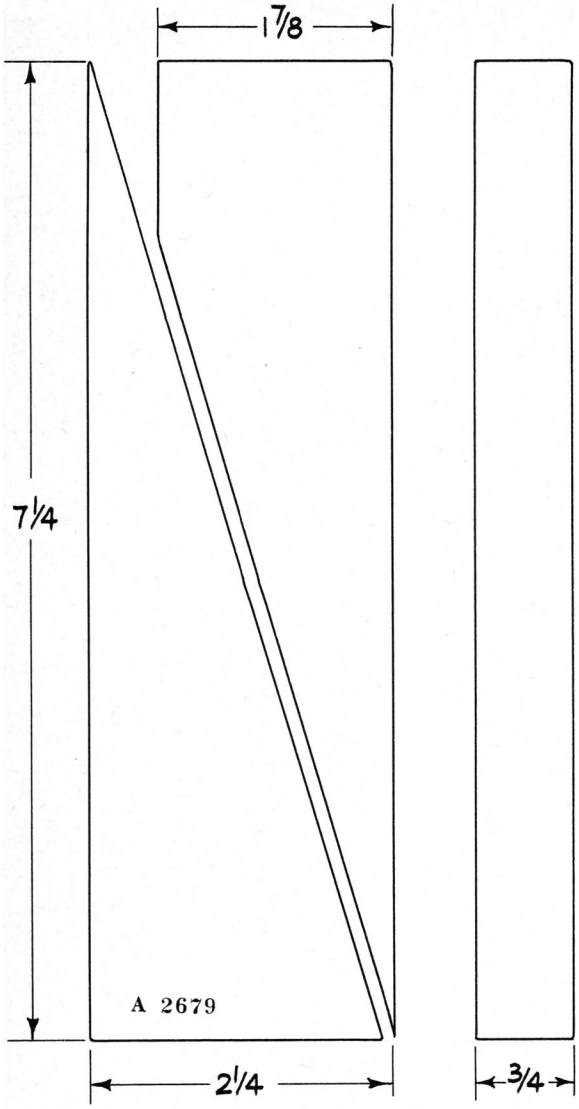


Figure 94
Liner Removal Wedge Dimensions

- Two 7½" pieces of ¾" wedges made from hardwood. Cut off a corner of one of the blocks, Figure 94.
- One piece of ¾" x 3" x 32⅛" wood from base crating for the FPD, FPI-19BJ models. Dimensions for the FPD, FPI-16BJ are ¾" x 3" x 30⅜".
- Two pieces of ½" pipe, 36" long.
- Tape is included with each replacement. Additional tape can be ordered as 6595569.
- 14" pipe wrench in addition to normal selection of tools.

1. Remove all shelves, Hydrators, Meat Tenders, etc., from the interior.
2. Remove all the food door opening moldings and filler insulation.
3. Remove all shelf support pegs, particularly from the sides and top that would offer resistance to the removal of the liner. These pegs must be transferred to the replacement liner.
4. Remove the lamp shield, air deflectors and inlet and outlet grilles.
5. Remove the air flow control (16BJ only) cover, control, insulation and bulb mounting.
6. The F-3D thermostat and Fan Cycling Switch can be removed or remove all mountings and push the switch back into the duct.
7. Disconnect the leads from the terminal boards that are connected to the liner or go behind it.
8. Remove the top freezer molding. Pull out on the sides of the freezer collar to gain access to the center mullion screws.
9. Remove the center mullion and disconnect the leads.
10. Disconnect any leads that go to the freezer compartment that are not foamed in place and could interfere with the removal of the liner.
11. Remove the eight liner-to-gusset mounting screws at the top and bottom corners of the liner.
12. As a safety measure, it is recommended that both the food compartment and freezer door assemblies be removed.

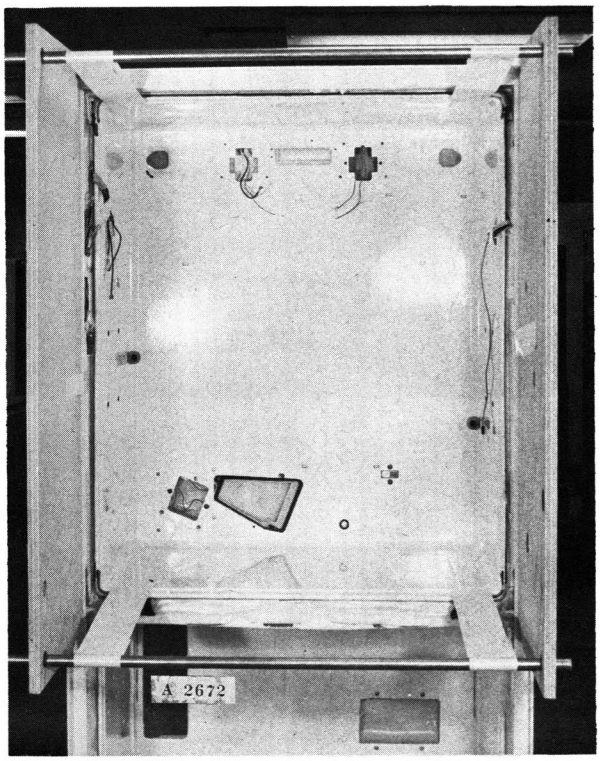


Figure 95
Liner Removal Tools In Place

13. Install one of the plywood forms, Figure 95, by first hooking the notch on one corner of the plywood over the top of the cabinet shell and resting the edge on the cabinet flange where the door seal contacts. Use two pieces of wide tape 12" long and tape to outside of the cabinet and the plywood form, one near the top and one near the bottom. Use another piece of

tape and tape to the inside of the plywood piece, in the middle, and to the foam insulation. These pieces of tape merely steady the plywood form. Short pieces of tape may also be placed on the top of the cabinet and plywood form. Install the other plywood form on the opposite side of the cabinet in the same manner.

14. Install the ½" pieces of pipe through the pre-drilled holes in the plywood. If the model is a 19BJ, use the bottom set of holes. On the 16BJ, use the set of holes directly above.
15. Cut four pieces of 6595569 tape approximately 38" long. Install these in each corner of the liner, front to back, as shown in Figure 95. Be sure these pieces are fastened securely, straight and not wrinkled. Loop the ends over the rods so that when the rod is turned the tape is not pulled away from the liner.
16. Tape the electrical leads out of the way. Use a long bladed knife and cut along the bottom edge of the liner, angling upwards slightly as you cut from the left center gusset to the right center gusset. Do not cut along the top because of electrical leads in this area. When the liner is removed, cut off the top front edge of the foam insulation flush with the major portion of the foam insulation to assist in the assembly of the new liner.

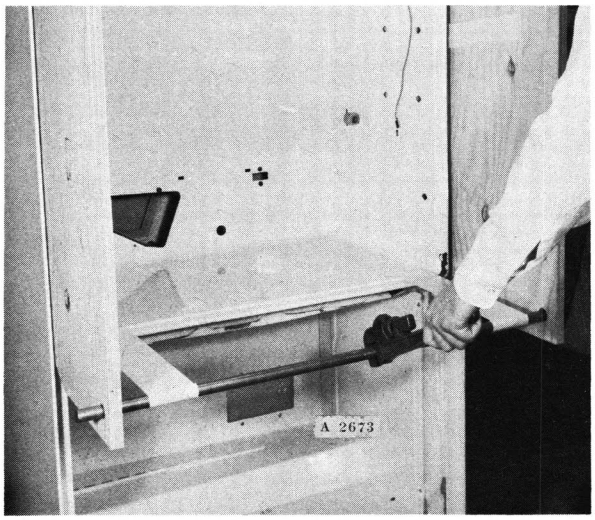


Figure 96
Liner Partially Removed

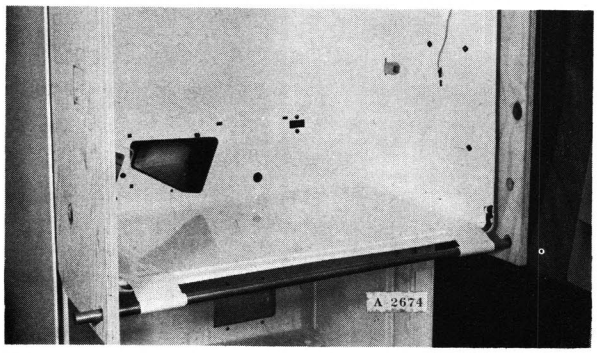


Figure 97
Maximum Use of Liner Removal Tool

17. Using a pipe wrench, alternately turn the top and the bottom rods, Figure 96. Do not turn one rod too much at one time as this would place the liner in a binding condition.
18. Continue to pull the liner until the tape is almost completely rolled up on the rods, Figure 97.
19. Remove the tape from the liner and remove the rods and plywood forms.

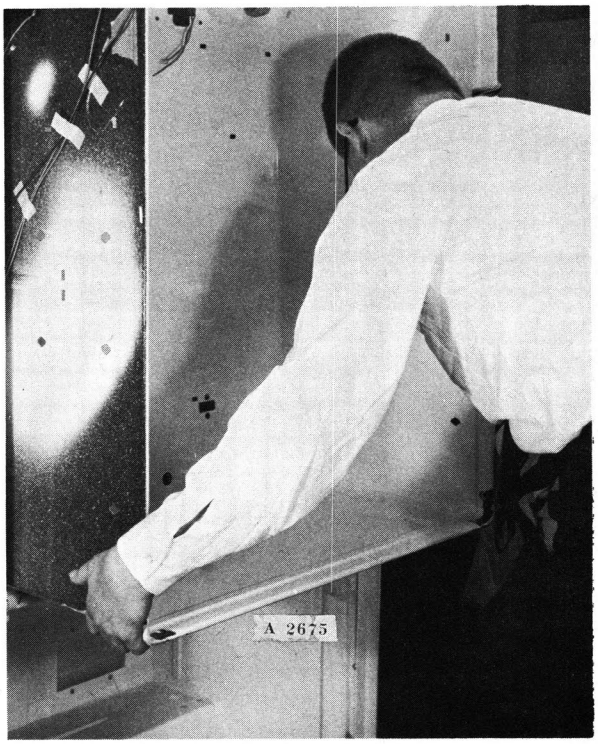


Figure 98
Final Liner Removal by Hand

20. Grasp the liner at the bottom corners, Figure 98, and continue to remove the liner. Alternate at the top and bottom corners and "rock" out the liner.
21. Transfer the lamp sockets and leads to the replacement liner. Check for broken leads that may have caught on the corner gussets. Be sure the electrical leads are routed the same as on the original lines to prevent the leads from getting caught on the corner gussets or laying across the air ducts to cause interference.
22. Remove the polyethylene sheet of plastic from the Frigi-Foam insulation. Use the thumb to press the insulation in slightly from from to back at the corners and where the lamp sockets pull through the insulation. This assists in replacing the new liner.
23. Install the new liner by setting it into position, grasping one side of the liner and the rear of the cabinet, pushing the liner back alternating from one side to the other.
24. Once the liner is back far enough, place the ¾" x 3" x 32⅛" piece of crating in the cabinet channels



Figure 99
Liner Replacement Wedge Placed at Bottom of Liner

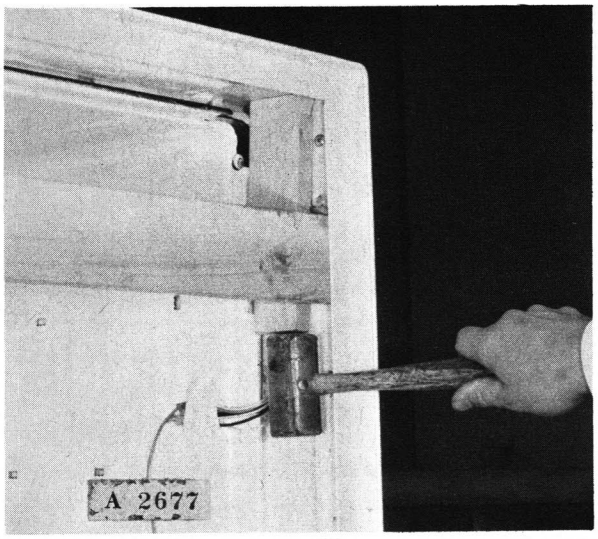


Figure 100
Liner Replacement Wedge Placed at Top of Liner

from side to side, Figure 99, at the bottom of the liner. Place the widest wedge shaped block on top of the center mullion gusset and the straight edge of the block against the edge of the liner. Place the other wedge shaped block so that the matching angle surfaces are against each other. Use a mallet and tap the block so the liner mounting screws can be installed. It will be necessary to alternate at each corner until the liner is back sufficiently before attempting to install the mounting screws.

25. Move the blocks to the upper corners, Figure 100, and repeat for the two top corners.
26. Reassemble the remainder of the cabinet parts.

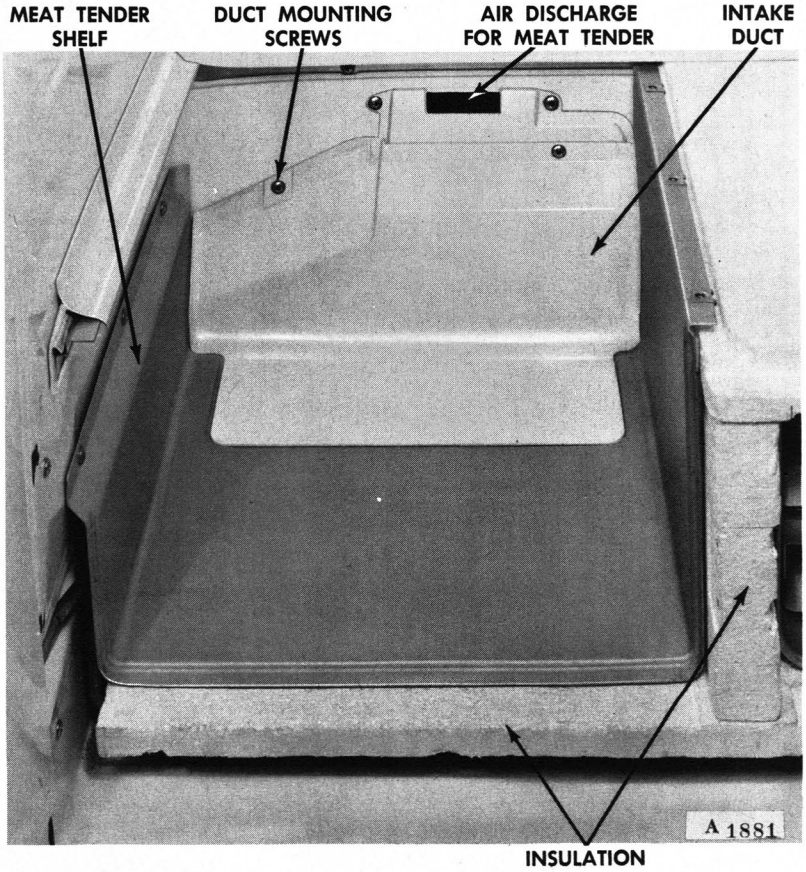


Figure 101
Left Side Detail of Refrigerated Compartment — FCDM-14J

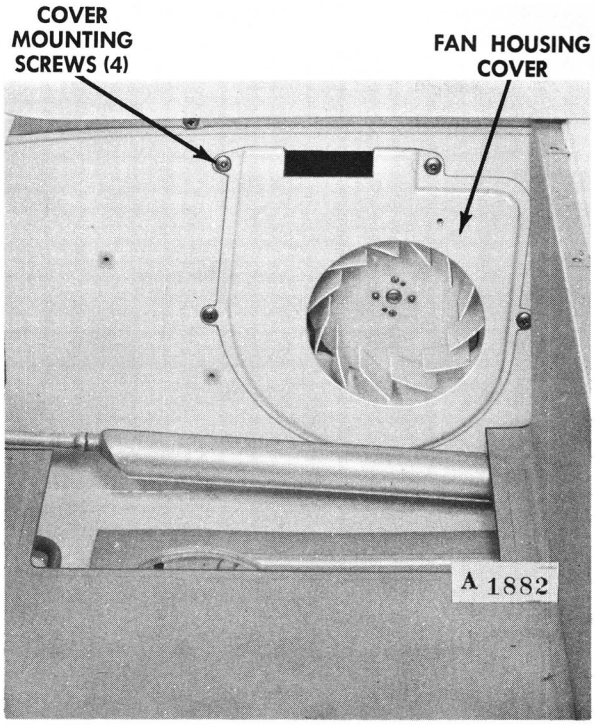


Figure 102
Fan Housing Cover — FCDM-14J

JJ. Duct, Intake—Removal:

Model FCDM-14J

1. Remove the Meat Tender and remove the two mounting screws, Figure 101.

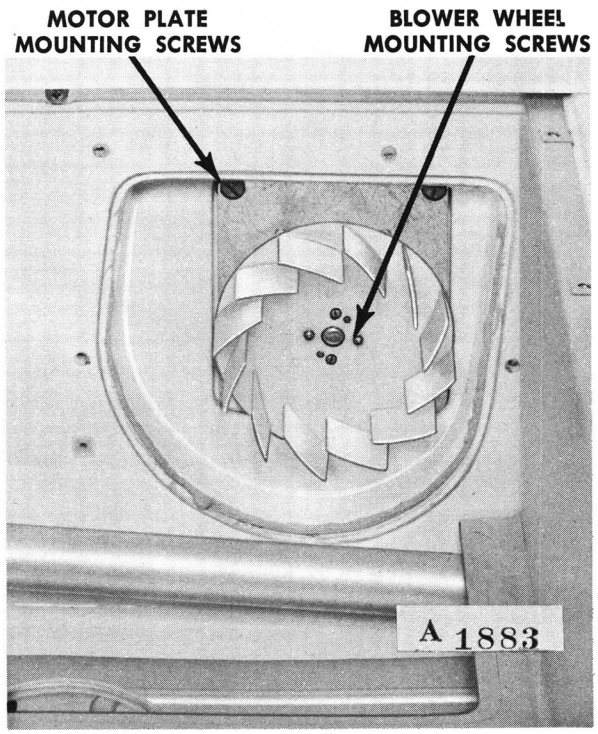


Figure 103
Blower Motor Assembly — FCDM-14J

KK. Cover Blower Housing—Removal:

Model FCDM-14J

1. Remove the intake duct.
2. Remove the four screws, Figure 102, which mount on the cover.

Model FD-14BJ

Remove the four cover mounting screws, Figure 52.

LL. Motor, Blower—Removal:

Model FCDM-14J

1. Remove the intake duct.
2. Remove the blower housing cover.
3. Remove the two screws that mount the blower wheel, Figure 103.

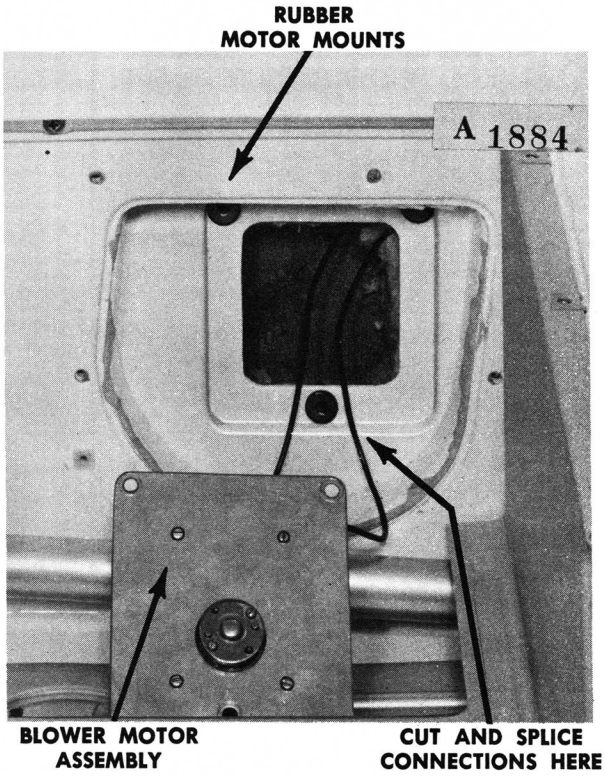


Figure 104
Blower Motor Assembly Removed — FCDM-14J

4. Remove the three screws that mount the motor plate.
5. Remove the blower motor assembly, Figure 104.
6. Cut and splice the leads at least two inches from the motor, using solderless or Marr connectors.
7. There may be one or two nylon spacers on the bottom mounting screw between the motor mounting plate and the rubber bushing to space the motor out at the bottom.

Note: The replacement motor comes with a mounting plate. This motor assembly is not interchangeable with the motor used on the FD-14BJ.

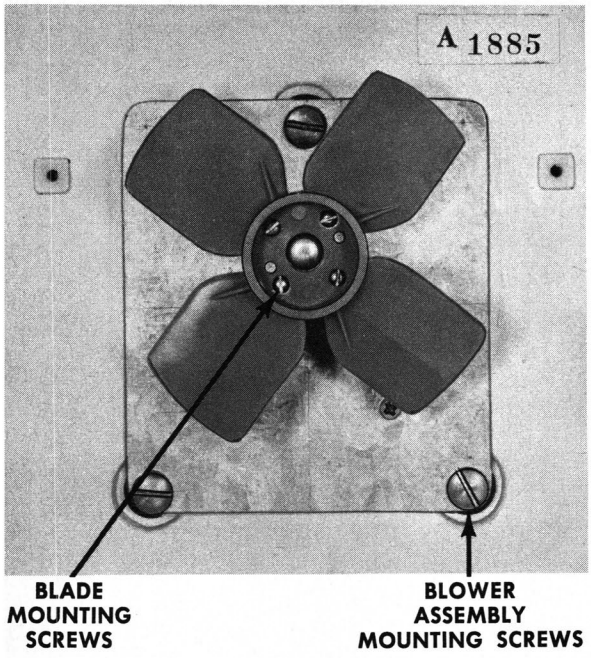


Figure 105
Blower Motor Assembly Mounting — FD-14BJ

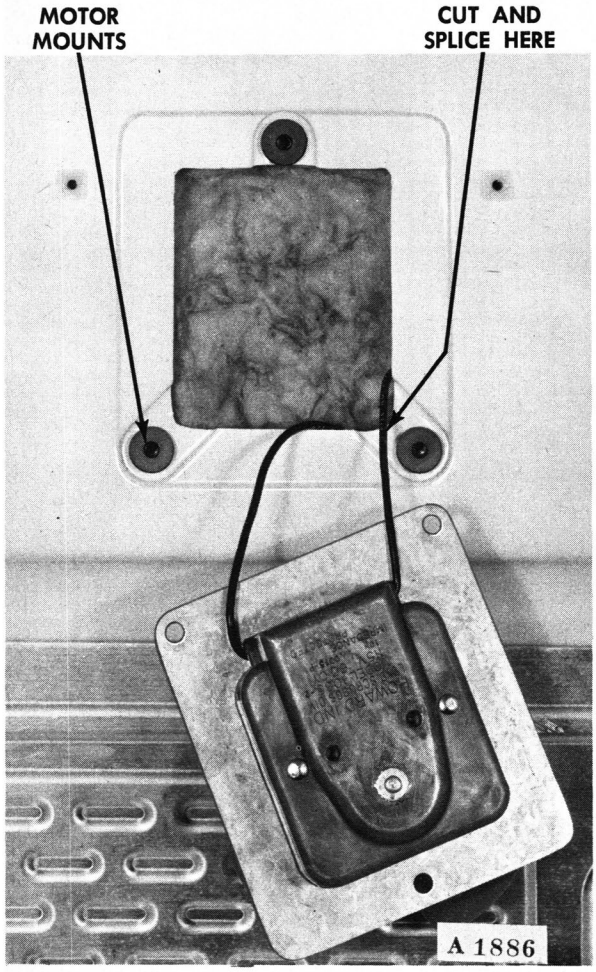


Figure 106
Blower Motor Assembly Removed — FD-14BJ

Model FD-14BJ

1. Remove the blower housing cover.
2. Remove the blade mounting screws, Figure 105.
3. Remove the three blower assembly mounting screws.
4. Remove the blower assembly, Figure 106.
5. Cut and splice the leads at least two inches from the motor, using solderless or Marr connectors.

Model FPD, FPI-19BJ

Food Compartment Blower Motor

1. Remove the six screws, securing the blower housing and remove the housing.

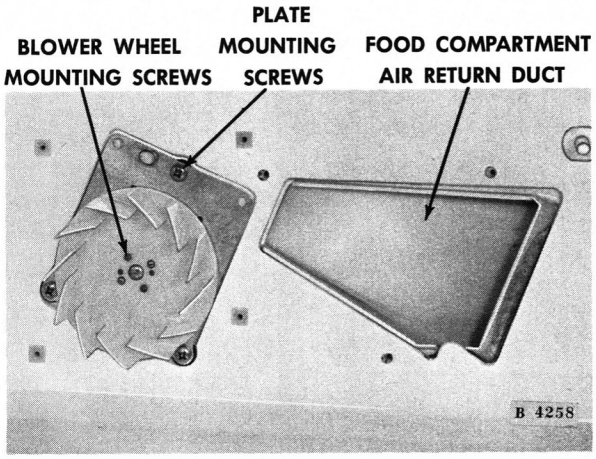


Figure 107
Blower Motor Mounting — FPD, FPI-19BJ

2. Remove the two screws, Figure 107, that mount the blower wheel.

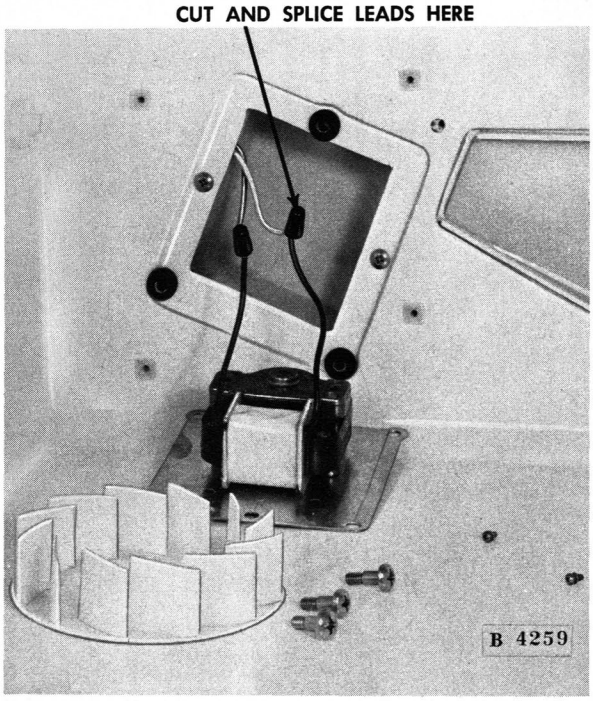


Figure 108
Blower Motor Removed — FPD, FPI-19BJ

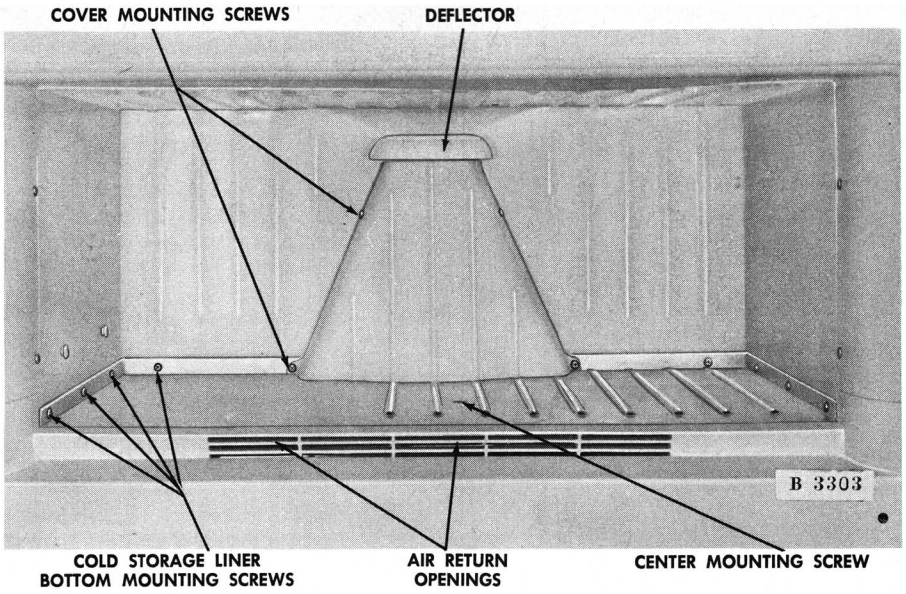


Figure 109
Interior Freezer Section — Frost-Proof Top Freezer Models — FPI-14TJ has Freezer Lamp and Switch

3. Remove the three plate mounting screws and remove the assembly.
4. Cut and splice the leads, Figure 108, at least three inches from the motor.

MM. Trough, Drain—Removal:

Model FD-14BJ

1. Remove the two screws mounting the trough to the back of the liner, Figure 52.
2. Pull down and release the trough from the edge of the trim. Use a flat bladed screwdriver, if necessary, to break the bond of the vinyl tube, and pull the trough out from the drain tube.

Service Operations — Frost-Proof Models

Service operations not covered so far on Frost-Proof models are given below. This is because the sequence of

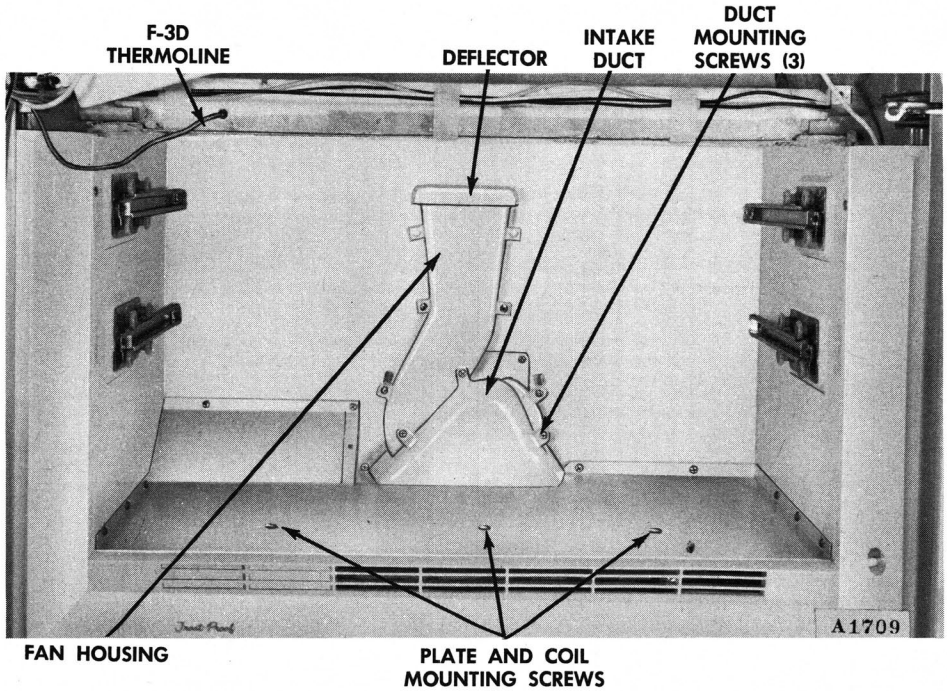


Figure 110
Blower Housing Assembly — Bottom Freezer Models — FPD, FPI-19BJ

operation usually requires the removal of the cold storage liner bottom which is not necessary on previous model procedures.

Special Note: Throughout the entire reassembly on Frost-Proof models, it is imperative that you seal around all edges of the duct work and air passages with 5877995 blue permagum or adhesive backed insulation strips which are currently being used. Two sizes are supplied. 6592876 consists of 16 pieces ¼" x ⅜" x 30". 5878011 consists of 22 pieces ⅛" x 9/32" x 12".

NN. Cover, Freezer Blower Duct—Removal:

Remove the mounting screws, Figure 109. On the 14T models remove the half shelf in the freezer.

OO. Duct, Intake—Removal:

1. Remove the duct cover, Procedure NN.
2. Remove the duct mounting screws, Figure 110.

PP. Housing, Fan—Removal:

1. Remove the freezer blower duct cover, Procedure NN.
2. Remove the intake duct, Procedure OO.
3. Remove the fan housing screws, Figures 110.

QQ. Bottom, Cold Storage Liner—Removal:

1. Follow Procedures NN and OO and remove the intake duct.
2. Remove all the screws around the edge of the liner and also the screws in the bottom of the liner, Figures 109 and 110.
3. Lift up on the back of the bottom slightly to free the front edge of the collar. On the 12TJ and 14TJ models, this bottom plate engages slots in the center mullion. Pull forward to free the front edge and remove the bottom.

Models FPD, FPI-19BJ

This is the procedure for removing the back panel, Figure 111, that covers the coil and also serves to divide the two air systems.

1. Remove the freezer door on the FPI-19BJ, Procedure T.

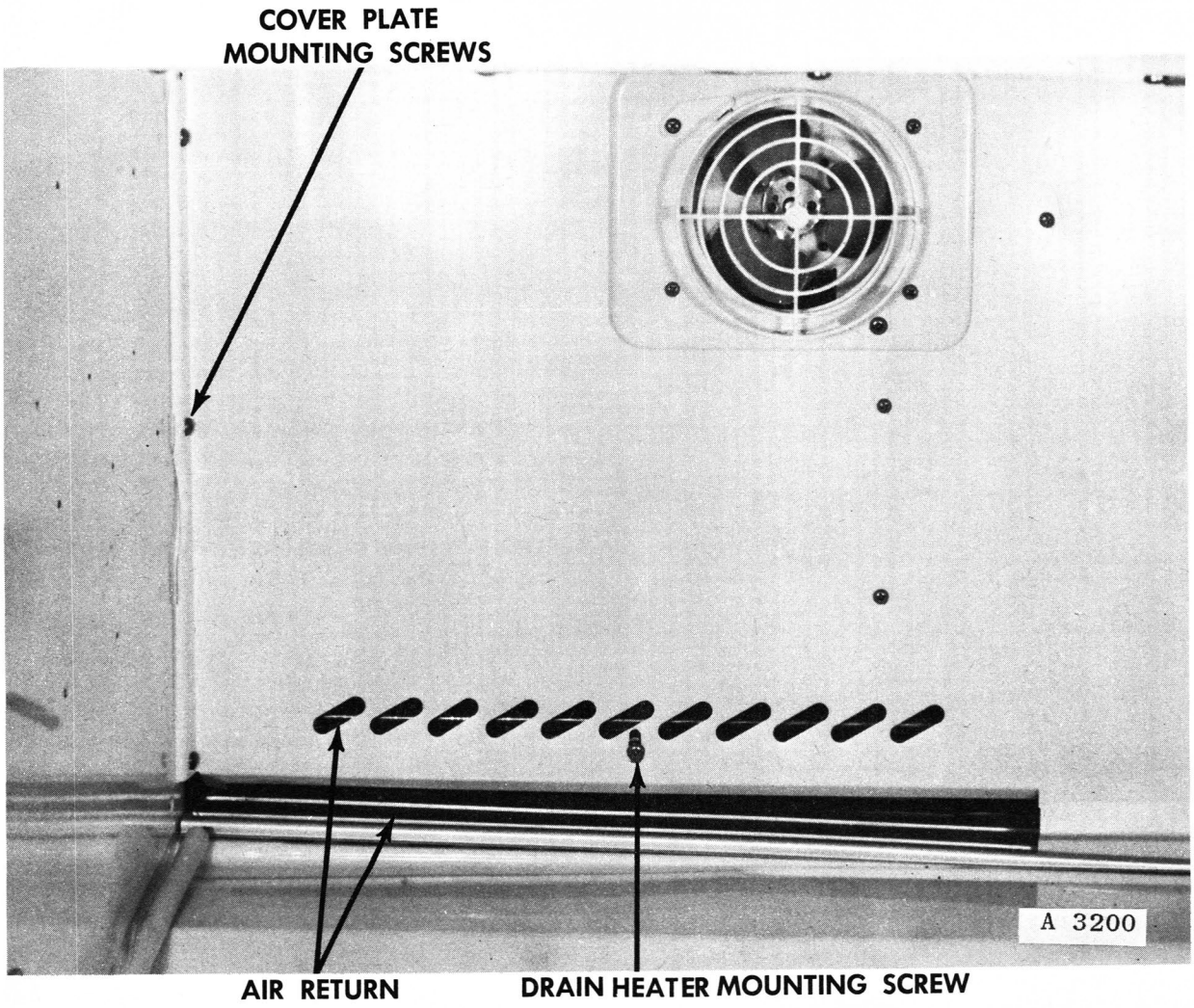


Figure 111
Air Intake Openings — FPD, FPI-19BJ Cover Plate

2. Remove all baskets and ice trays. The top ice tray shelf can be removed by pushing it to the rear as far as it will go and then lifting it up at the rear.
3. Remove the basket guide on the left-hand side of the freezer liner and remove the left-hand door stop assembly.
4. Remove the ice tray shelf assembly by removing the screws at the left side and at the top.
5. Remove the screws that hold the blower grille and cover.
6. Remove all the screws around the left side, top and right-hand side of the back panel. There are several screws in the center of the back panel that must be removed. Swing the panel out on the left side after clearance has been made by pulling it straight out.
7. Figure 112 shows the coil assembly after the back panel and insulation has been removed.

On these models in 1965, the insulation covering the freezer coil is made in three sections because, (a), easier assembly and (b), a better fit and sealing job can be done. In addition, less change in damaging the insulation such as breaking off a small piece that would induce air by-pass.

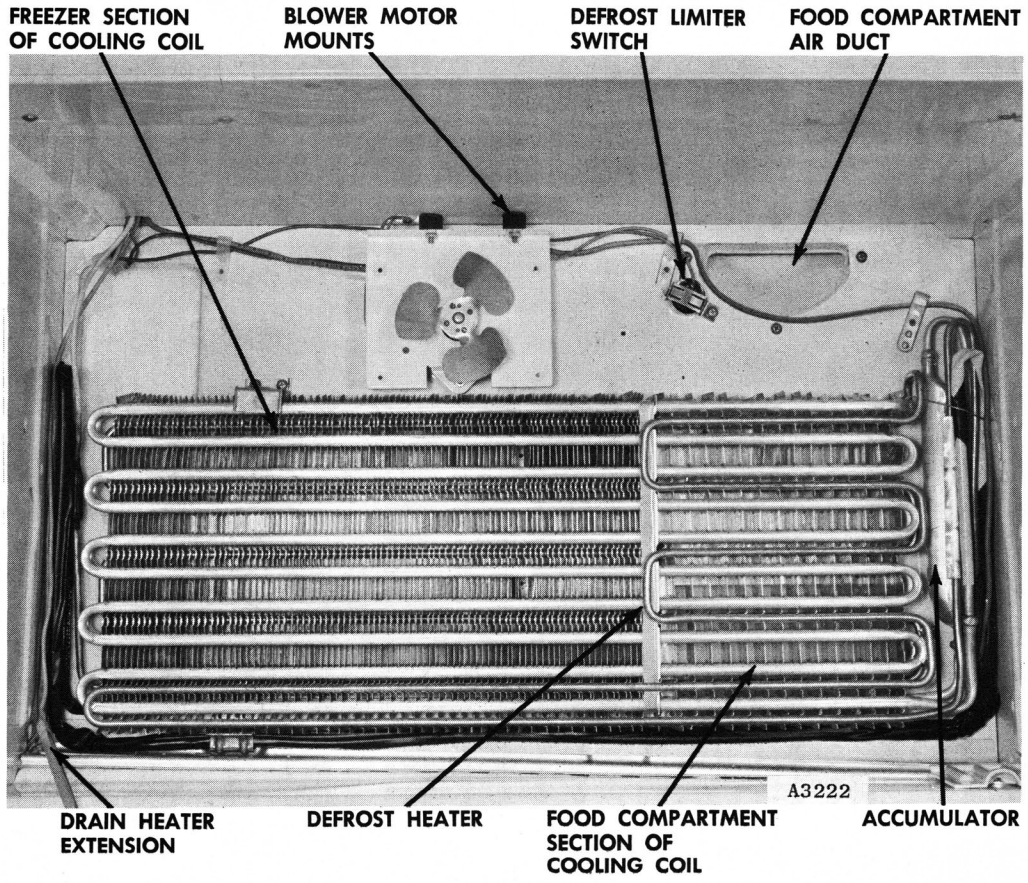


Figure 112
Interior Freezer Section — FPD, FPI-19BJ

Figure 113 shows the individual pieces which are numbered as they are assembled. Piece #1 is installed first on the left, top corner; #2 in the upper right-hand corner; #3 last. Note the insulation sealing strips and their location.

RR. Motor, Freezer Blower—Removal:

1. Remove the fan housing by following procedures NN, OO, and PP.
2. Remove the four, motor mounting plate screws, Figure 114.
3. Cut the leads about 2" from the inoperative motor.
4. Transfer the mounting plate, mounting pads and blower wheel to the new motor.
5. Transfer the rubber mounts, Figure 115, and reassemble the mounting plate and blower wheel.

Models FPD, FPI-19BJ

1. Using a ratchet or short screwdriver, remove the four blower cover plate screws and one grille mounting screw to gain access to the motor mounting bracket, Figure 112. Only the freezer baskets and perhaps the ice trays and removable shelf need to be removed first.
2. Remove the motor assembly. Cut and splice the leads as recommended above.

SS. Collar, Freezer—Replacement:

Models FPD, FPI-12TJ, FPD, FPI-14TJ and FPDA-14TJ

1. Remove the screws across the top and on each side of the top molding.
2. Loosen the top edge first by gripping the inside center edge with the fingers and pulling down gently.
3. Pull out on one side and free it from the edge of the mullion. Repeat for the other side and remove.

Models FPD, FPI-14BJ, FPDA-14BJ, FPD, FPI-16BJ

1. Follow Procedures NN, OO and QQ to remove the cold storage liner bottom.
2. Remove the screws across the bottom and on each side that secure the collar to the freezer liner.

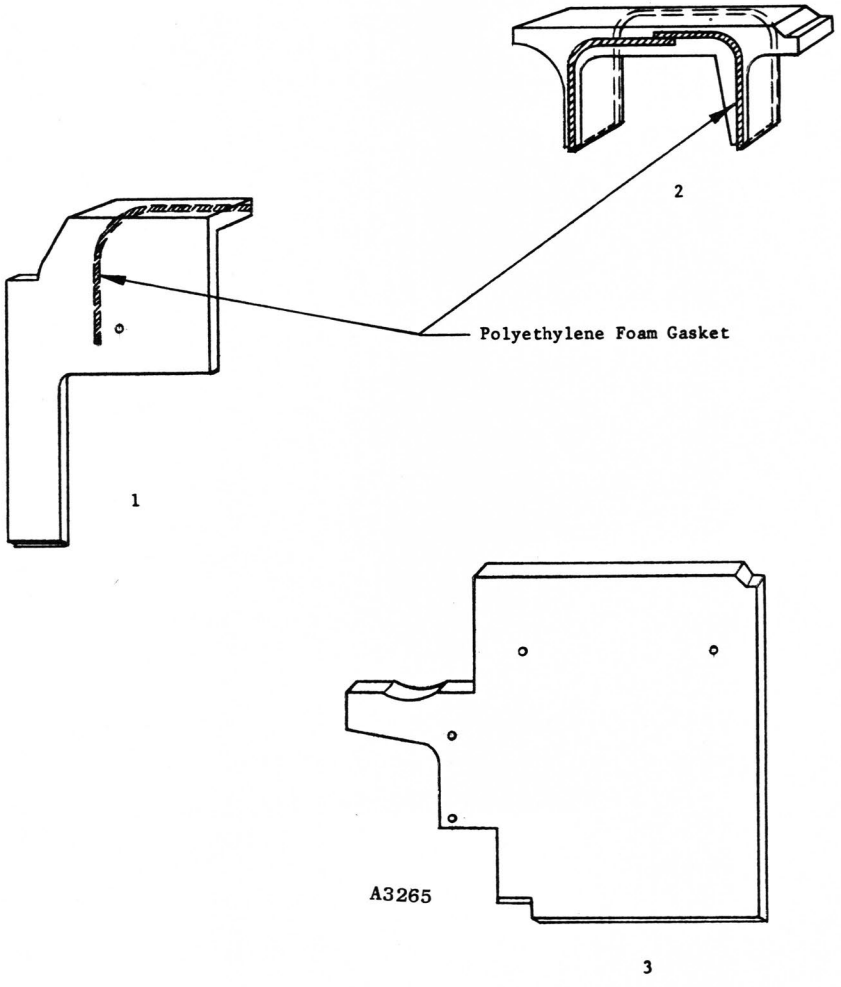


Figure 113
Freezer Coil Insulation — FPD, FPI-19BJ

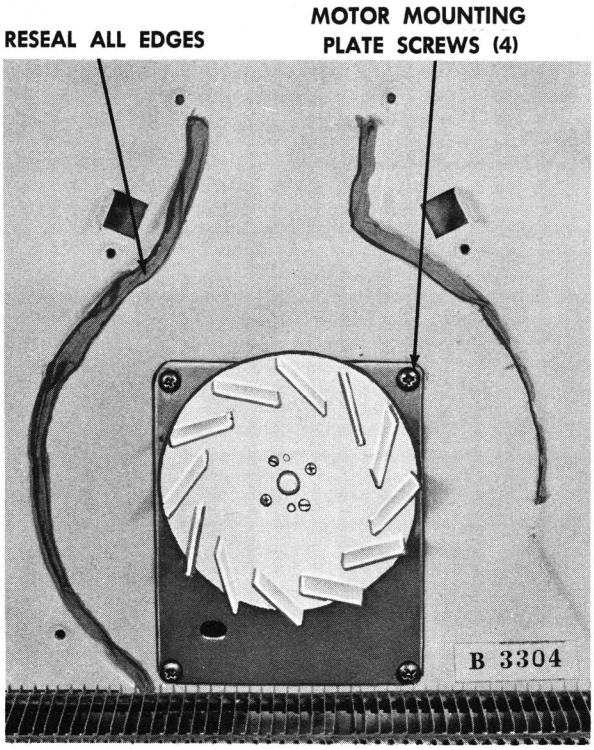


Figure 114
Freezer Blower Motor — Mounting Detail

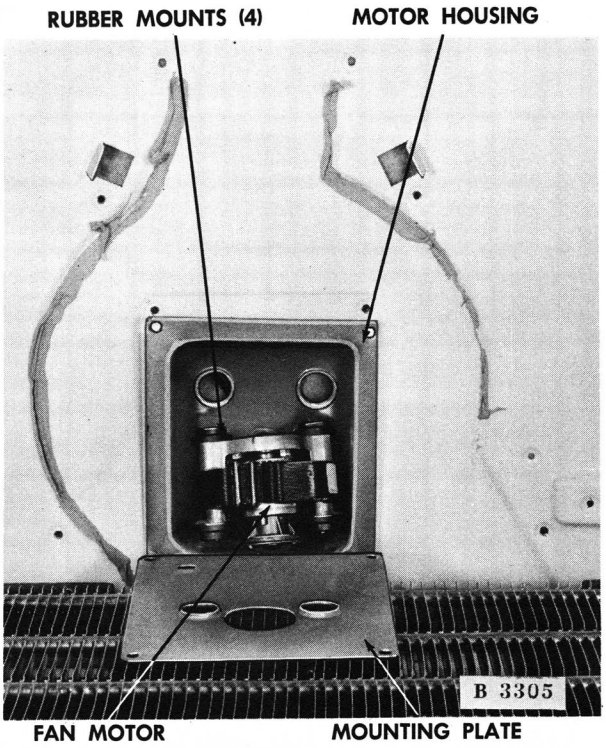


Figure 115
Freezer Blower Motor — Removed

3. Remove the screws that hold the bottom piece of the center mullion and remove the bottom piece sufficiently to free the sides of the collar.
4. Remove the collar.

Models FPD, FPI-19BJ

1. Remove the top molding in the freezer by removing the mounting screws.
2. Remove the large basket roller and bracket assemblies from each side.
3. Remove the collar.

TT. Switch, Defrost Limiter—Removal:

1. Remove the cold storage liner bottom by following Procedures NN, OO and QQ.
2. Remove the freezer throat molding, Procedure SS.

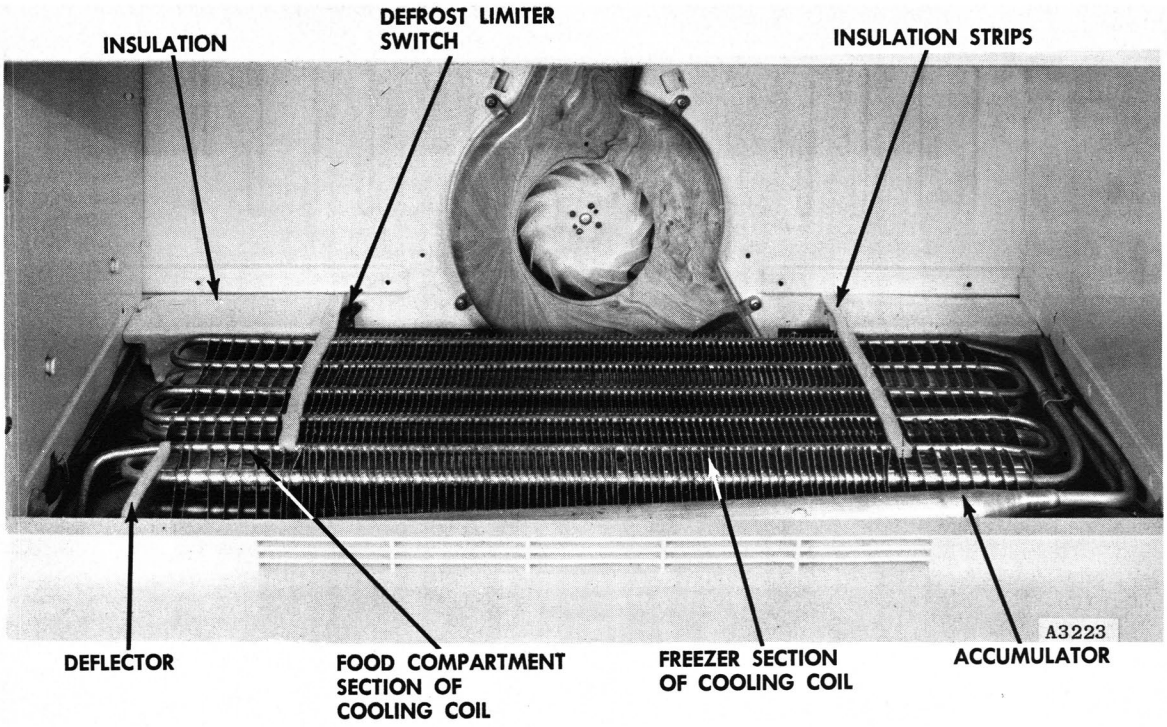


Figure 116
Freezer Coil Detail — 12TJ and 14TJ Models

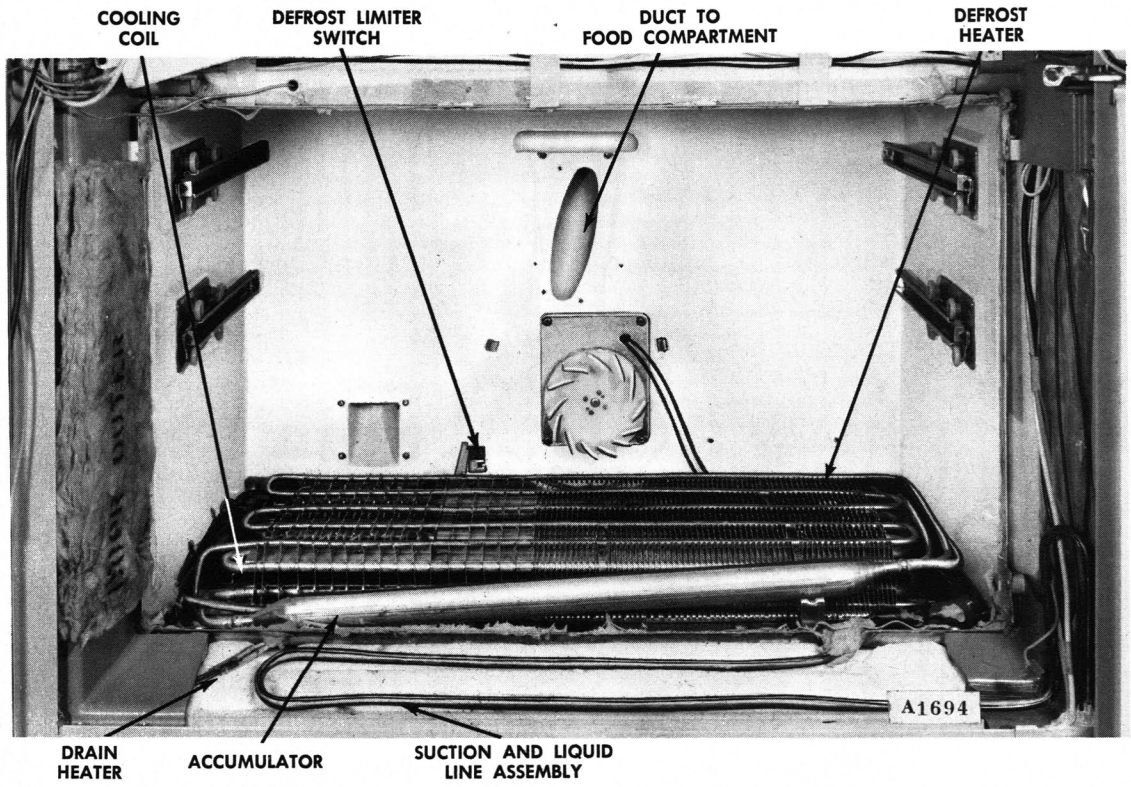


Figure 117
Freezer Coil Detail — FPI-14BJ

3. Remove the screw and clamp which secure the limiter switch to the deflector, Figures 116 and 117.
4. Cut the leads which are located in the left-hand side insulation from the crimp connectors, or 10 to 12 inches from the spade connectors on B models. Attach a string to these leads and pull them into the freezing compartment.
5. Remove the defrost limiter switch.

Note: On reassembly, use a piece of string to pull the new leads back through the insulation. Reseal around the drain pan where the leads exit into the insulation. Do not make connections inside the drain pan where a short or ground may result due to the presence of water. On "B" models, reconnecting the leads in this manner retains the color coding at the terminal board.

Models FPD, FPI-19BJ

1. Remove the cover plate over the freezer coil by following Procedure QQ.
2. Remove the sides and bottom moldings in the food compartment.
3. Identify the limiter switch leads by pulling on them slightly from the switch.
4. Cut these leads approximately 10 to 12 inches from the spade terminals. Remove a little insulation from the ends and twist them together. Attach a string or small wire and pull them through to the freezer compartment.
5. Remove the switch and bracket from the liner, Figure 112.
6. Reverse the procedure using the string to pull the new switch leads through. Use crimp connectors and splice the leads. This method retains the original color coding at the terminal board and makes it easier to pull the leads through without the terminal connectors on the lead. It also saves installing new spade terminal connectors.

UU. Heater, Defrost—Removal:

Models FPD, FPI-12TJ, FPD, FPI-14TJ and FPDA-14TJ

1. Remove the cold storage liner bottom.
2. Remove the food compartment side moldings.
3. Remove the locator clamp screws and all screws securing the coil to the pan.
4. Use a flat-bladed screwdriver and pry evenly along the flange which holds the heater to the accumulator channel.
5. Remove the center mullion.
6. Remove the right-hand, center mullion gusset, Figure 126.
7. Pull out the coil and block it up sufficiently to replace the heater on the bottom.

Note: On reassembly, use a piece of string to pull the new leads back through the insulation. Make sure the replacement heater fits tight and bottoms when pressed into the fins of the coil. Reseal around the drain pan where the leads exit into the insulation. Use a pair of adjustable pliers and crimp the flange of the accumulator over the heater.

Models FPD, FPI-14BJ, FPDA-14BJ, FPD, FPI-16BJ

1. Remove the cold storage liner bottom.
2. Remove the locator bracket or clamp screws on the left-hand side of the freezer coil.
3. Use a flat bladed screwdriver and pry evenly along the flange which holds the heater in the accumulator channel.
4. Remove the defrost heater from the top and bottom of the coil. Block up the coil sufficiently for ease of removal.
5. Disconnect the leads located on the left-hand side from the terminal boards. Attach a string to these leads and pull them into the freezing compartment.
6. Remove the heater by pulling forward. See reassembly notes in preceding procedure.

Models FPD, FPI-19BJ

1. Remove the cover plate over the freezer coil by following Procedure QQ.
2. Remove the sides and bottom moldings in the food compartment.
3. Identify the defrost heater leads by pulling on them slightly from the freezer compartment.
4. Cut these leads approximately 10" to 12" from the spade terminals. Remove a little insulation from the ends of these leads and twist them together. Attach a string or small wire to them and pull them through to the freezer compartment.
5. Remove the screw and clamp from the top of the coil and the two screws from the clamp on the right-hand side. The clamp will remain on the coil. Lift up on the coil and tilt it out at the top. There is no need to remove the coil clamp on the bottom of the coil. The coil will swing out to facilitate removing the heater.
6. Unwrap the wire that holds the heater to the coil. This wire should be reused upon assembly. Use a flat-bladed screwdriver and pry evenly along the flange which holds the heater in the accumulator channel.
7. Remove the heater by pulling off the right-hand end of the freezer coil. See reassembly note for the 14TJ models.
8. Reverse the procedure, using the string to pull the new heater leads through. Use crimp connectors and splice the leads. This method retains the original color coding at the terminal board and makes it easier to pull the leads through without the terminal connectors on the lead. If the replacement heater has new spade connectors, it is suggested they be cut off. Also, it is not necessary to install new spade terminal connectors.

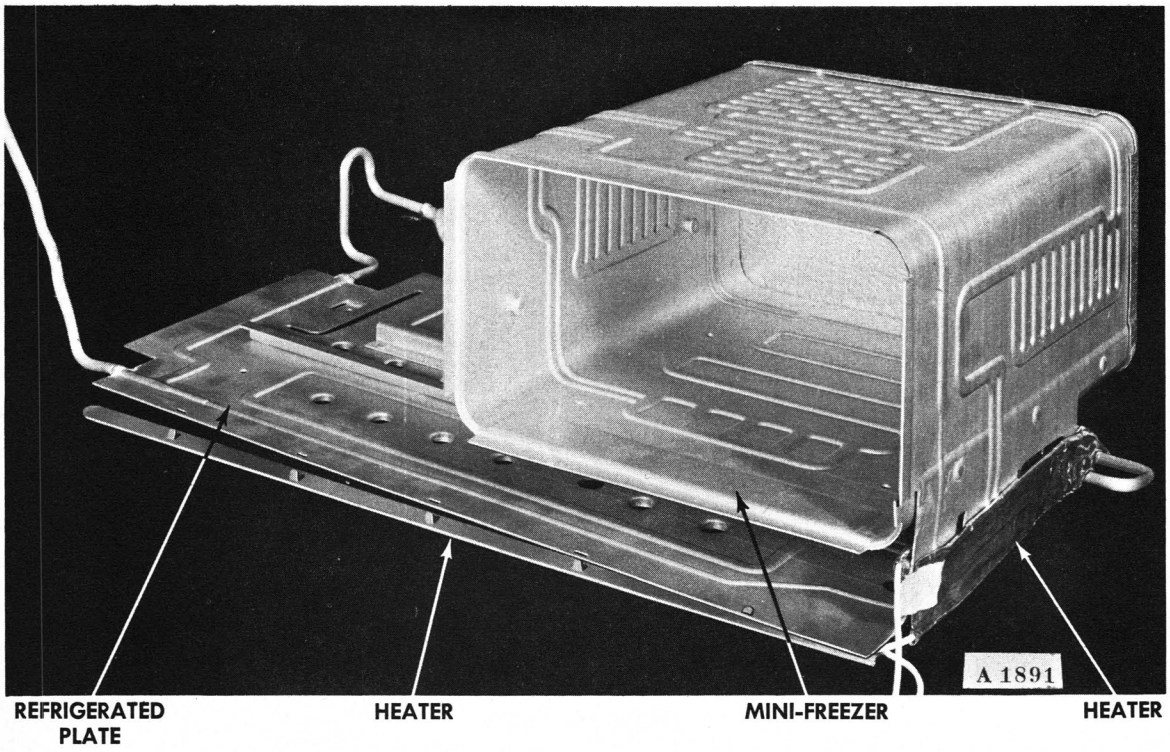


Figure 118
Cooling Coil and Evaporator Heater — FCDM-14J

VV. Heater, Freezer Drain—Removal:

Models FPD, FPI-14BJ, FPDA-14BJ and FPD, FPI-16BJ

1. Remove the freezer collar, Procedure SS.
2. The drain heater can be removed without disturbing the freezer coil. Disconnect the leads from the connectors on the left-hand side of the coil. Attach a string to the leads to pull them under the corner gusset, Figure 117.

Models FPD, FPI-19BJ

Follow Procedure UU for the removal of the defrost heater. The only change is that the defrost heater is not to be removed. Instead, remove the screws that secure the drain heater retainer. Remove the bottom coil support bracket first. Remove the tape from the bottom and remove the heater coil. Try not to tear the tape so it can be reused. Reinstall as outlined for the defrost heater. The leads for the drain heater are to be cut and spliced instead of the leads for the defrost heater.

WW. Heater, Evaporator—Replacement:

Model FCDM-14J

Although this is not a Frost-Proof model, this procedure is covered here with other evaporator heaters.

This heater is installed along the front of the refrigerated plate and the lower right-hand corner of the roll-bonded coil, Figure 118, which better illustrates its location. The purpose of this heater is to prevent ice growth in the areas in which it is mounted. The electrical connections are made across the thermostat thereby energizing the heater during the OFF cycle of the unit. It is rated at 13.4 to 15.4 watts at 115 volts with a resistance of approximately 910 ohms.

1. Remove the Hydrator cover.
2. Remove the two inner doors.
3. Remove the freezer collar trim.
4. Remove the freezer collar.
5. Remove the divider assembly.
6. Remove the intake duct.
7. Disconnect the F3 thermostat switch bulbs and clamps.
8. Remove the four screws from the bottom of the freezer coil under the Ice Server.
9. Remove the insulation from around the evaporator coil.
10. Pull up on the coil slightly to gain access to the template.

XX. Heater, OFF Cycle—Replacement:

Models FD-12TJ, FD-13TJ and FDA-13TJ

This heater is taped to the rear of the food compartment liner in the insulation area. Its purpose is to reduce the OFF cycle enough to give proper running time. The heater is connected across the F3 switch. When the switch is open, 115 volts are produced across its contacts to energize the heater which is rated at 20—22 watts. In diagnosing an inoperative heater, you would notice a much longer running cycle and, in conjunction, a much longer OFF cycle. Temperatures will vary considerably.

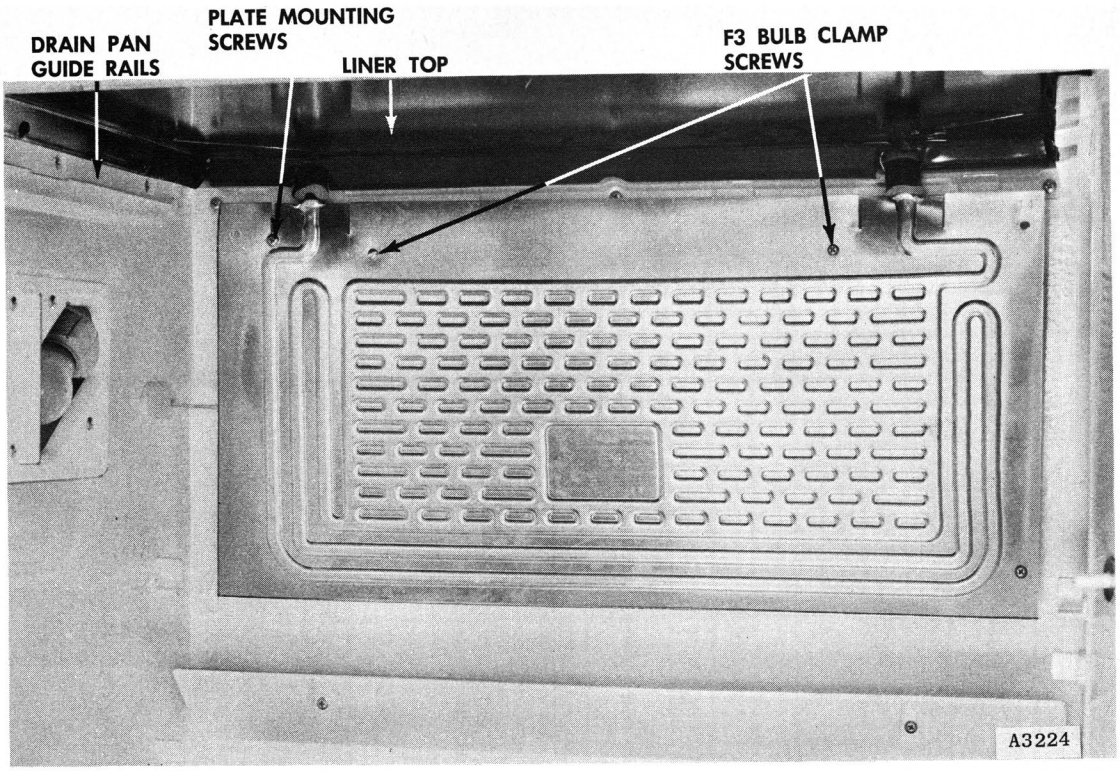


Figure 119
Refrig-o-plate Mounting — FDA-13TJ

To replace the heater, proceed as follows:

1. Remove the aluminum drain pan from the top of the food compartment liner.
2. Remove the left and right-hand side moldings.
3. Remove the bottom of the center mullion.
4. Remove the left and right-hand side drain pan guide rails, Figure 119.
5. Remove the food liner top pan.
6. Remove the Refrig-o-plate mounting screws and tilt the Refrig-o-plate up slightly, Figure 120.
7. Remove the plastic liner support across the top, rear of the liner. Remove the center speed nut.
8. Remove the styrofoam insulation under the freezer by first removing the left piece and then the other

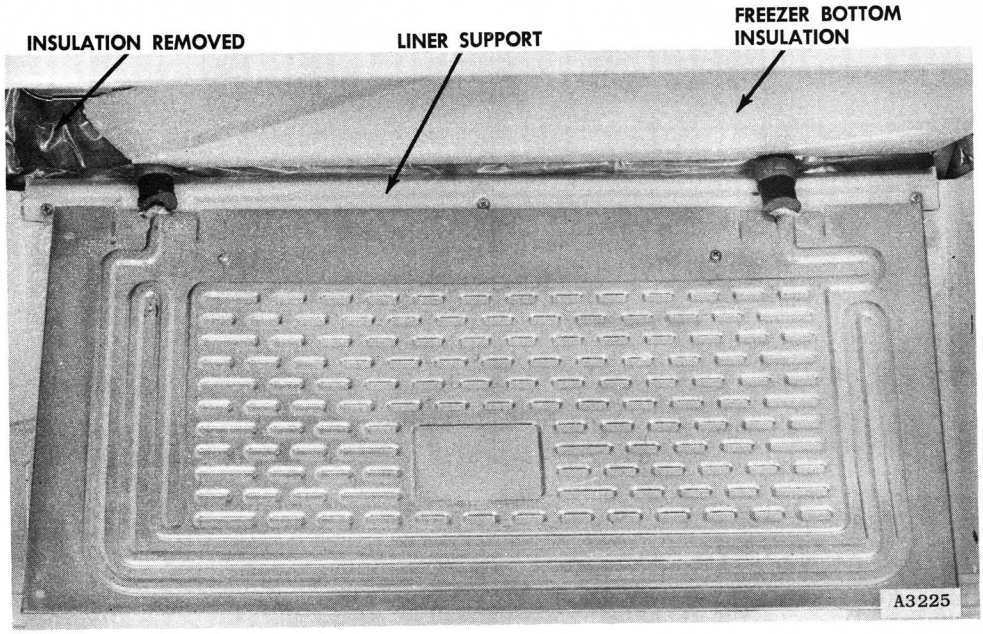


Figure 120
Food Compartment Top Removed

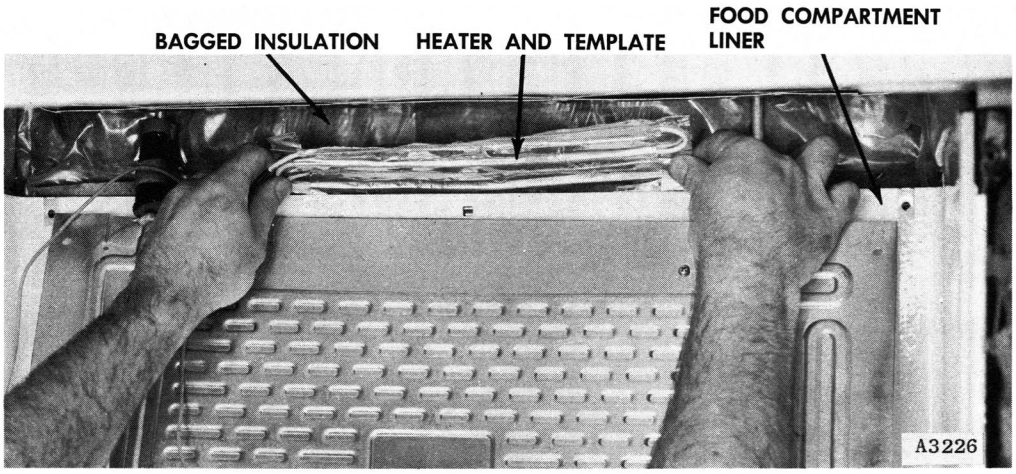


Figure 121
Installing New Heater and Template — FDA-13TJ

piece. This insulation is cut at an angle to aid in assembly.

9. Remove the top liner to gusset mounting screws and pull the liner forward slightly to make room behind the liner.
10. Disconnect the one blue heater lead from the thermostat and cut the other lead from the crimp connector.
11. Try to remove the tape at the top of the heater to be replaced by using your fingers to roll off the tape. Pull on the top heater lead to remove. The aluminum foil will tear but the template will come out.
12. Install the new heater template by sliding it down the back side of the liner, Figure 121. If the liner is pulled forward sufficiently, the template slips in easily. Caution must be exercised in pulling the liner forward since the Moist-Minder tube at the bottom of the liner goes through to the machine compartment.
13. The insulation will hold the template in place. Run the electrical leads around the top of the liner to the thermostat. After replacing the plastic liner support across the top, rear of the liner, pull the plastic insulation bag over the top of the support to ensure that any moisture will drain into the liner and not behind it into the insulation area.

Component Replacements

It is of utmost importance that the correct diagnosis be made before a component replacement is considered. Check the switches, relays, timers and controls. Use a starter cord on the compressor in conjunction with a wattmeter before condemning a compressor. Before changing a compressor on Frost-Proof models, be sure you understand the condition present if the complaint is excessive running time. If freezer package temperatures are below 0°, the running time can be reduced considerably by turning the thermostat to a warmer setting. Cabinet temperatures remain fairly constant regardless of where the thermostat is set due to the food compartment air flow control. Considerable time and expense can usually be saved by taking a little more time on diagnosis.

YY. Compressor and Drier-Filter Replacement: *All Models Except FPD, FPI-19BJ*

Note: It is necessary to order a compressor package and a line connector package, which contains the necessary fittings, to complete a compressor change. The entire replacement procedure should be done in continuous sequence and as quickly as possible so the system will not be exposed to the atmosphere longer than necessary.

1. Pull the cabinet from the wall and disconnect the power supply.
2. Use a flat-bladed screwdriver and pry off the rear access panel and clips.
3. Assemble a 12290 charging tool with a new 12178 gasket to the charging screw on the compressor, Figure 122. Attach a line so the refrigerant can be discharged to the outdoors; adequate ventilation should be provided so accurate leak tests can be conducted later in the procedure.
4. Remove the electrical leads from the compressor terminals, remove the lead clamp from the unit frame, remove the leads from the clip in the machine compartment, remove the insulation under the compressor and remove all screws from the side of the condenser except the top two screws.
5. Remove the rubber superheat mounting retainer from the front of the superheat and, using two pieces of 2" x 4", block up the two rear corners of the cabinet. Remove the two, unit frame mounting screws on each side. Remove the drier-filter mounting and the interchanger clamp screws.
6. Pull the unit from the rear of the cabinet.
7. Clean the lines with steel wool in the areas to be cut for a compressor and drier-filter change.
8. Cut the discharge line, drier-filter inlet and outlet, and the suction lines with a tubing cutter.

   Note: The capillary line should be scored with a file, and broken.
9. Remove the spool mounts, T nuts and bolts, and remove the inoperative compressor.
10. Install the new compressor on its mounts. Mark and cut the lines with a tubing cutter. Be sure to crack the charging screw on the replacement compressor and release the holding charge of gas.
11. Assemble the fittings on the suction line to the

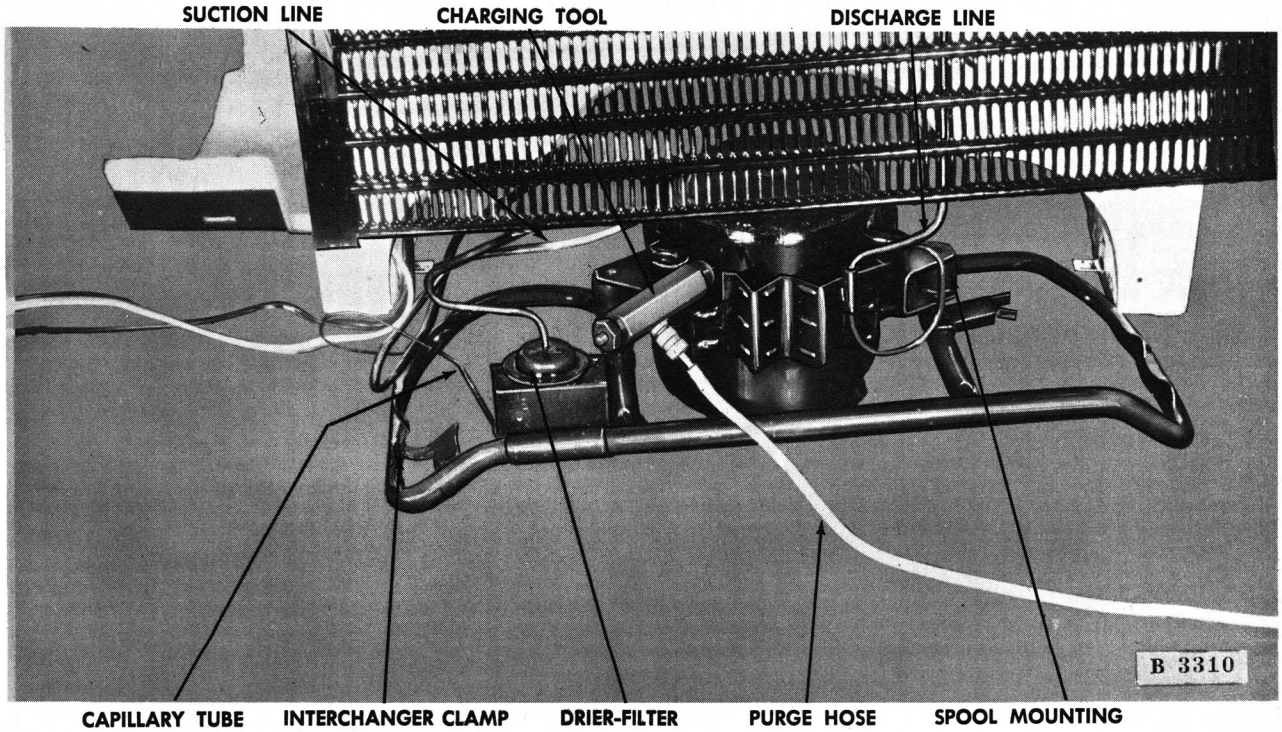


Figure 122
Unit Mounting Detail

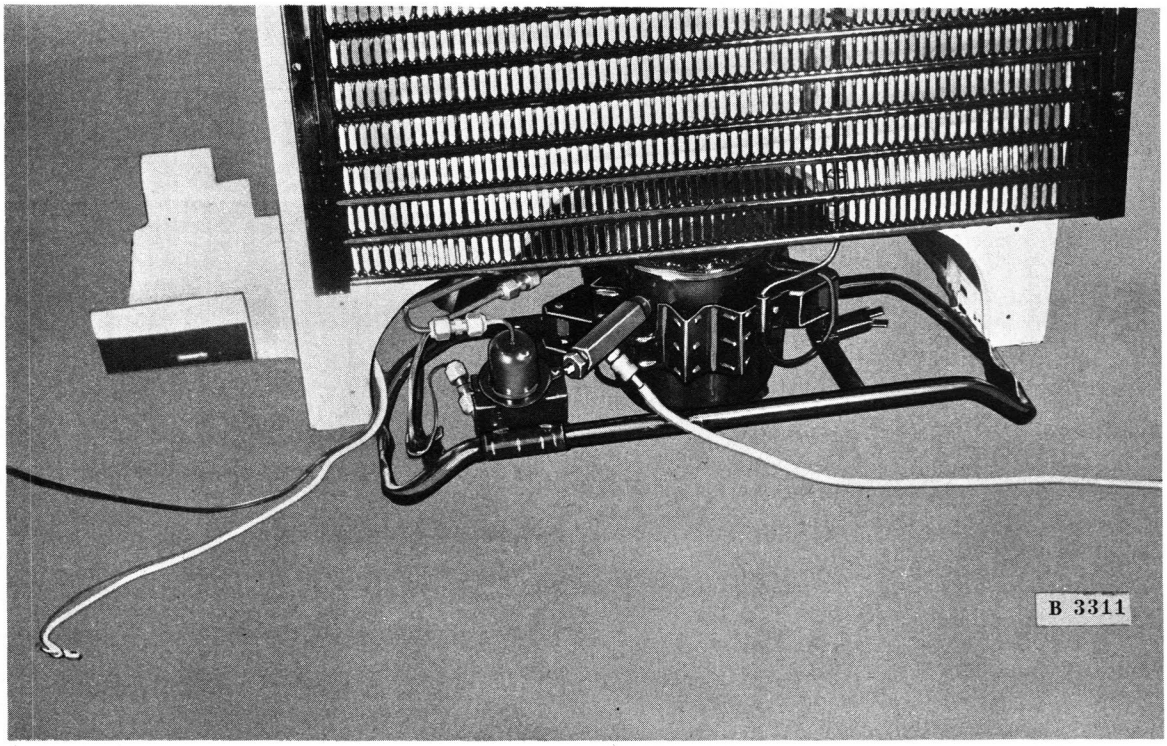


Figure 123
Line Connector Locations

compressor.

12. Clean the paint from the replacement drier-filter lines, using steel wool.
13. Cut the inlet and outlet lines on the replacement drier-filter, using a tubing cutter. Install the line connectors, Figure 123. Bend the drier-filter mounting bracket forward slightly.
14. Partially install the unit frame and install the discharge line connector.
15. Assemble the charging equipment.
16. Evacuate and recharge the unit in accordance with standard charging procedure.

Note: To conserve time, reassemble the unit in the cabinet, connect electrical leads and all clamps and screws while the system is being evacuated.

ZZ. Condenser Replacement:

All Models Except FPD, FPI-19BJ

Follow the procedures outlined for a compressor replacement. The connectors required and their locations are the same except no suction line connector is required. The other connector is installed as shown in Figure 124.

AAA. Evaporator—Replacements:

Conventional Models

These models do not have a Refrig-o-plate, removable liner top, freezer collar, nor mullion. The general procedure is the same as outlined for the Cycla-Matic models as follows:

Cycla-matic Models

1. Follow Steps 1 through 6 outlined under Compressor and Drier-Filter Replacement for these models.
2. Remove all contents of the freezer section and remove the drip trays, etc.

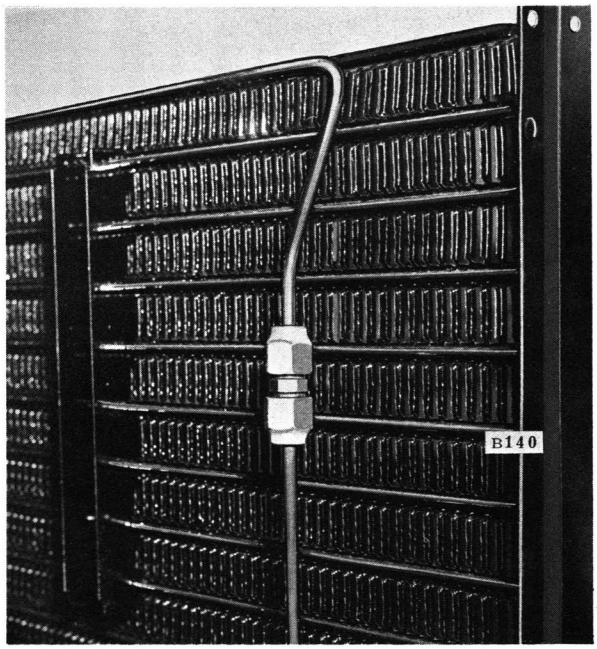


Figure 124
Condenser Line Connector — All Models Except FPD, FPI-19BJ

3. Remove the lamp shields, side moldings, freezer collar and center mullion.
5. Remove the aluminum drip pan, located across the top of the liner, by lifting the front edge and pulling it forward.
5. Remove the porcelain liner top by removing the screws along the side.
6. Remove all screws from the Refrig-o-plate and disconnect the thermostatic switch bulbs.
7. Remove the base panel and the line cover plate.
8. Remove the liner-to-shell gusset in the lower right-hand corner.
9. Pull the freezer coil and the Refrig-o-plate assembly from the cabinet and lay them on the floor in front of the cabinet, face down.
10. Repeat Steps 7 through 16 of Compressor Replacement for these models, omitting Steps 9, 10 and 14. The only difference is where the lines are to be cut.
11. Assemble the new evaporator by reversing the above procedure.

Note: To conserve time, reassemble the cabinet while the system is being evacuated.

Model FCDM-14BJ

1. Follow Steps 1 through 6 as outlined under Compressor and Drier-Filter replacement.
2. While the unit is discharging, remove the interior parts from the cabinet.
3. Remove the Hydrators, covers and the door opening moldings.
4. Remove the two inner doors.
5. Remove the freezer collar trim.
6. Remove the freezer collar.
7. Remove the divider assembly.
8. Disconnect the F3 thermostat switch bulbs and clamps.
9. Remove the intake duct.
10. Remove the four screws from the bottom of the freezer coil under the Ice Server.
11. Remove the insulation from around the evaporator coil.
12. Remove the evaporator coil and plate assembly and lay it on the floor, face down.
13. Repeat Steps 7 through 16 of Compressor Replacement, omitting Steps 9, 10, and 14.

Model FD-14BJ

1. Follow Steps 1 through 6 as outlined under Compressor and Drier-Filter Replacement.
2. While the unit is discharging, remove the shelves, lamp shield and door opening moldings.
3. Remove the Refrig-o-plate baffle.
4. Remove the screws that mount the Refrig-o-plate.
5. Remove the switch bulb clamps and screws.
6. Remove the complete center mullion by removing the top and bottom pieces first and then the center metal piece.
7. Swing out the Refrig-o-plate carefully to align with the slot in the back of the liner.
8. Remove the liner corner gusset screws.
9. Disconnect any electrical leads necessary.
10. Snap out the F-3 switch and mounting and pull it into the liner to prevent tearing the insulation.
11. Remove the liner.
12. Remove the freezer collar.
13. Remove the screws that mount the freezer coil to the center corner gussets.
14. Remove two screws from the relay mounting bracket and pull off the bracket.
15. Remove the liner cover plate.
16. Disconnect any electrical connections necessary.
17. Remove the freezer top insulation.
18. Remove the left-hand and right-hand center gussets for ease of removal of the evaporator.

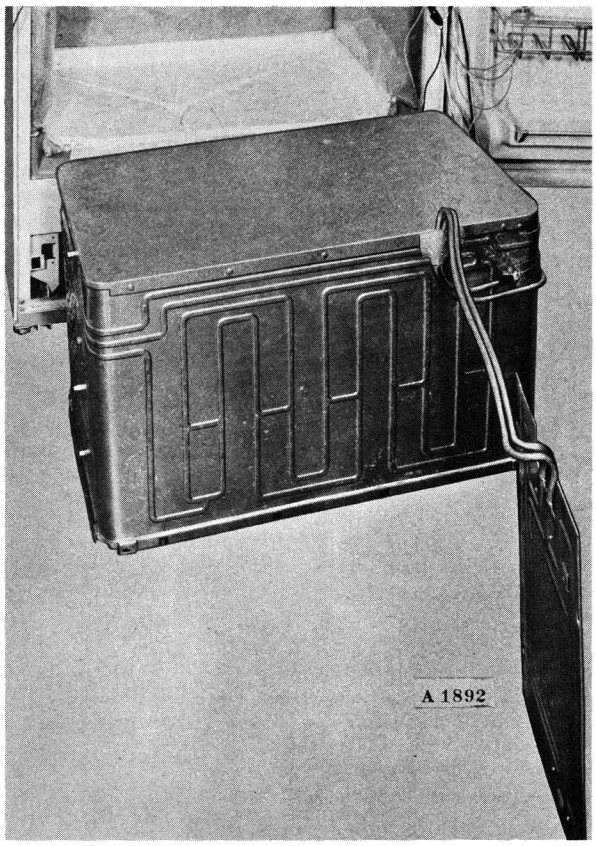


Figure 125
Evaporator Removed — FD-14BJ

19. Remove the evaporator, Figure 125.
20. Repeat Steps 7 through 16, of the Compressor Replacement, omitting Steps 9, 10 and 14.

Models FPD, FPI-12TJ, FPD, FPI-14TJ and FPDA-14TJ

1. Follow Steps 1 through 6, as outlined under Compressor and Drier-Filter Replacement for these models.

2. Remove all contents of the freezer and food compartment sections.
3. Remove the freezer collar.
4. Remove the freezer fan housing cover.
5. Remove the intake duct.
6. Remove the freezer compartment inner bottom.
7. Remove the top of the center mullion.
8. Remove the food compartment side and bottom moldings. Pull up on the center of the bottom molding to break the permagum seal before pulling up on the ends of the molding.

   Note: Be sure this is resealed upon reassembly.
9. Remove the bottom of the center mullion.
10. Remove the styrofoam from the sides of the evaporator and also from the center mullion.
11. Remove the center hinge screw that fastens into the center mullion. Loosen the other two screws.
12. Remove the center mullion by removing the two screws at each end, one on top and one on the bottom. Lay the mullion in the liner.
13. Remove the gusset at the top, right-hand corner of the food compartment by prying it out of the shell flange with a flat-bladed screwdriver. Pull down and twist, Figure 126, to remove.
14. Remove the two screws securing the clamp that holds the freezer coil to the bottom, left-hand side of the pan. Remove the accumulator clamp.



Figure 126
Center Gusset Removal — 12TJ & 14TJ Models

15. Disconnect the defrost heater leads from the crimp connectors by cutting them 2" from the connector. Pull the leads into the freezer section.
16. Remove the relay mounting screws, cover plate screws and the line cover plate.
17. Disconnect the electrical leads as necessary at the right-hand side to free the interchanger lines.
18. Remove the screws in the center of the coil that secure the coil to the drain pan. Remove the coil and lay it on the floor in front of the cabinet.
19. Cut the interchanger line in the machine compartment with side cutter pliers 12 to 15" from the compressor.
20. Complete Steps 7 through 16 of Compressor and Drier-Filter Replacement omitting steps 9, 10 and 14. The only difference is where the lines are to be cut.
21. Transfer the defrost heater to the replacement coil and reassemble the cabinet.

Note: To conserve time, reassemble the cabinet during evacuation of the system. Reseal all originally sealed areas with blue permagum or adhesive backed strips of insulation.

Models FPD, FPI-14BJ, FPDA-14BJ and FPD, FPI-16BJ

1. Follow Steps 1, 2, and 3 as outlined under Compressor and Drier-Filter Replacement.
2. Remove the freezer blower duct.
3. Remove the intake duct.
4. Remove the fan housing.
5. Remove the cold storage liner bottom.
6. Remove the freezer collar.
7. Remove the styrofoam insulation on the rear, left-hand side and all screws and clamps securing the coil to the bottom of the drain pan. Remove the accumulator clamp.
8. Disconnect the defrost heater leads from the terminal boards behind the door opening moldings and pull them into the freezer section.
9. Remove the apron and remove the line cover plate.
10. Remove the coil by pulling it forward slightly and then up. Lay it on the floor in front of the cabinet.
11. Cut the interchanger line in the machine compartment with side cutters pliers, 12-15 inches from the compressor.
12. Complete Steps 7 through 16 of the Compressor and Drier-Filter Replacement, omitting Steps 9, 10 and 14. The only difference is where the lines are to be cut.
13. Transfer the defrost heater to the replacement coil and reassemble the product.

Note: To conserve time, reassemble the cabinet during evacuation of the system. Reseal all originally sealed areas with blue permagum or adhesive backed strips of insulation.

BBB. Compressor and Drier Filter Replacement: *Models FPD, FPI-19BJ*

Component changes on this model have been omitted in the previous copy because the sequence of operations should be consecutive for best understanding. As with the regular compressor, a line connector package must be ordered which contains the necessary fittings to complete a compressor change.

A 12131-25 adaptor is available to be used in conjunction with 12865 volt-wattmeter or 12131 test cord for service analysis.

To replace the compressor and drier-filter, follow the procedure outlined below.

1. Pull the cabinet from the wall, disconnect the power suppy and remove the rear insulated cover.
2. Assemble a 12290 charging tool with a 12178 gasket to the charging screw on the compressor. Attach a line so the refrigerant can be discharged to the outdoors. Crack the charging fitting and allow the refrigerant to escape. If the refrigerant cannot be discharged to the outdoors, adequate ventilation should be provided so accurate leak checks can be made later in the procedure.
3. Remove the four side unit mounting bolts, Figure 127, and the interchanger clamp and screw. Remove the screw on top of the fan housing and the two 7/16" bolts, Figure 134, which allows the compressor mounting to drop.
4. Pull the unit out partially, Figure 128, if the drier-filter only is to be replaced.

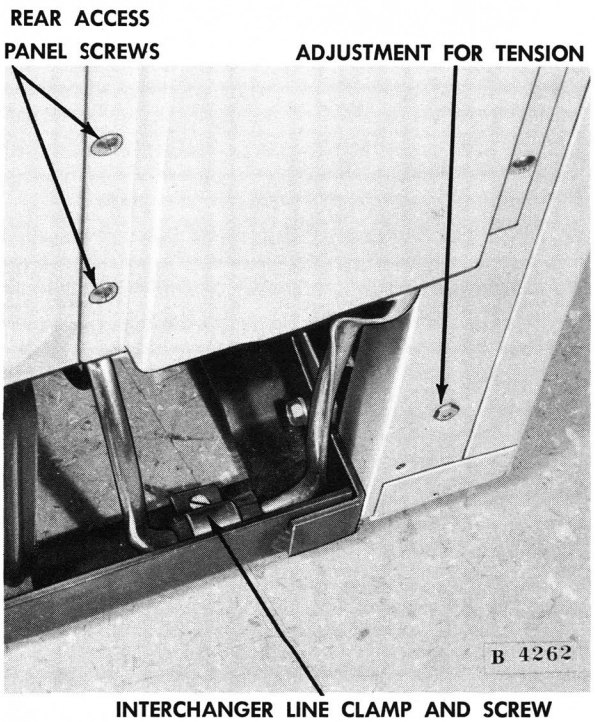


Figure 127
Unit Mounting Detail — FPD, FPI-19BJ

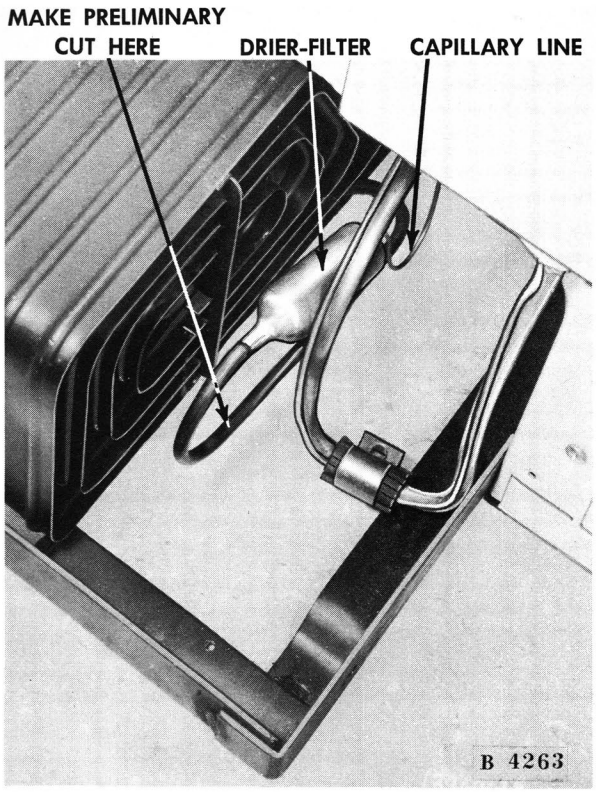


Figure 128
Preliminary Cuts for Drier-Filter — FPD, FPI-19BJ

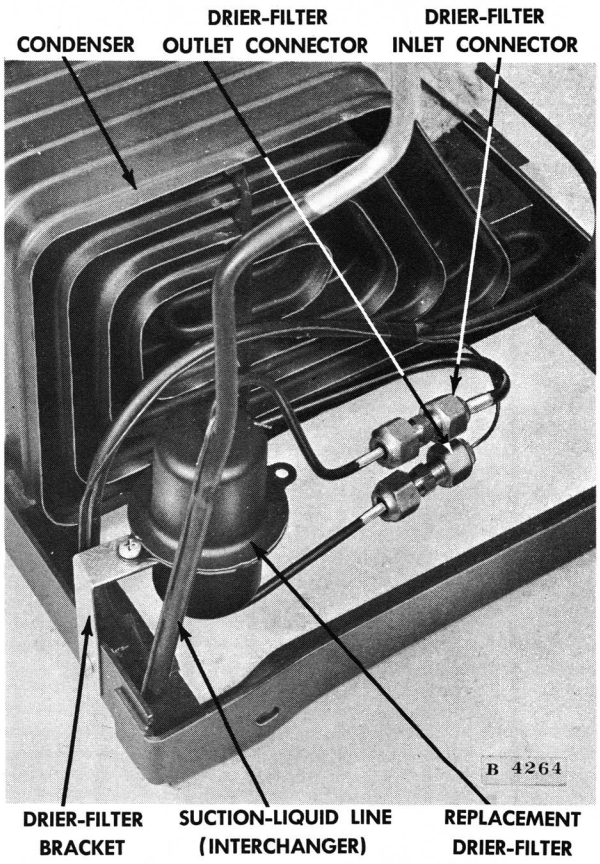


Figure 129
Drier-Filter Connectors — FPD, FPI-19BJ

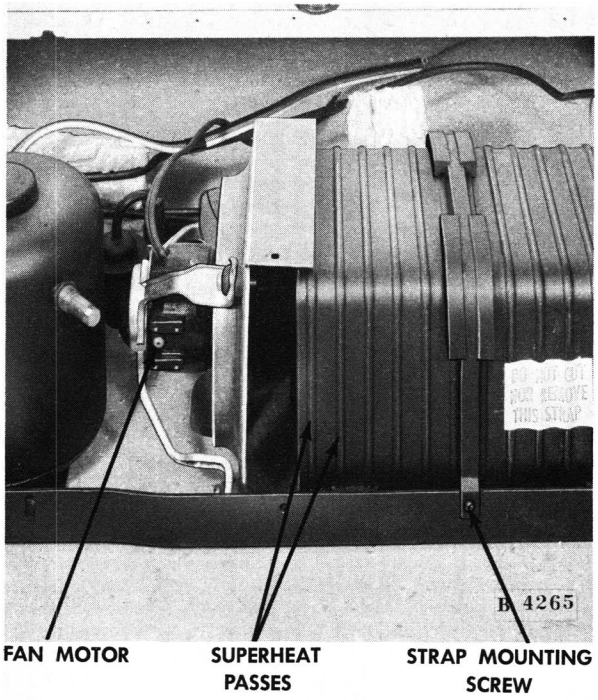


Figure 130
Unit Completely Removed — FPD, FPI-19BJ

5. Clean the lines with steel wool in the areas to be cut for a drier-filter change.
6. Make preliminary cuts with side cutter pliers or a tubing cutter on the drier-filter inlet line.

   Note: The capillary line should be scored with a file and broken off as close to the drier-filter as possible.
7. Clean the paint from the replacement drier-filter lines, using steel wool. Mark the lines for the final cuts and, using a tubing cutter, make these cuts. Be sure the capillary line has a clear opening on the end.
8. Install the replacement drier-filter connectors, Figure 129, and install the bracket as shown. If the compressor is to be replaced, proceed with Step 9. Otherwise, proceed with Step 15.
9. The unit must be pulled all the way out for a compressor, fan motor or overload protector change. The leads for the compressor and fan motor must be disconnected in the relay to accomplish this. Bend the suction line gently as shown in Figure 130.
10. Clean the lines in the areas where the final connectors, Figures 131 and 133 are to be installed.
11. Using a pair of side cutter pliers or tubing cutter, make the preliminary cuts as close as possible to the compressor that is to be replaced. Cut the lines to include the mufflers as the replacement compressor comes complete with mufflers, Figure 132.
12. Set the replacement compressor in position on its bottom mount and mark the lines for final cuts. Be sure to crack the charging screw on the replacement compressor and release the holding charge of gas.
13. Assemble the fittings as shown in Figures 131 and 133.
14. Transfer the overload protector, the electrical terminal block, top mount and all rubber dampers to the replacement compressor.
15. Evacuate and recharge the unit in accordance with standard charging procedures.

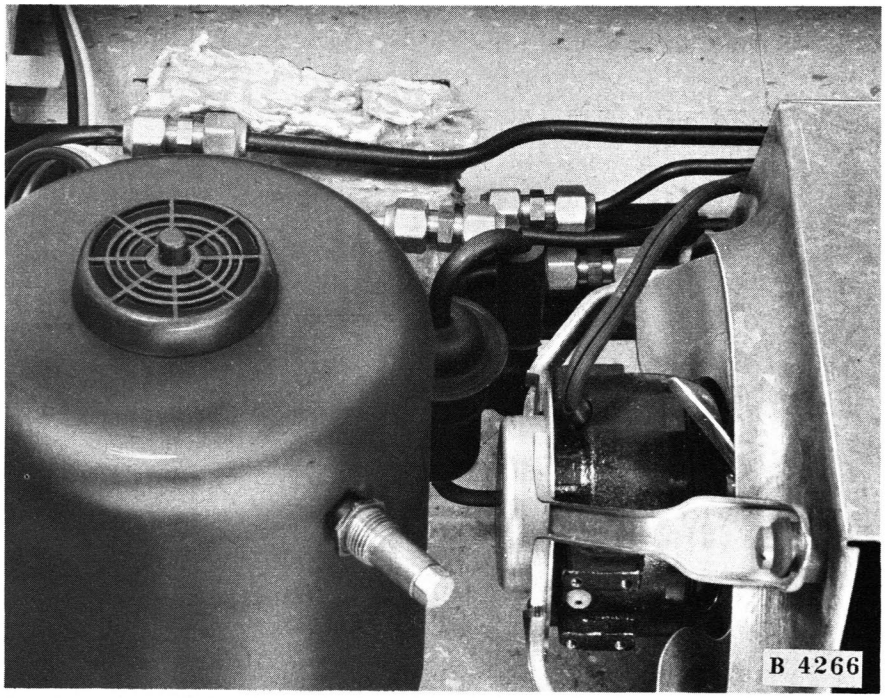


Figure 131
Line Connector Locations — FPD, FPI-19BJ

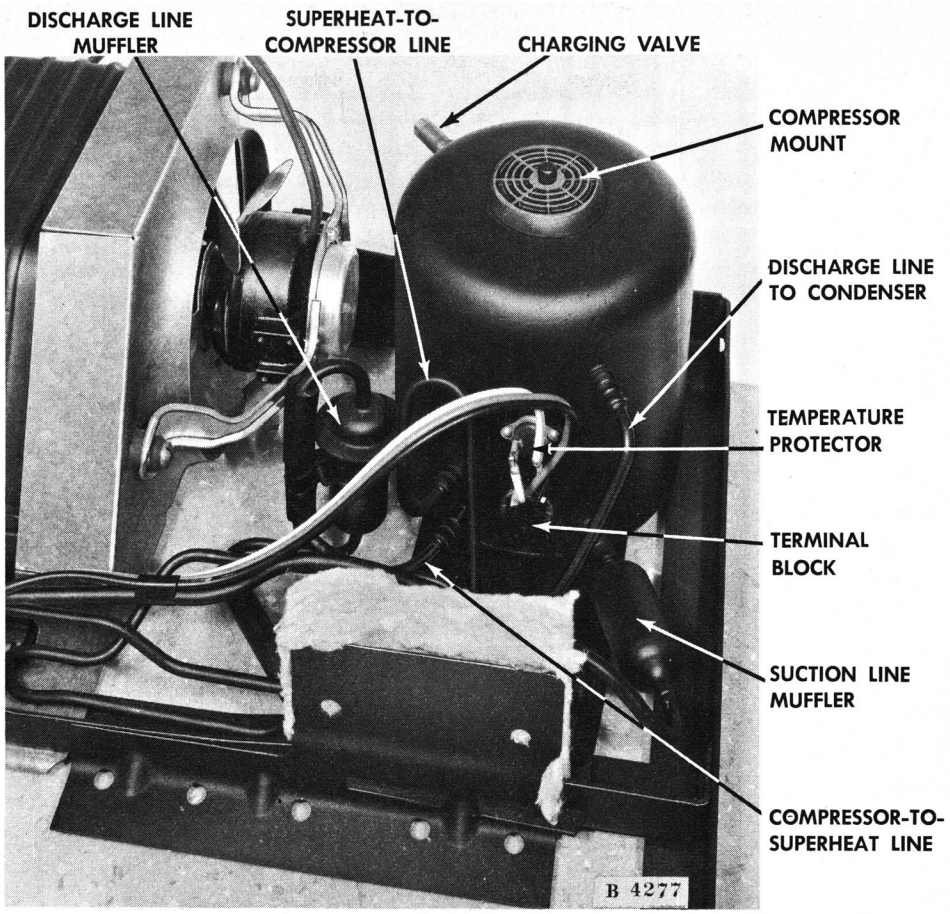


Figure 132
Compressor Detail — Front View of FPD, FPI-19BJ

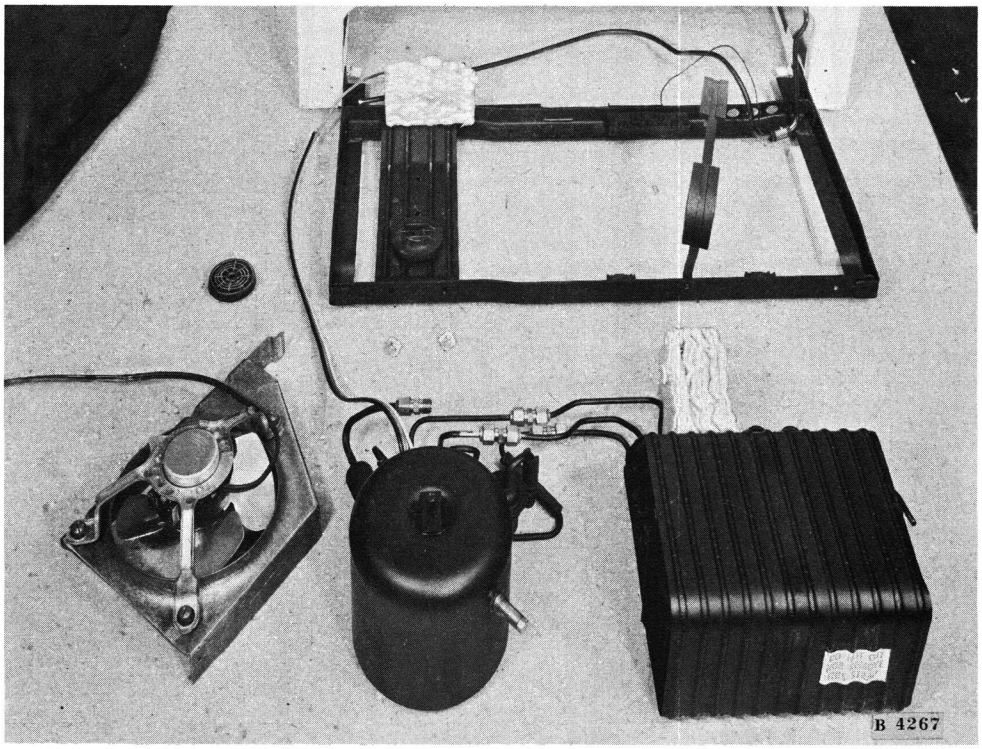


Figure 133
Condenser Fan Removed — FPD, FPI-19BJ

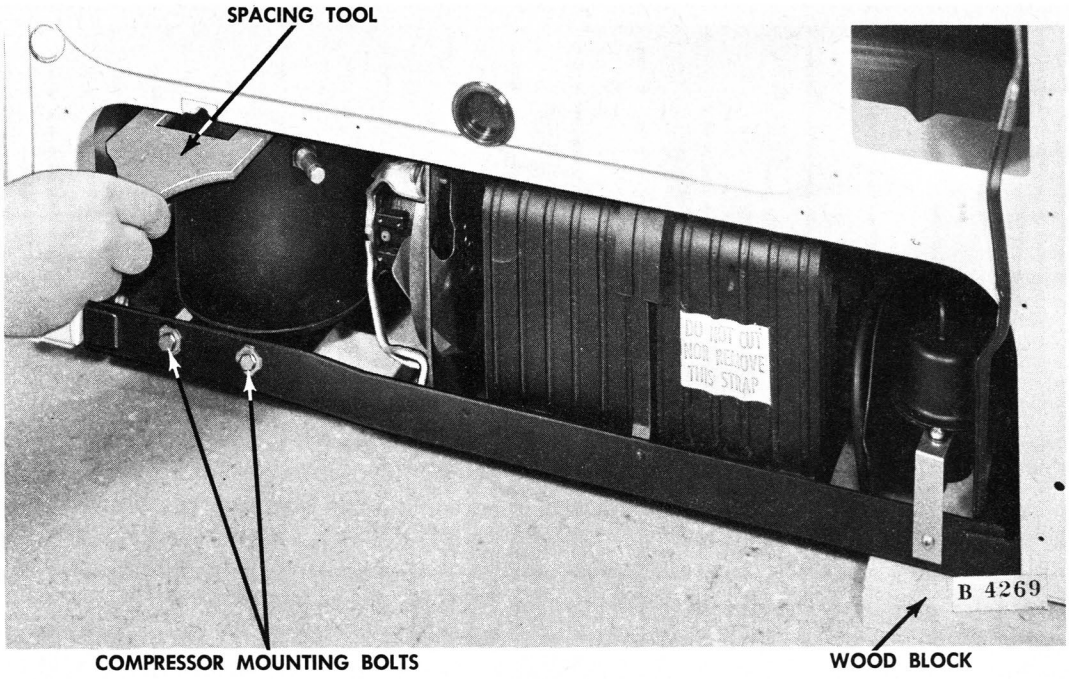


Figure 134
Compressor and Condenser Removed — FPD, FPI-19BJ

16. Upon reassembly of the unit into the cabinet, place two 1″ x 2″ x 8″ blocks of wood under the rear corners of the cabinet. Install the compressor mounting bolts, Figure 134, but do not tighten. Install the four side unit frame bolts and the fan housing upper mounting screw. Place a block of wood under the compressor bracket for leverage and, using 14032 tool for gaging the ¼″ spacing of the compressor, insert the tool between the top of the compressor and the cabinet inner bottom. Tighten the compressor mounting bolts.

Note: To conserve time, reassemble the unit in the cabinet, connect the electrical leads and all clamps and screws while the unit is being evacuated.

CCC. Condenser Replacement:

Models FPD, FPI-19BJ

1. Repeat Steps 1 through 16 of the procedures outlined for the compressor and drier-filter replacement, omitting Steps 11, 12 and 14. A slight deviation of procedure is given below.
2. Remove either strap mounting screw, Figure 130, that secures the condenser to the frame. Remove the fan motor assembly. Lift out the compressor and condenser assembly, Figure 133. Install all connectors except the suction line connector which can be partially assembled. Transfer the insulation to the replacement condenser and cement in place.
3. Replace the compressor and condenser assembly back in position and make the final connection on the suction line. Be careful in setting the assembly back into position to not distort the lines which could cause a leak.

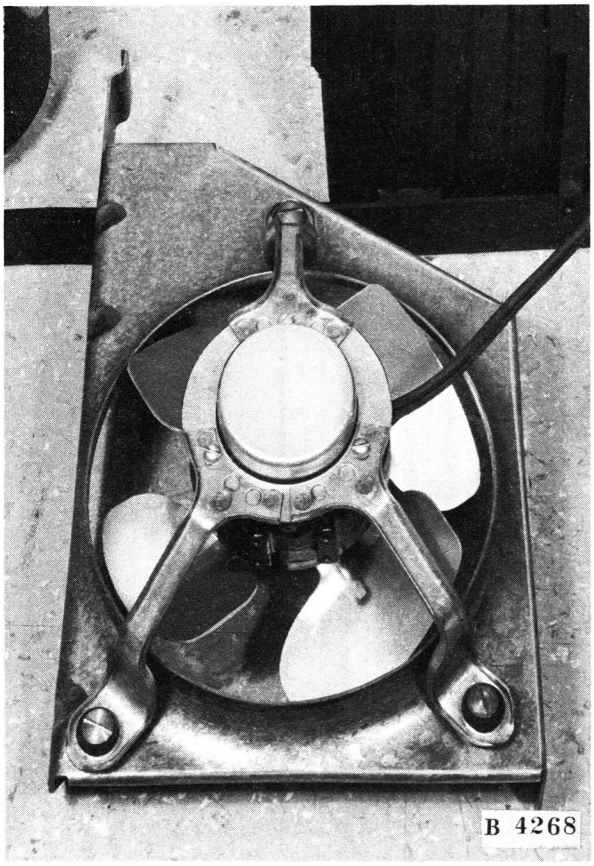


Figure 135
Gaging Spacing of Compressor Mounting — FPD, FPI-19BJ

DDD. Condenser Fan Motor Replacement:

Models FPD, FPI-19BJ

1. Repeat Steps 1, 3, 4, 9, and 16 of the compressor and drier-filter replacement. The fan and housing assembly can be removed, Figure 135, by removing the screw at the rear bottom and disengaging the fan housing from the slot in the unit frame.
2. Remove the screws that secure the motor to the bracket; transfer the blade and rubber disc to the replacement motor.

EEE. Evaporator Replacement

Models FPD, FPI-19BJ

1. Repeat Steps 1 and 2 of Compressor and Drier-Filter Replacement. While the unit is discharging, proceed with Step 2.
2. Remove the freezer door.
3. Remove all baskets, ice trays and the ice tray shelf.
4. Remove the basket guide on the left side of the freezer liner and the left door stop assembly.
5. Remove the ice tray shelf assembly by removing the screws at the left side and at the top.
6. Remove the screws that hold the blower grille and cover.
7. Remove all screws around the left side, top and right-hand side of the back panel. There are several screws in the center of the back panel that must be removed also. Swing the panel out on the left side after clearance has been made by first pulling it straight out. Remove the three pieces of styrofoam insulation covering the front of the coil.
8. Remove the sides and bottom moldings in the food compartment.
9. Identify the defrost heater leads from the terminal block by pulling on them slightly from the freezer compartment.
10. Cut these leads approximately 10" to 12" from the spade terminal. Remove a little insulation from the ends of these leads and twist them together. Attach a string or small wire to them and pull them into the freezer compartment.
11. Remove the screw and clamp from the top of the coil and remove the two screws from the clamp on the right side. The clamp will remain with the coil.
12. There is no need to remove the coil clamp on the bottom of the coil. Lift up on the coil and tilt it out at the top.
13. Remove all the screws, Figure 128, that hold the access panel to the back of the cabinet. Remove the panel and insulation block.
14. Repeat Steps 3 through 16 of the Compressor and Drier-Filter change, omitting Steps 12 and 14.
15. The evaporator is swung out and removed through the opening, Figure 136, in the rear corner of the freezer compartment.

Note: To conserve time, reassemble the unit in the cabinet, connect electrical leads and reassembly of cabinet parts while the unit is being evacuated.

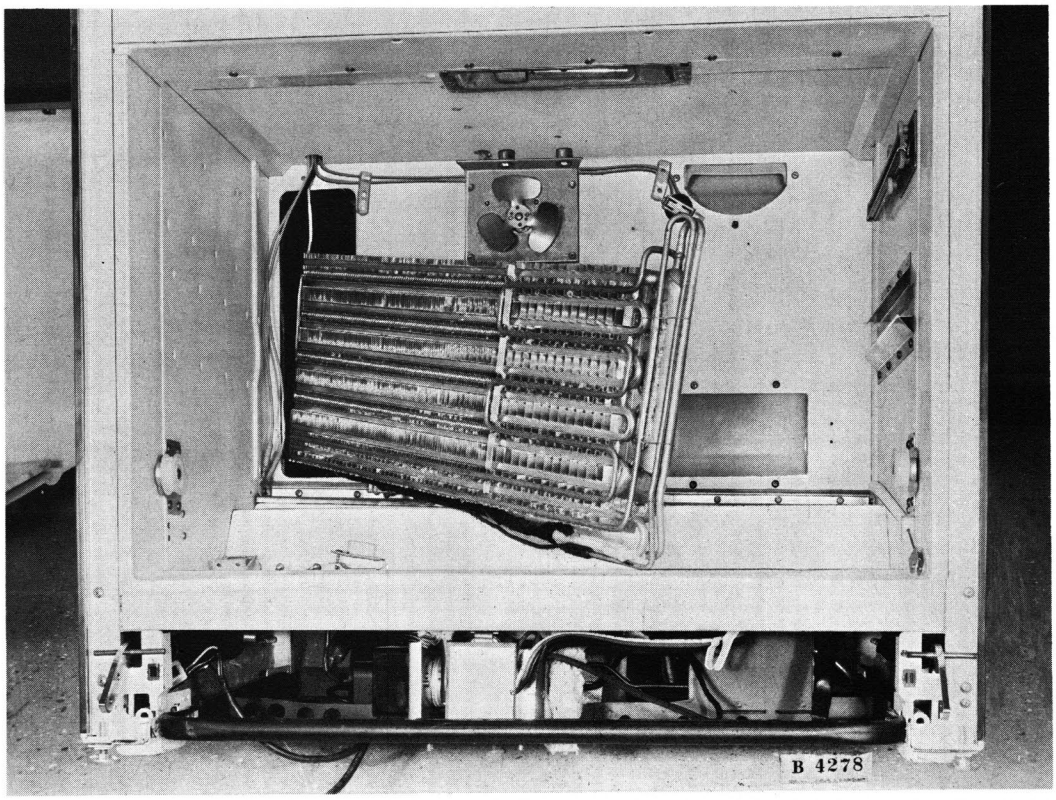
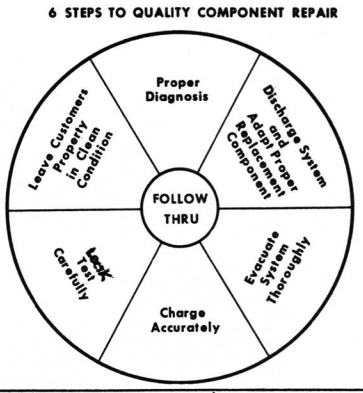


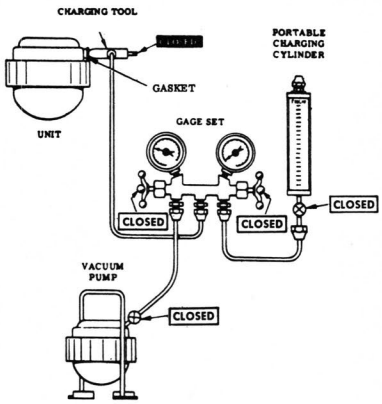
Figure 136
Evaporator Removal





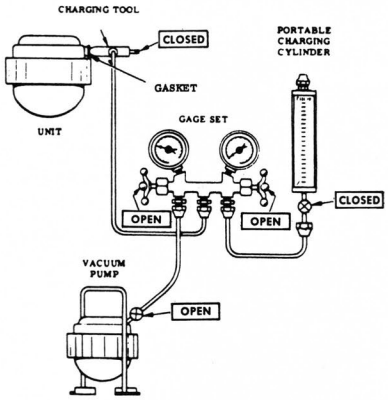
1.

CHARGING EQUIPMENT WHEN INSTALLED



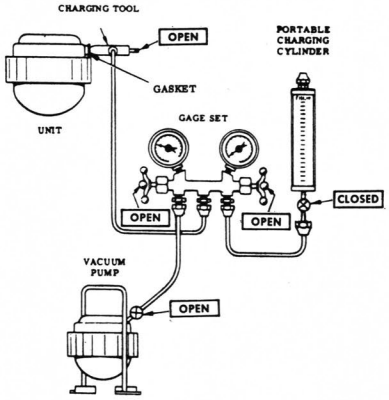
2.

Open gage set, vacuum valves and evacuate lines and gage manifold for five minutes. Close vacuum pump valve and check to see that vacuum holds for two minutes.



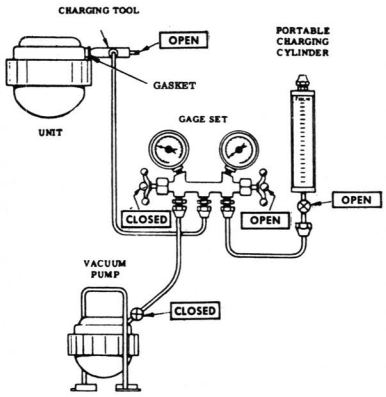
3.

Open charging tool, vacuum pump valves and evacuate assembly for twenty minutes. Close vacuum pump valve and check to see that vacuum holds for five minutes.



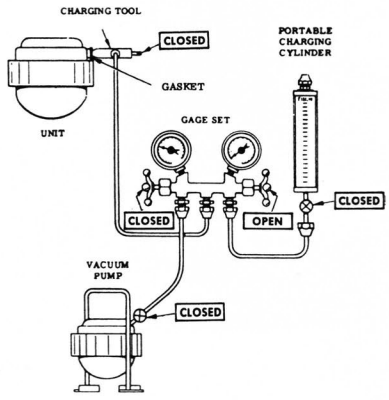
4.

Close vacuum pump line and open charging cylinder valve, allow refrigerant to be drawn into compressor. Stop flow when refrigerant reaches "O".

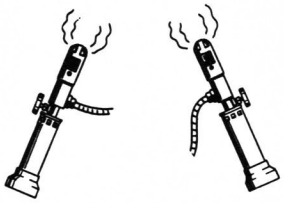


5.

Close charging valve on compressor and remove charging tool. Check charging screw for tightness.



6.



LEAK TEST

Carefully leak test all connections and the charging screw with a recommended Halide leak detector.

B61

Serviceman's Self-Examination

1. There are four new models issued for 1965—one Cyclamatic and three Frost Proof. Can you name them?

2. The Refrig-o-Plate baffle has been removed from all Cyclamatic models. To shorten the off cycle, a small heater, located behind the food liner, is energized. How is it connected?

3. All Frost Proof models have an air flow control but mounted differently. True_____ False_____

4. All defrost timers defrost the coil twice a day on 1965 models. True_____ False_____

5. All Frost Proof "B" models have electrical terminal boards located behind the door opening moldings. True_____ False_____

6. Each model incorporating a butter conditioner has a specific location for the elastic portion of the aluminum template. True_____ False_____

7. The food compartment liner on the 16B and 19B models are foamed in place and cannot be replaced. True_____ False_____

8. The 19B models utilize a_____ _____condenser which has a 28 watt, 1075 rpm. fan motor.

9. When making an evacuation after a component change, the vacuum pump is connected to the low pressure gage of the gage manifold; the charging cylinder to the high pressure gage; the cabinet unit or compressor is connected to the center connection of the gage set. True_____ False_____

10. The defrost limiter switch is mounted to the cooling coil on the Frost Proof models. True_____ False_____

PICTORIAL ELECTRICAL COMPONENTS

FCDM-14J

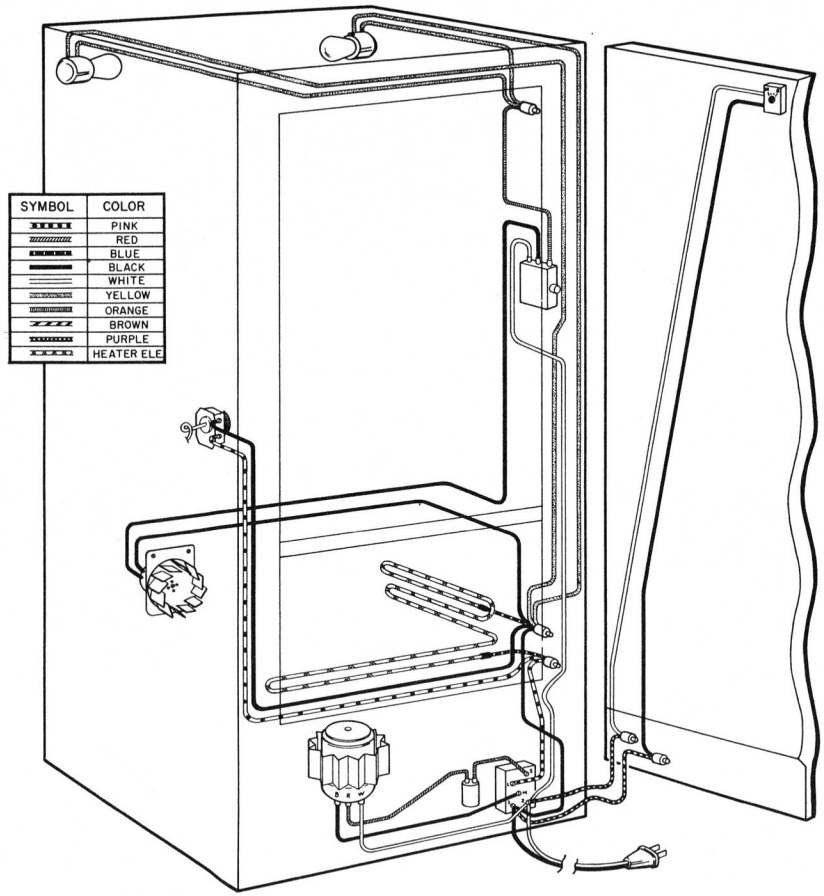


Figure 138
Pictorial Diagram — FCDM-14J Electrical System

PICTORIAL ELECTRICAL SYSTEM

FPI-12TJ

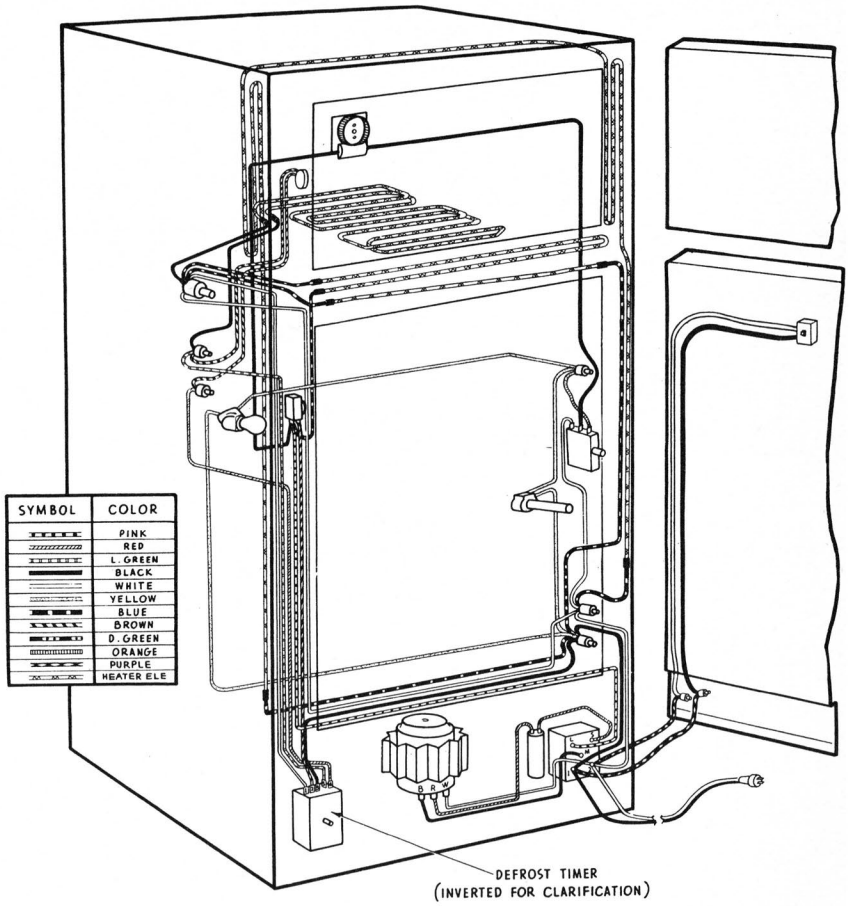


Figure 139
Pictorial Diagram — FPI-12TJ Electrical System
(Models FPD-12TJ, FPD-14TJ, FPI-14TJ Same Except Interior Lamps and Butter Conditioner)

PICTORIAL ELECTRICAL DIAGRAM

(FPI-16BJ)

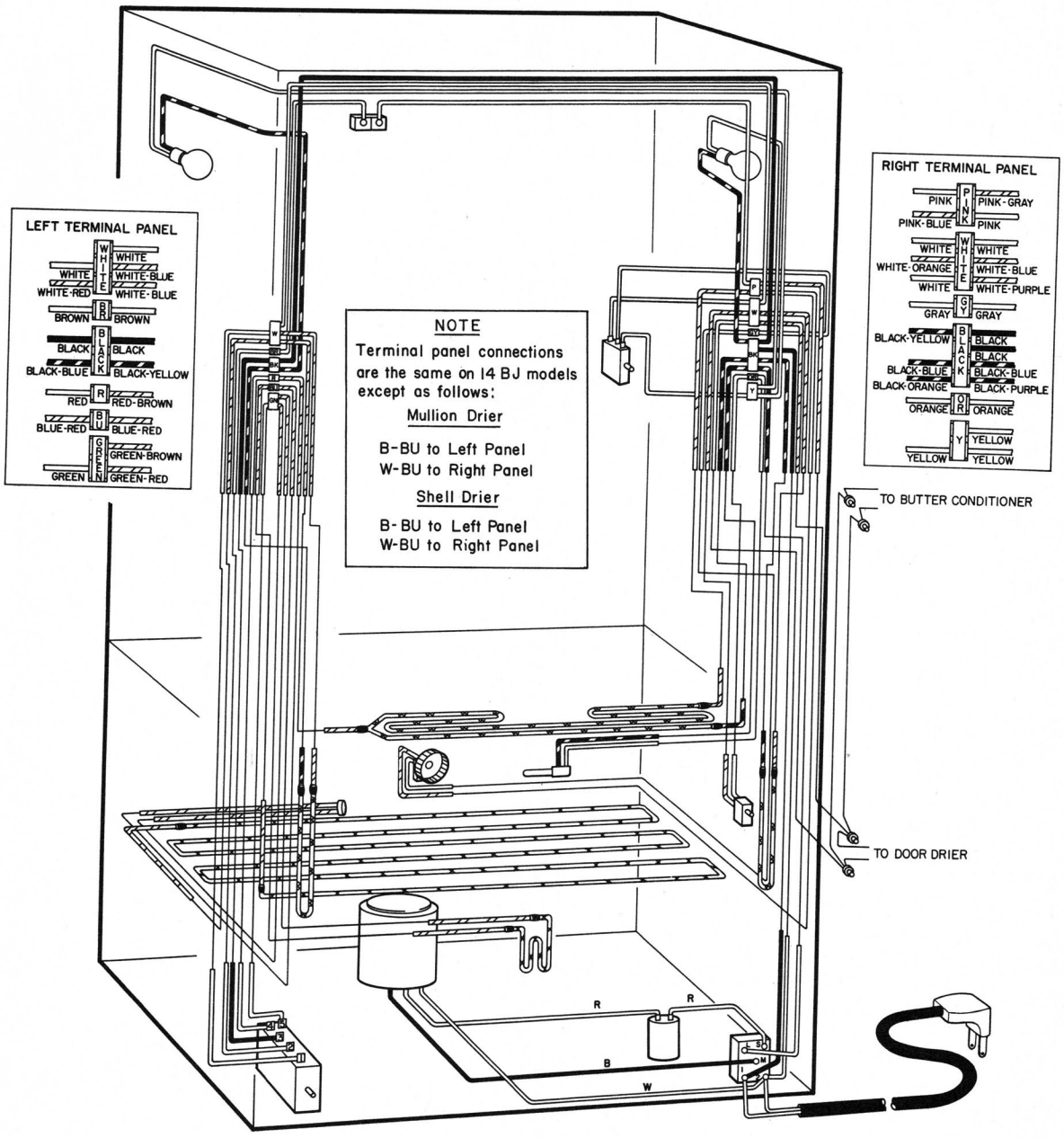


Figure 140
Pictorial Diagram — FPI-14BJ, FPI-16BJ Electrical System

PICTORIAL ELECTRICAL DIAGRAM

(FPI-19BJ)

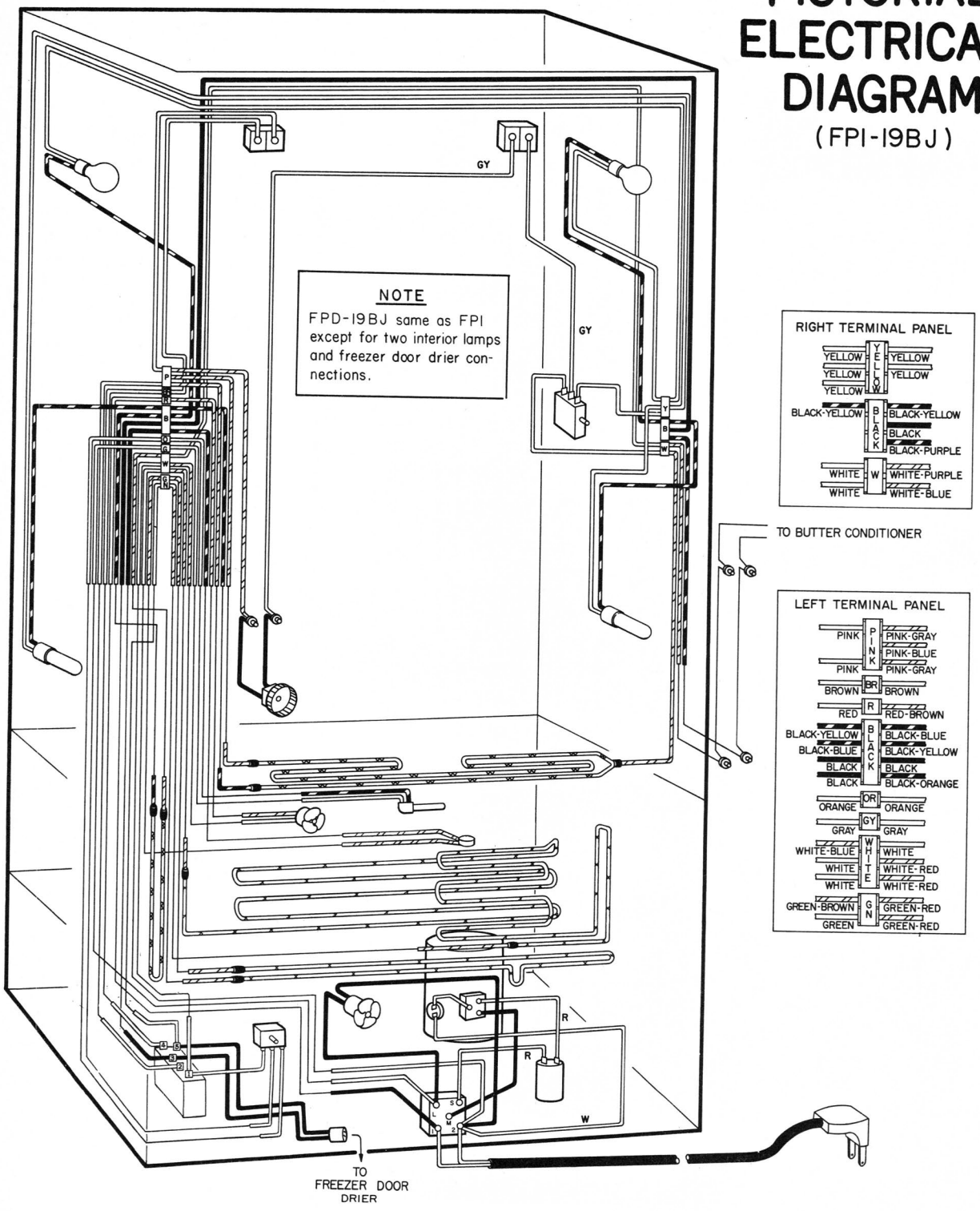


Figure 141
Pictorial Diagram — FPD-19BJ, FPI-19BJ Electrical System

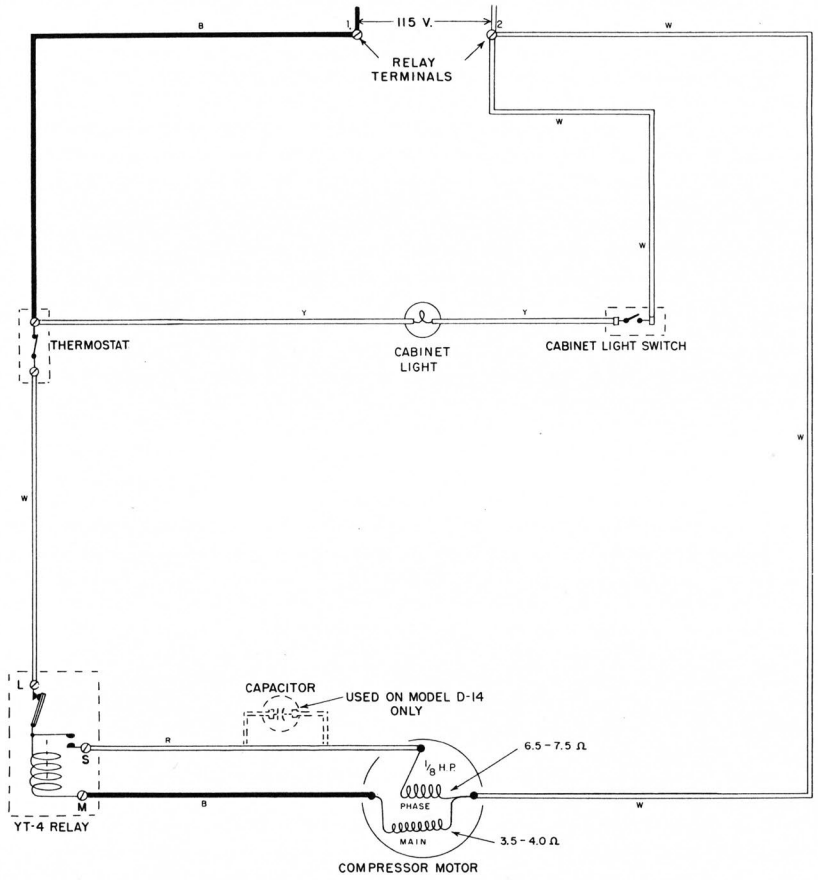


Figure 142
Electrical Circuit Diagram — S-10J, D-10J, D-12J, D-14J

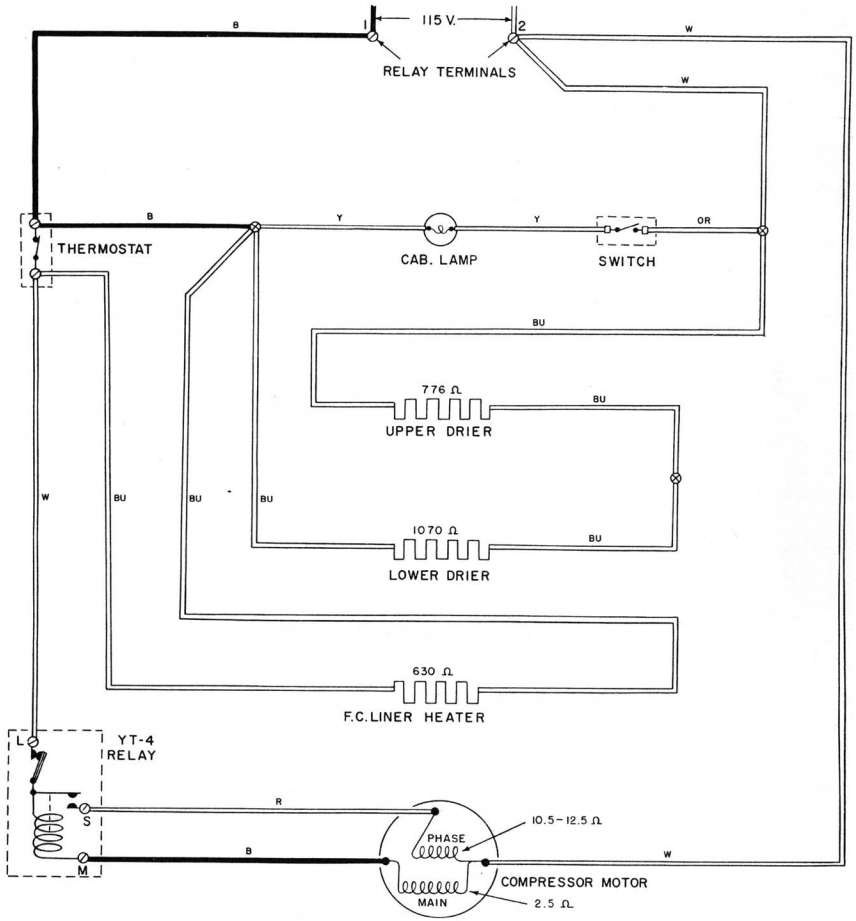


Figure 143
Electrical Circuit Diagram — FD-12TJ, FD-13TJ, FDA-13TJ

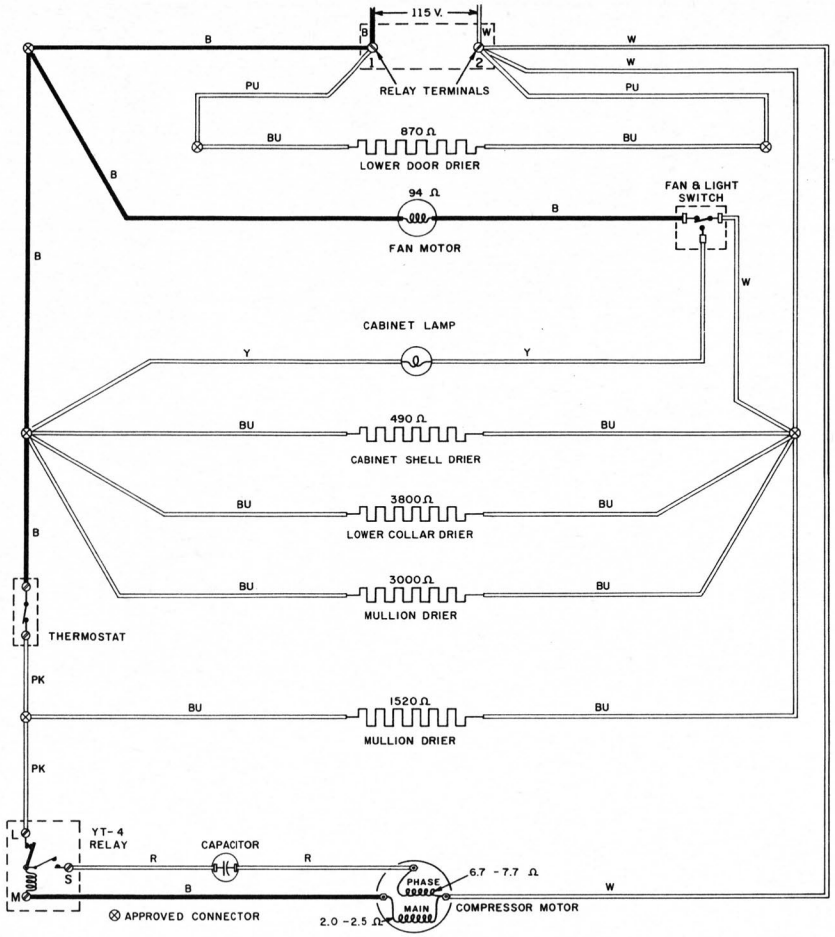


Figure 144
Electrical Circuit Diagram — FD-14BJ

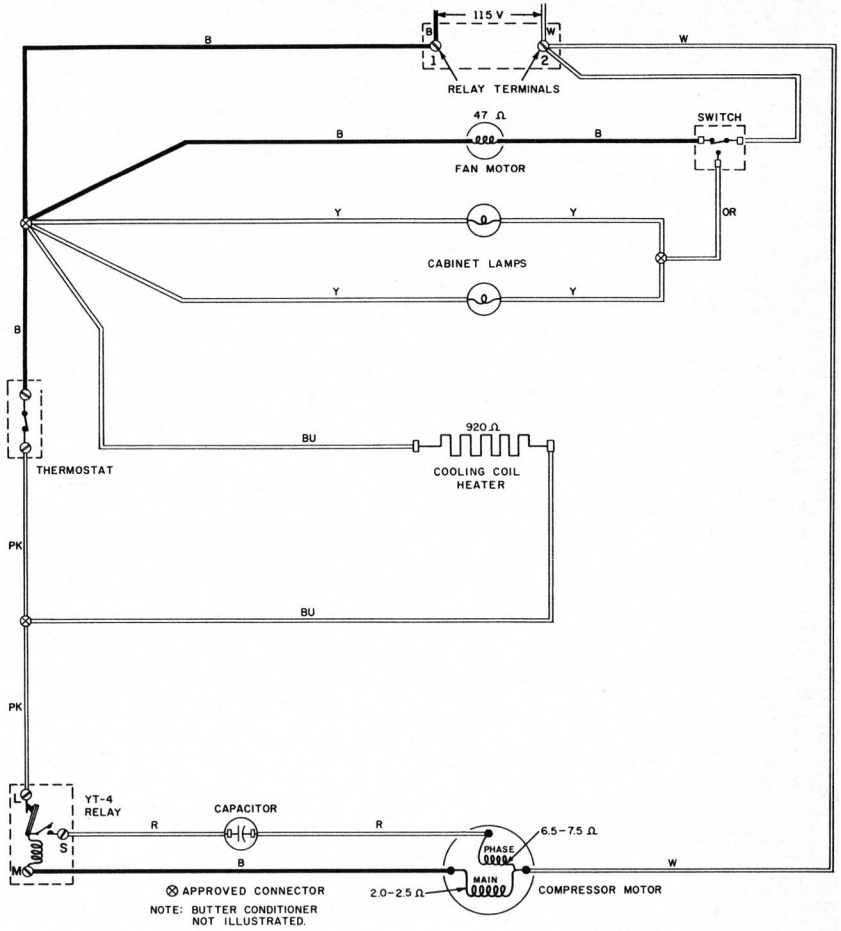


Figure 145
Electrical Circuit Diagram — FCDM-14J

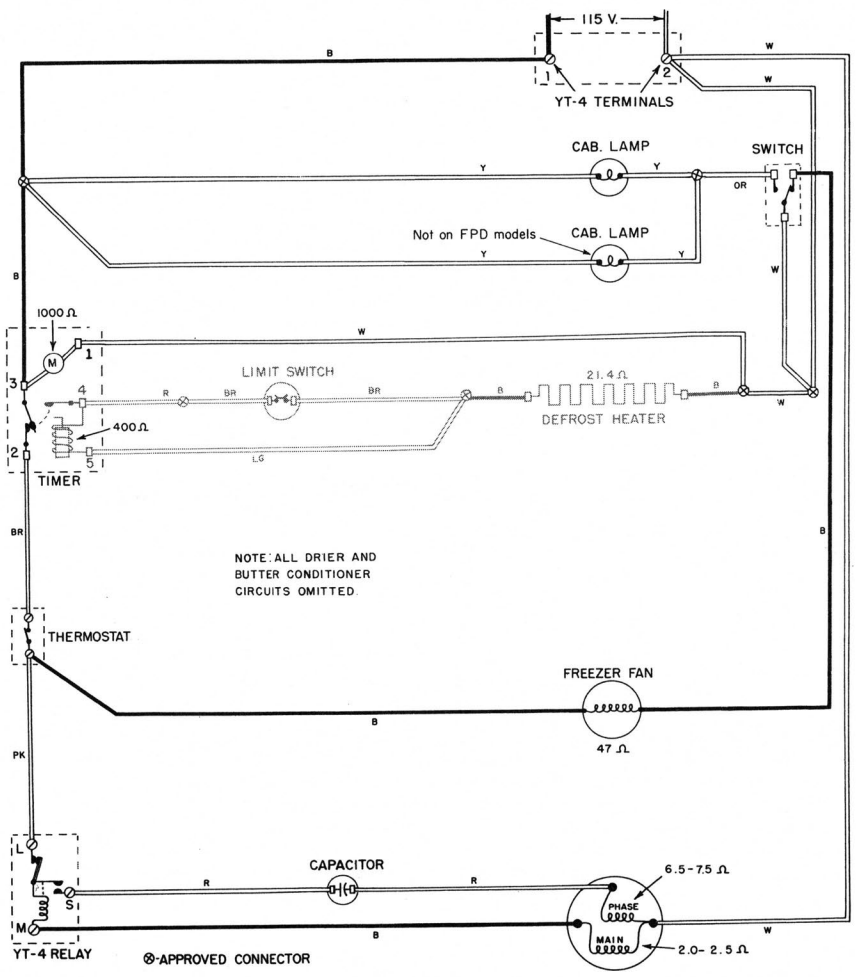


Figure 146
Electrical Circuit Diagram — FPD-12TJ, FPI-12TJ Refrigeration Cycle

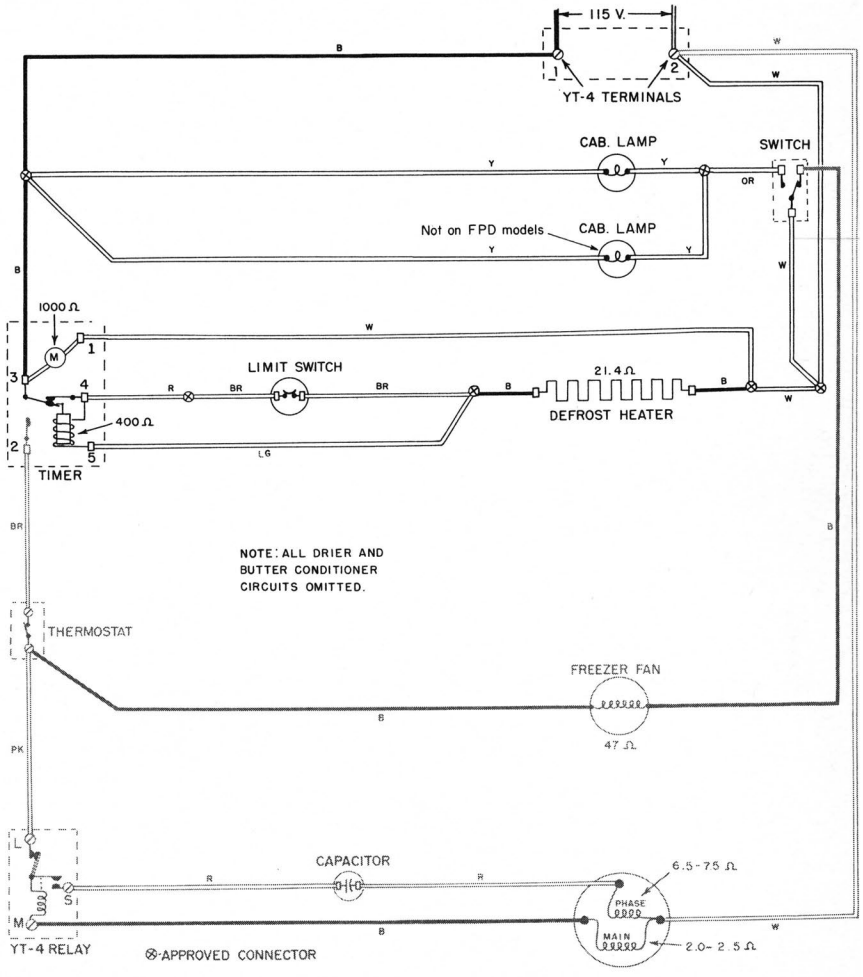


Figure 147
Electrical Circuit Diagram — FPD-12TJ, FPI-12TJ Defrost Cycle

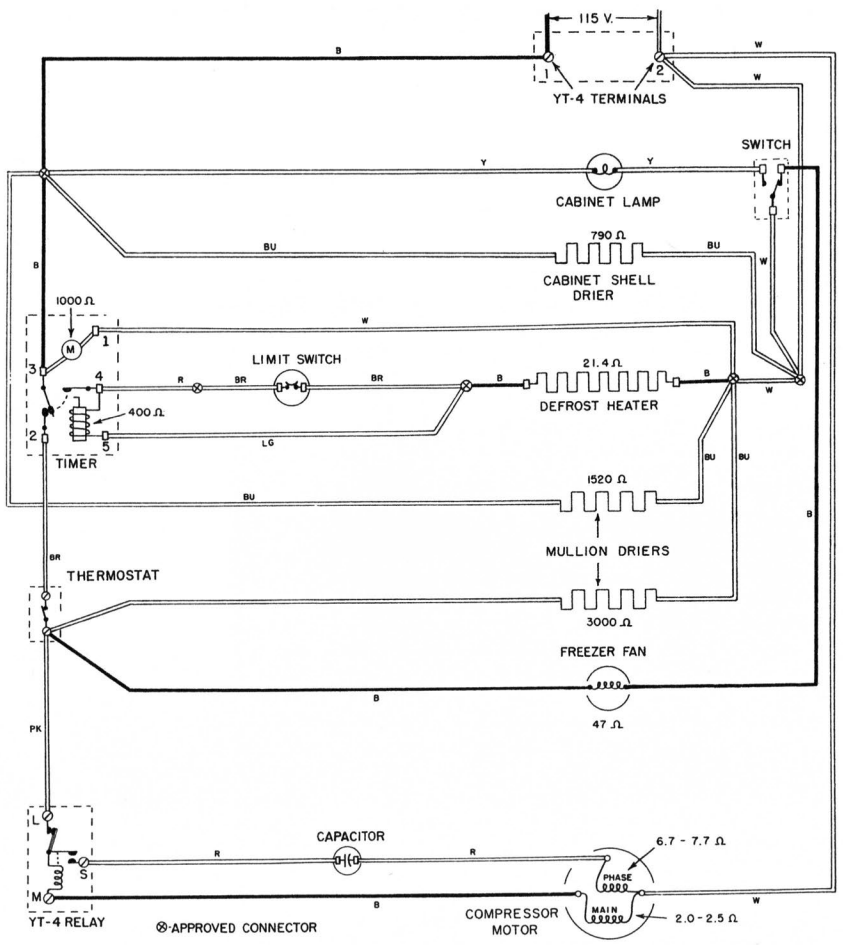


Figure 148
Electrical Circuit Diagram — FPD-14TJ, FPDA-14TJ Refrigeration Cycle

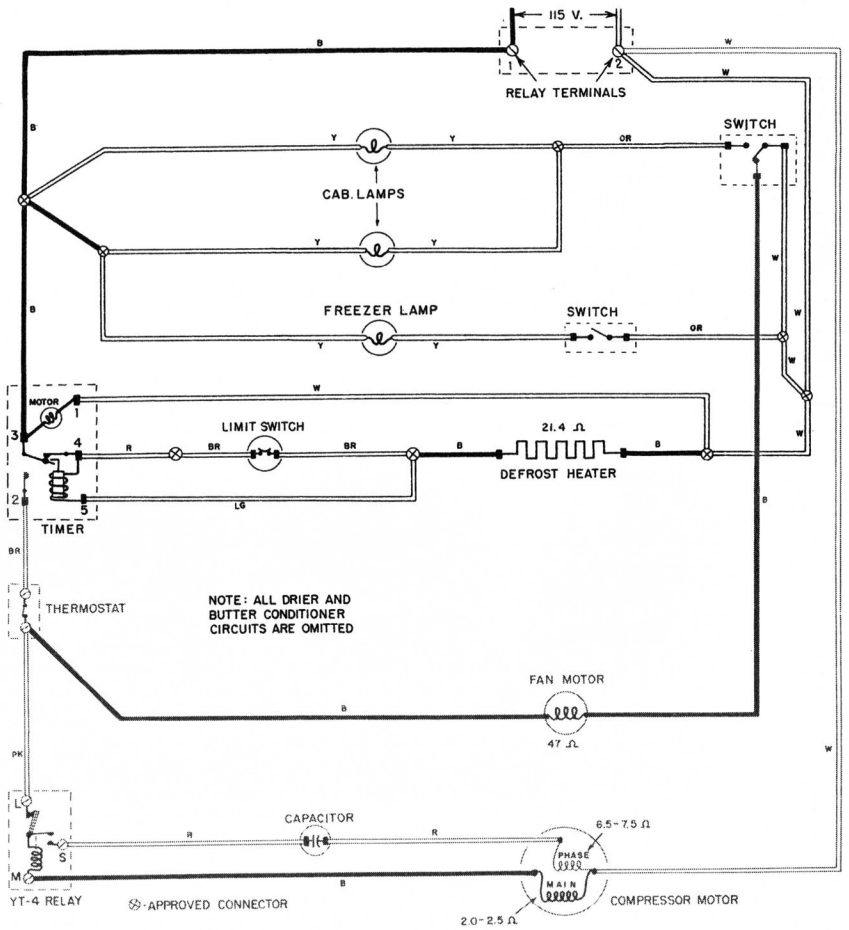


Figure 149
Electrical Circuit Diagram—FPI-14TJ Defrost Cycle

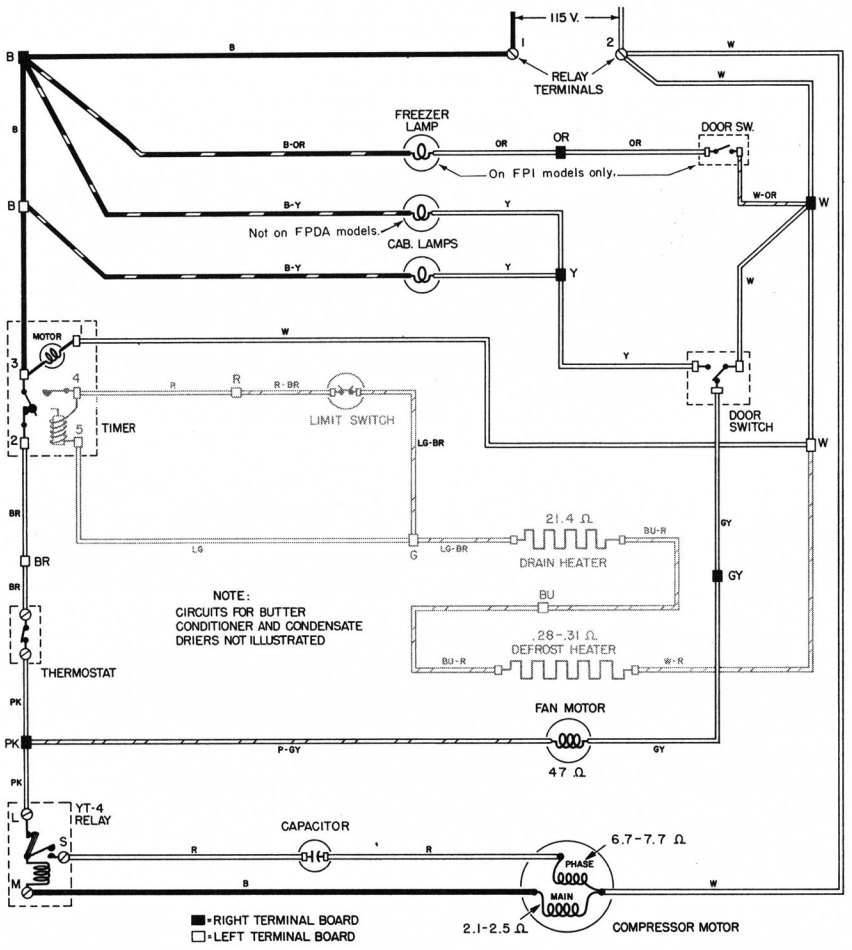


Figure 150
Electrical Circuit Diagram — FPD-14BJ, FPI-14BJ, FPDA-14BJ, FPD-16BJ, FPI-16BJ Refrigeration Cycle

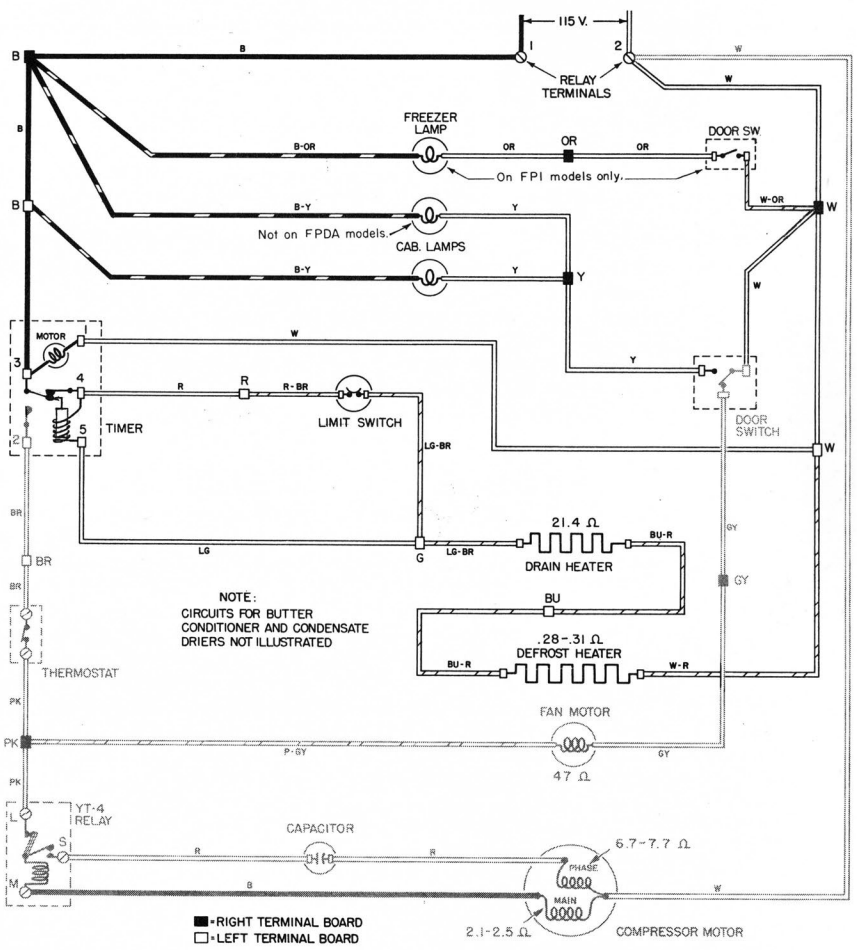


Figure 151
Electrical Circuit Diagram—FPD-14BJ, FPI-14BJ, FPDA-14BJ, FPD-16BJ, FPI-16J Defrost Cycle

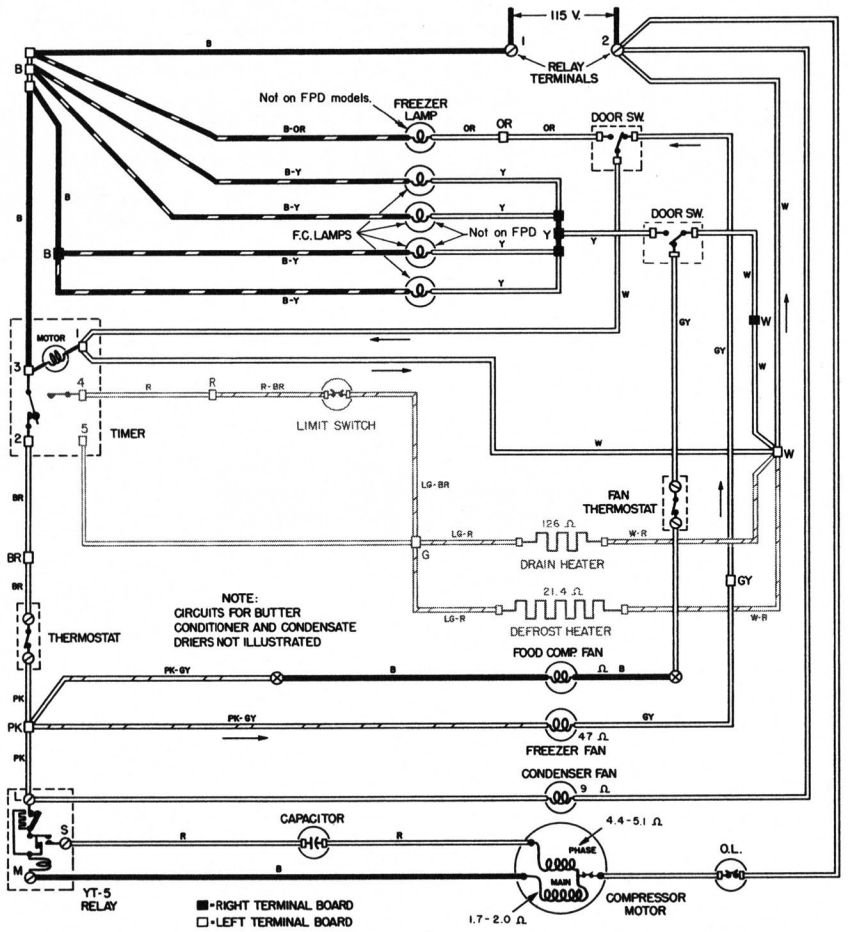


Figure 152
Electrical Circuit Diagram — FPD-19BJ, FPI-19BJ Refrigeration Cycle

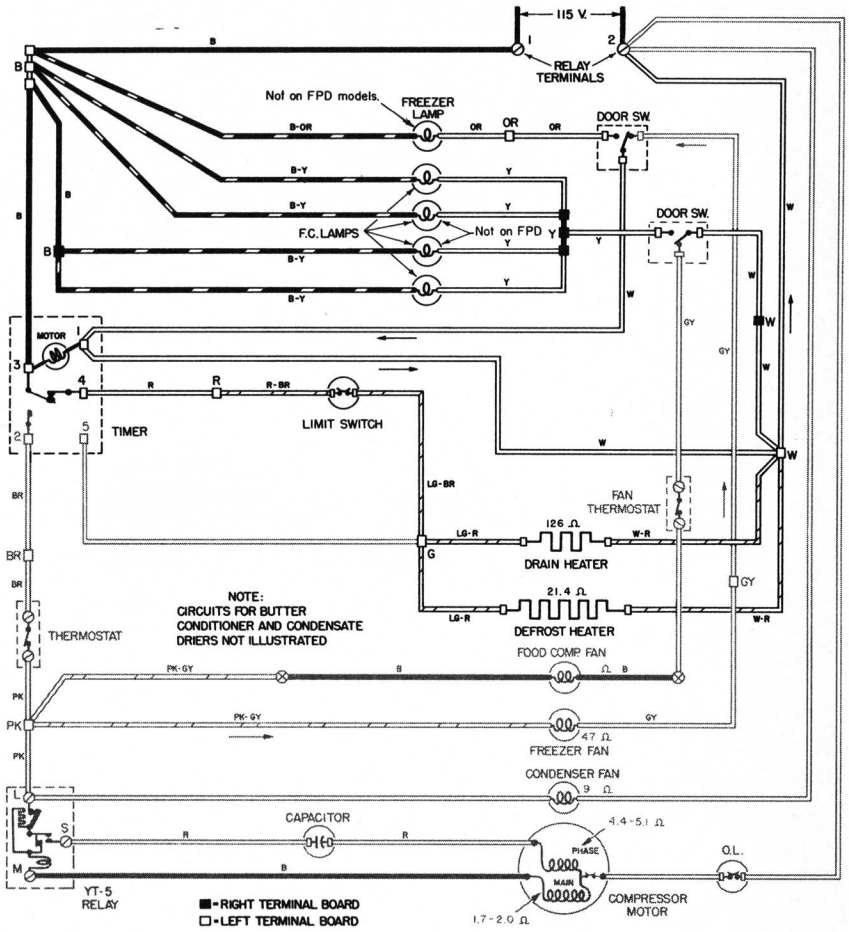


Figure 153
Electrical Circuit Diagram — FPD-19BJ, FPI-19BJ Defrost Cycle



Home Ec-Talk

The Ladies look at it this way

HOME-EC—TALK
1965 Refrigerators

Pride of ownership continues to run through letters we receive from new users. They are most anxious to know how to use and care for their new refrigerators.

FOOD STORAGE

In today's refrigerators—and especially any models with Flowing Cold—location of food within the refrigerator does not have to follow any certain pattern. It can be stored on any shelf where most convenient.

Vegetable and Fruit Storage

When special conditions are required, as for fresh greens, Hydrators are built in to provide the moist-cold atmosphere for best holding. We still recommend that users *remove* store wrappings, *trim* off unusable portions, and *wash* greens, lettuce, celery, carrots in cold water; allow to drain about 5 minutes and gently shake off excess water; then store in Hydrator.

One word of caution here to the homemaker—she should be sure that the Hydrators are pushed clear back into place each time they are used. This is especially important in models with Flowing Cold in which the Hydrators are sealed at back and front to retain moisture.

Fruit, including citrus, apples and pears, and vegetables, like tomatoes, cucumbers and green peppers, should be washed and then wiped dry before placing in Hydrators. If melons are to be refrigerated, wrap in plastic wrap to prevent transfer of odor and store just a few days.

Butter Storage

In Butter Conditioners. Store just the amount of butter or margarine for current use and hold remaining supply on shelf in fresh food section or in freezer. Adjust control to provide the spreadability desired. Some new margarines made from liquid corn oil are spreadable at refrigerator temperature and so Butter Conditioner control should be at the "hard" setting where no extra heat is furnished. Other margarines can be stored like butter.

Meat Storage

In models with Meat Tenders, meat should be removed from the outer store wrapping before being placed in the Meat Tender. Pieces of meat should be separated with waxed paper or the inner-leaf store wrapping and the top covered loosely with waxed paper or plastic wrap to avoid drying. Prepackaged meats and cold cuts can be stored in the original film wrapping.

In models without Meat Tenders, again, the meat should be removed from the store wrapping, then placed on a plate, covered loosely with waxed paper or plastic wrap and placed on a refrigerator shelf.

Leftover Storage

All foods should be refrigerated immediately. They should be placed in covered containers or covered with foil or other wrap to prevent drying out and transfer of odors.

Ice Cream Storage

In Refrigerator-Freezer models, ice cream can be stored in the original container. We have found it more satisfactory in the Mini-Freezer-Refrigerator to push the carton of ice cream toward the back of the freezer section for best holding when the Ice Server is removed. In conventional refrigerators, place flat-sided ice cream cartons *directly in contact* with the floor of the Freezer Chest for best holding. If removed to a pan or tray, cover with waxed paper or plastic wrap and *place tray on floor* of the Freezer Chest—not on the ice tray shelf.

VACATION TIME

When leaving on vacation, users should be sure no butter is left in the Butter Conditioner as it will become rancid within a few days and will not be usable upon their return. Air circulation can carry this rancid odor to other parts of the refrigerator.

Even if refrigerators are left running during a 3- to 4-week vacation, we recommend that all highly perishable food *should be removed.* This includes dairy products such as milk, cream, cottage cheese, butter, opened cheese packages, items in Meat Tender or Hydrators and partially used packages of ice cream in Freezer.

Food that can be left in the refrigerator includes opened containers of pickles, olives, catsup, commercial salad dressings, mustards, peanut butter, jam, jelly, sirups and salad oils; in the freezer, properly packaged home frozen or commercially frozen foods.

It is also a good idea to wash the interior of the refrigerator before leaving, making sure to include the underside of shelves. Moist-Minders should be removed, taken apart and cleaned; also, the Moisture Pan located behind the base panel; and check the crevices in the door seal, especially in humid climates.

CARE OF REFRIGERATOR

The Frigidaire clog-proof condensers on *all* models *never* need attention from the homemaker and so continue to offer tremendous advantage over other makes of refrigerators. In these other makes, floor condensers require regular cleaning in order to assure good air flow to prevent damage to the compressor through overheating or to prevent increase in operating cost.

Although plastic inner door pans in 1965 models are made of a more durable plastic, many earlier model refrigerators are still in use. In these earlier models homemakers *should be cautioned against use* of all-purpose, heavy-duty liquid cleaners containing solvents or pine oil *on any* plastic surface. They should use mild sudsy water—the kind used for hand dishwashing—or a baking soda solution.

We stress again the importance of regular cleaning of the interior of refrigerator. Warm baking soda solution cleans the interior and also helps keep the interior

fresh and sweet smelling — or a warm sudsy water also may be used. Rinse with clear water and dry.

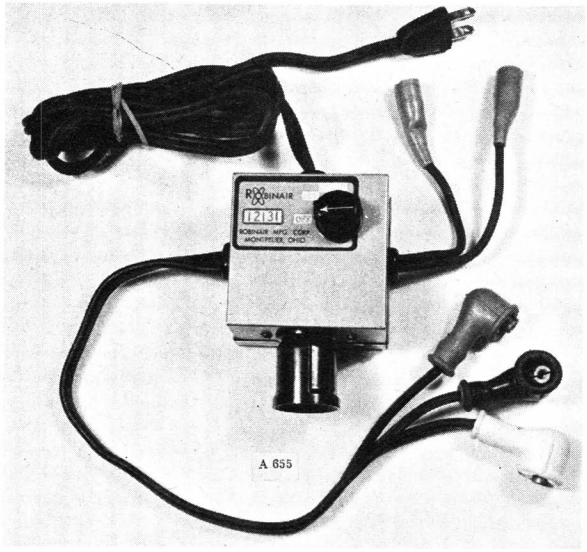
Whenever spillovers of any kind occur it is most important that they are cleaned promptly. Pay particular attention to the Moist-Minder when its drain is located inside the fresh food compartment, as in the FPI-14TJ, FPD-14TJ, FD-13TJ, and the new FPI-12TJ, FPD-12TJ, FD-12TJ. The new style Moist-Minder for the new 12 cu. ft. models is located behind the base panel and rests in the Moisture Pan.

Exteriors should be washed with warm sudsy water. The vinyl used in the trim strip on Imperial models and on the door handles have met all the Quality Control and Manufacturing Process standards. They are durable materials and can be washed with warm sudsy water just as the rest of the door. Surface Renewer may be used on the door trim just as on the baked enamel finish. Should a powdery deposit remain, wipe in a circular motion with clear water. If kitchen stains occur, wash them off promptly as is best on any material. For stubborn stains use Surface Renewer or a mild abrasive like Bon Ami. The new vinyl handles contribute to a softer, more pleasing appearance to the overall refrigerator and to the ease of cleaning which we stress in all appliances — for they don't show fingerprints and can be just wiped off with a damp cloth.

FROZEN FOODS

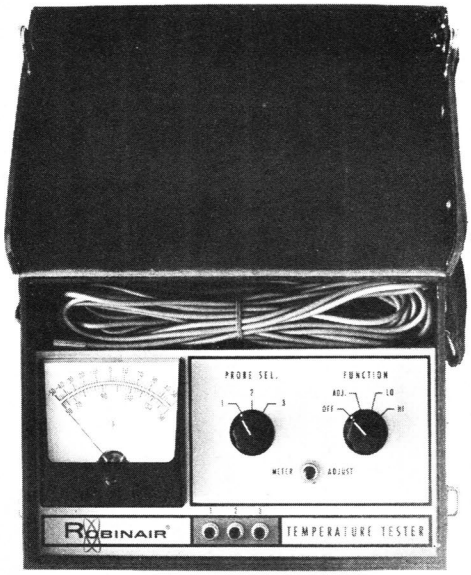
Importance of proper packaging of frozen foods cannot be stressed too much. We refer you again to this story in Tech-Talk, Volume 65 No. 5, September, 1964, "Tips on Packaging and Storage of Frozen Foods."

TOOLS



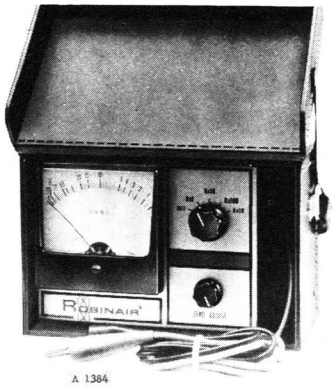
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START CORD

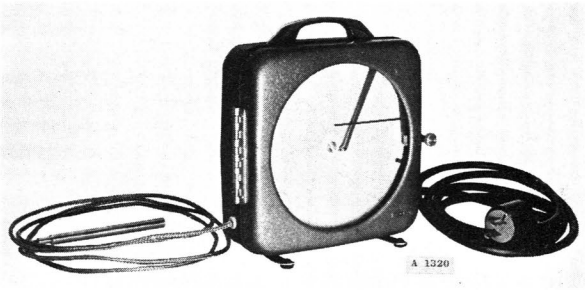


12860

TEMPERATURE TESTER



12855—Ohmmeter



12870

TEMPERATURE RECORDER

FRIGIDAIRE SERVICE

Tech-Talk

Quality Products — Backed by Quality Service

Volume 65, No. 10 | Refrigerators | May, 1965



TT-65-HH-1

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Worry, like a rocking chair, will give you something to do but it won't get you anywhere.

Specifications for FPI-16BAJ

	R.H. Model	L.H. Model
Net Refrigerated Volume—NEMA (cu. ft.)	15.9	15.9
Food Compartment Refrigerated Volume—Includes Door (cu. ft.)	11.02	11.02
Freezer Compartment Refrigerated Volume—Includes Door (cu. ft.)	4.90	4.84
Exterior Finish:		
Baked Acrylic Enamel	Yes	Yes
Optional Colored Acrylic Enamel	Yes	No
Optional White Porcelain	No	No
Freezer Baskets—Roll-To-You—Full Width—No.	1	—
Freezer Baskets—Roll-To-You—⅔ Width—No.	1	2
Lift-Out Basket—⅓ Width—No.	—	1
Ice Freezing Rate—Cubes/minutes	3/24	3/24
Ice Freezing Capacity—Cubes/24 hrs. max.	194	194
Ice Freezing Capacity—Lbs./24 hrs. max.	7.2	7.2
Storage Bin Capacity—Cubes	243	243
Storage Bin Capacity—Lbs.	9.0	9.0
Dessert Tray—No.	1	—
Weight (lb.):		
Net	339	339
Shipping	386	386



Figure 1
FPI-16BAJ—Left-Hand Model

Introduction

The FPI-16BAJ Frost Proof Refrigerator-Freezer is basically the current FPI-16BJ with the addition of a unique and completely Automatic Ice Service referred to throughout this issue as AIS. The exterior design and styling is the same and can identified by the words "Automatic Ice" on the nameplate on the upper door. Both right-hand and left-hand door models will be available with a baked-on acrylic enamel finish in Snowcrest White. The right-hand door model will also be offered with a choice of the three Frigidaire colors—Turquoise, Aztec Copper, and Sunny Yellow. Porcelain enamel and brushed chrome doors will not be available.

The "A" in FPI-16BAJ designates a "Special" model. In this case, an interim model different from our original and basic model, the FPI-16BJ, which includes an automatic ice maker.

Construction

Food Compartment:

The interior design, color styling and features of the refrigerator section are the same as for the FPI-16BJ. The net refrigerated volume is likewise unchanged. All specifications, tables and appointments are therefore covered in TECH-TALK, Volume 65, No. 6. Differences in specifications as they pertain only to the FPI-16BAJ are shown in the above table.

Freezer Compartment:

The freezer section differs radically from the freezer section in the FPI-16BJ model. The left-hand model FPI-16BAJ, Figure 1, differs somewhat from the right-hand model, Figure 2. In both right-hand and-left-hand models, the ice maker unit assembly is located in the upper, left corner of the freezer compartment. This assembly is rectangular in shape to conserve space and to give it a "Designed In" instead

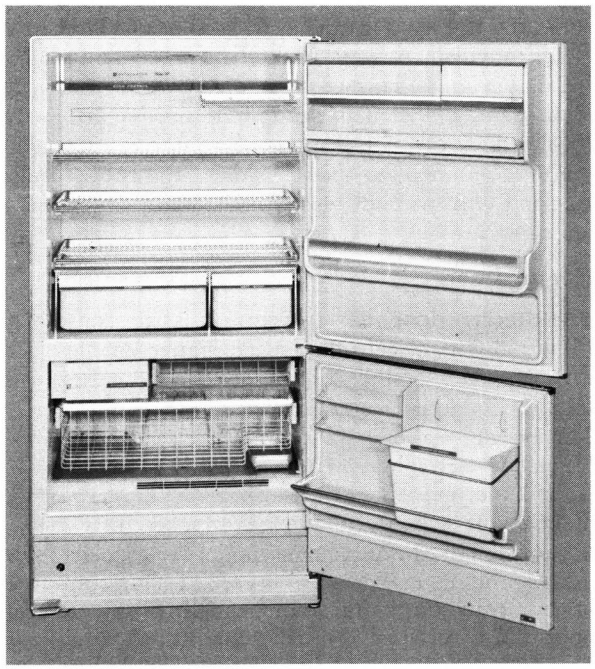


Figure 2
FPI-16BAJ—Right-Hand Model

of a "Set-In" appearance. The right-hand model has a shallow ⅔rds width Roll-To-You basket to the right of the ice maker unit. A deeper full-width Roll-To-You basket is located below the ice maker unit and the smaller basket. An offset, Figures 2 and 3, at the bottom, right corner of the full-width basket, is for clearance of the bottom freezer door shelf front when pulling the basket out. A dessert tray, Figure 2, is provided to fit into this space. The

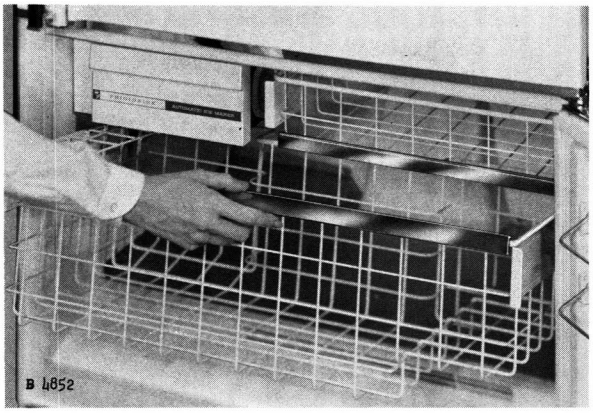


Figure 3
Freezer Baskets—Right-Hand Model

tray has a handle but no grid. The large basket also has a guard, Figure 3, along the top, left side to prevent food packages from jamming the ice maker unit or to cause it to malfunction.

The left-hand model has a partition or divider, Figure 1, which extends from bottom to top and supports the two Roll-To-You baskets which are ⅔rds in width. A set-in basket is provided under the ice maker unit. This change in design between the right-hand and the left-hand models is due primarily to the location of the ice cube container. A nylon guard is mounted to the left side of the cold storage liner to prevent packages from jamming the mechanism.

Freezer Door:

The freezer door has a white plastic container, Figure 1, separate from the ice maker unit with a capacity of 9 pounds of ice or 243 ice cubes. It's location on the freezer door lends towards greater convenience and offers automatic Finger-tip Ice Service to the user. The position of this container on the right-hand models is farthest away from the ice maker unit when the freezer door is fully open, Figure 2. On the left-hand model, it's position is nearest the ice maker unit, Figure 1. This container or bin rests on a full width shelf of the freezer door and is retained in place by a full width aluminum rod on the bottom and a lift-up rod at the top, Figure 4.

In addition, there are two juice can retaining rods

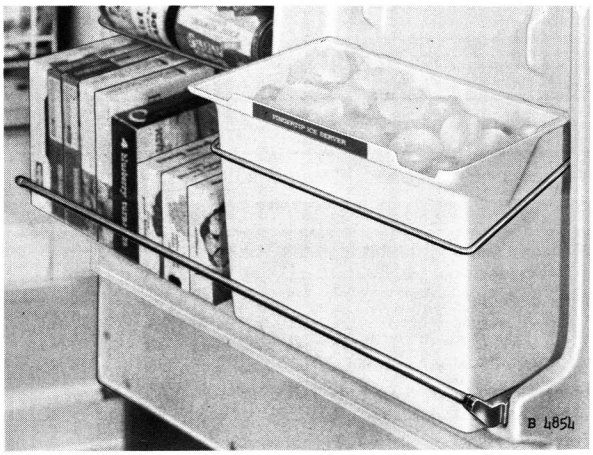


Figure 4
Fingertip Ice Server

on the inside freezer door panel each holding three small juice cans. Both rods fold up and out of the way when not in use.

Other objectives that were designed into this exclusive mechanism are:

- Unique Design—different basic operation—different appearance—compact.
- Greater Convenience—separate container from ice maker—location of container—constant supply—positive shut off.
- Better Performance—ice freezing rate and capacity—cube size and release.
- Reliability—proven components—simple design—long life.
- Cleanability—ease of cleaning by the user.
- Serviceability—ease of removal of complete ice maker assembly—field replacement of components.

Operation

It is best to first understand how the AIS cycle is accomplished. In Figure 5, clear plastic has been mounted to a frame to show the relative positions of the various components in the cabinet. As stated previously, the ice maker assembly is mounted in the upper left corner of the freezer compartment. A control box assembly is mounted in the machine compartment towards the rear. In this control box is a water supply tube for connection to a cold water supply which will be covered more thoroughly in Installation Instructions. In addition, there is a water valve, an AIS timer and an AIS relay. Foamed in place and adjacent to the side of the cabinet shell, is an aluminum protector tube, Figure 5. A small plastic tube from the water valve is inserted into the aluminum protector tube all the way up to a plastic fill tube, Figure 5. This fill tube is partially foamed in place and the outlet end is mounted to the top of the freezer liner assembly. Electrical leads from these components are connected to the left terminal

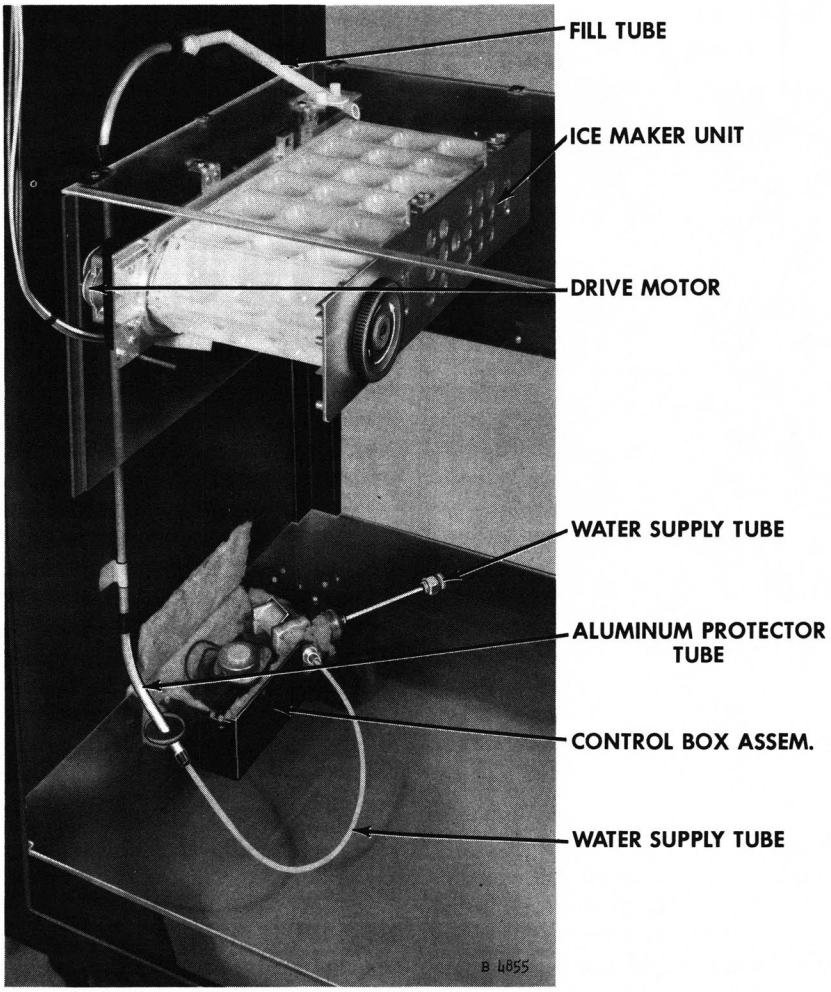


Figure 5
Ice Maker—Components Locations

board which is located behind the left door opening moulding in the food compartment.

With the water supply connected and turned on, the refrigerator plugged in and normal operating temperatures obtained, a flow of water to the ice maker unit takes place. It is pointed out that the aluminum tube, into which the plastic water line is inserted, prevents any water freeze up because it is practically at room temperature. Also, the plastic fill tube is mounted with an air gap to assure that all water from the fill tube runs out by gravity flow. As an added precaution, an electrical heater, rated at 1½ watts at 17 volts, is wrapped around the fill tube to prevent a possibility of freeze up. This heater is connected in series with one of the center mullion driers. It is energized when the unit is ON or when the ice maker is running/or both.

The flow of water is regulated by a flow washer in the water valve for operation between 20 PSI and 120 PSI. The duration of the fill is controlled by the AIS timer. The fill switch, located on the side of the ice maker unit assembly, must be closed during this period. The AIS timer and the fill switch are electrically connected in series. Water enters the rear plastic conveyor belt link. Each link has three molds which are grooved to allow water to flow between them. The cubes are almost square shaped on top and slightly rounded on the bottom for easy automatic removal. Sixteen links comprise the endless conveyor belt. The three molds of each link are filled in two separate four second shots of water spaced two minutes apart for a total of 50 cc. of water. The two separate shots of water prevent splashing and, at the end of the second shot, theAIS timer is reset for the next cycle.

After filling, the conveyor belt is driven forward at a slow rate of speed by a drive motor. From the time the ice making operation first starts until the frozen cubes are delivered to the container, approximately 3.2 hours time has elapsed. Thereafter, as ice making continues uninterrupted and the conveyor continues to move forward, 3 ice cubes are produced every 24 minutes. The links, and the conveyor belt as a whole, continue the return journey back to the refill position. . . . A maximum of 7.2 pounds of ice or 194 cubes can be produced in 24 hours.

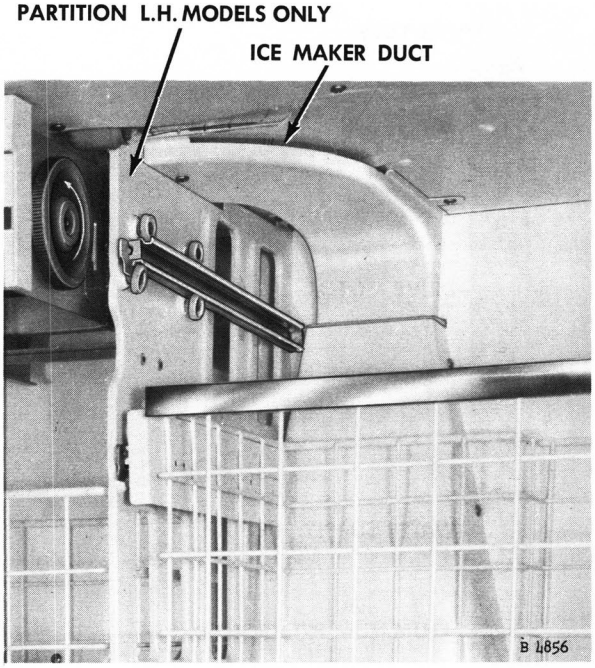


Figure 6
Ice Maker Air Duct Location

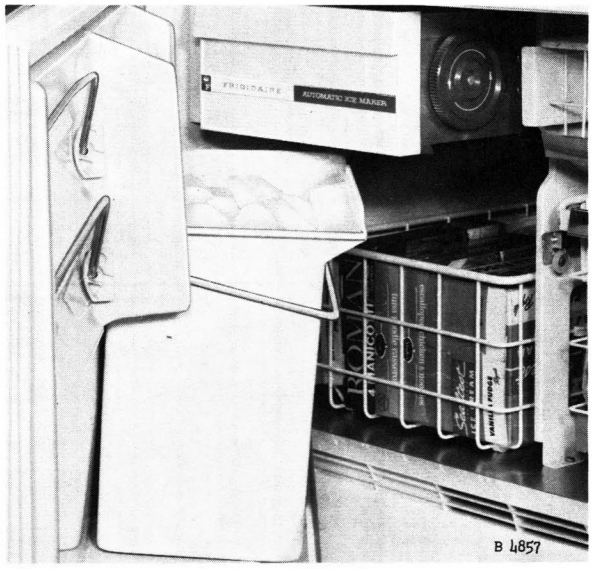


Figure 7
Ice Container—Location on Left-Hand Model

An air duct, Figure 6, from the freezer blower cover to the ice maker unit, channels below zero degree, normally, air over the conveyor to achieve fast freezing. As each conveyor link moves forward, it reaches a point in the track near the front of the ice maker frame that causes the link to be twisted in such a way as to loosen the cubes. As the link makes it's turn at the front of the frame, it is twisted in the opposite direction and a sudden jar is produced due to a drop-off in the track. This breaks the bond between the perfectly formed cubes and the plastic link and allows the cubes to drop into the container on the freezer door. Ice cubes will continue to be produced even though the compressor is not running. This is not true in competitive models. The IRS relay is responsible for this. Its purpose is to operate the freezer blower motor during the refrigeration OFF cycle while the ice maker is in operation and to cycle the freezer blower motor with the compressor when the ice maker is not operating. During the Defrost cycle, however, no ice freezing takes place.

The ice cube container on the door, must be in position for the ice maker unit to function. With the freezer door closed, this container is positioned directly under the front of the ice maker unit on both left-hand and right-hand models, Figure 7. The container contacts the white plastic container indicator arm, Figure 8, on the under side of the ice maker unit. This arm is so designed that when the container is in position, it engages the arm basically the same for right-hand or left-hand models. The indicator arm causes an open circuit in the cam switch when the freezer door is opened or when the container is removed; this stops the conveyor and provides an excellent safety feature for when the user goes on vacation since it is necessary only to remove the container from the freezer door to stop ice making operation.

In operation, the ice maker unit continues to produce cubes and deposit them in the container. As the cubes accumulate, they build up to a point where they come in contact with the ice sensing arm, Figure 8. With the container almost full, the downward motion of the sensing arm is halted. This causes the cam switch to pull away from the gage arm cam to create an open circuit and stop the conveyor. A counterbalance weight, in conjunction with a cam follower spring, causes the ice sensing arm to move up and away from the cubes when the freezer door is opened or the container is removed from the door.

The AIS thermostat, Figure 8, has a setting of +9°—contacts closed; to +18°—contacts opened. The purpose of this thermostat is to ensure proper temperatures prior to the conveyor advancement. For example, immediately after defrost, the air temperature from the cooling coil is above +18°. This air is channeled over the top of the conveyor with the AIS thermostat directly in the path of the air stream. Therefore, until the air temperature reaches +9° or below to close the contacts in the thermostat, the conveyor will not advance. This time lapse is usually only a matter of minutes.

Provisions have been made for manual advancement of the conveyor. Place the container under the front of the ice maker unit to catch the cubes and turn the blue plastic manual knob, Figure 9, in a counterclockwise direction. The housewife can clean the conveyor if she so desires by simply removing

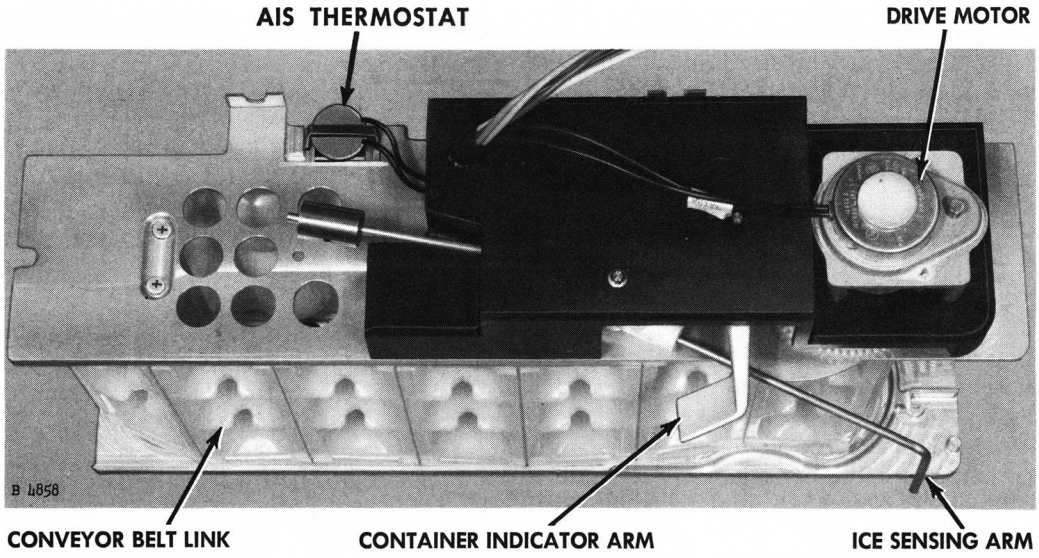


Figure 8
Ice Maker Unit Assembly



Figure 9
Manual Conveyor Advancement

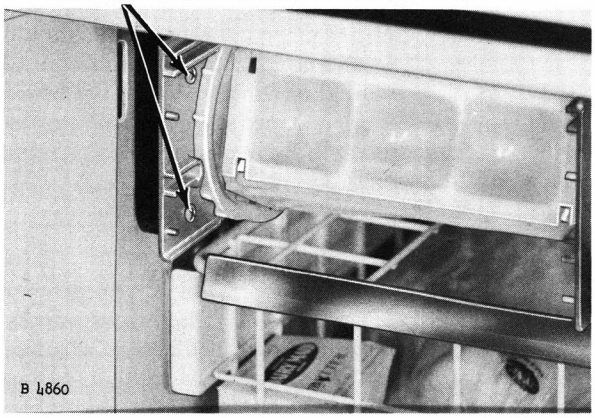


Figure 10
Conveyor Belt Link

the plastic face plate and the conveyor belt guard and advancing the manual knob as described above to bring the links forward, Figure 10, where each can be wiped out with a cloth. The design of the automatic ice maker is such that it is protected from freezer packages or any foreign matter that might necessitate cleaning. The water valve has an 80 mesh screen in it to filter any foreign matter that might be in the water supply.

Electrical Circuitry

The function of the Automatic Ice Service electrical components has been covered under Operation. However, a more detailed description of these parts and how to diagnose the circuits involved are as follows. The AIS circuitry can be broken down into three major circuits—a drive circuit, a fill circuit and a fan circuit. Certain components are common to more than one circuit. The wiring diagrams in this issue should be used in conjunction with the following write-up. The product must be disconnected from the electrical source of supply when using an ohmmeter.

Drive Circuit:

This circuit consists of the cam switch, the AIS thermostat and the drive motor, all connected in series. Therefore, if any one of these components were open, no movement of the conveyor belt would result. It should also be noted that this circuit is fed from the No. 2 terminal of the defrost timer. This prevents the conveyor from moving during the defrost cycle. Also, the Ice Container must be in place and the freezer door closed.

Continuity of the cam switch and AIS thermostat can be checked with an ohmmeter by disconnecting the Tan lead from the left terminal block and checking to the Brown terminal. No resistance should be

read under normal freezer temperatures. From the Tan lead to White AIS drive motor lead (disconnect this White lead—only White lead not foamed in place), the drive motor winding and leads are checked. 2620 ohms should be read. If any open circuit is noted, the AIS assembly must be removed.

The proper Brown or Tan lead can be identified as to the general direction the lead runs. For example, the Brown thermostat (F3D) lead goes upwards and is foamed in place, the Brown AIS Cam Switch lead can be distinguished from the Brown defrost timer lead by the grouping of the leads.

The drive motor is rated at 115 Volt, 3 Watts, with a motor drive shaft speed of 5/8 r.p.h. or 1/96 r.p.m. Manual advance is made possible by an over riding clutch incorporated in the drive motor gear train. A friction type overload clutch is also included in the drive motor gear train to prevent possible damage to the drive motor if the conveyor belt cannot advance for any reason.

Fill Circuit:

The fill circuit consists of the cam switch, the AIS thermostat, fill switch, AIS timer and a fill valve solenoid. The AIS timer and fill valve are in parallel and are then connected in series with the other above mentioned controls.

The fill switch is a S.P.D.T. switch located on the ice maker assembly and is actuated by a link pin bearing as it passes. This creates a completed circuit to the AIS timer (dark green leads), through the AIS timer contacts and energizing the AIS timer motor as well as the fill valve solenoid. This gives a 4 second fill (25 c.c. of water). The AIS timer contacts are then switched (1 to 2) stopping the timer motor and shutting off the fill water.

Now, as the conveyor belt progresses, the link pin bearing passes the fill switch, causing the fill switch contacts to revert to their normally closed circuit (light green). Another 4 second fill cycle results which gives a total of 50 c.c. of water in two separate 4 second fill cycles.

One way to check this circuit is to supply power from the Black terminal of the left terminal board to the dark green leads or light green leads at their respective crimp connectors, Figure 30, using an insulated jumper wire. A 4 second fill should result from energizing one or the other. For example, if no fill is obtained when energizing the dark green leads, try the light green leads. After obtaining a fill on one, change to the other and another 4 second fill should result. This indicates the AIS timer and fill valve are O.K. If the timer and fill valve do not check O.K. proceed with item A. If they do check O.K. proceed with item B.

A. If no fill is obtained when energizing both sets of leads alternately, remove the control box in the machine compartment and check for disconnected leads, etc. The AIS timer may be checked directly at the timer terminals, after disconnecting leads, for proper continuity. Continuity (no resistance) should be noted from AIS timer terminal No. 1 to No. 2 or No. 4. The timer motor coil can be checked from terminal No. 1 to No. 3. This should be 2620 ohms with one lead removed. Otherwise, you would also be reading the water valve solenoid resistance which should be 310 ohms.

B. If the AIS timer is O.K., check the fill switch. This necessitates the removal of the AIS assembly to gain access to the fill switch.

Fan Circuit:

The two things to check here other than those already covered are, the freezer fan doesn't run and/or it doesn't run during the compressor OFF cycle when ice is to be made.

In the first condition, if the fan doesn't run, it should be determined that circuits other than those of the AIS system are functioning properly. Therefore, check this fan motor winding by disconnecting the Gray lead from the right-hand terminal board to the Pink-Gray terminal. Resistance should be 47 ohms. There are two gray leads. One as stated above; the other gray lead goes to the fan and lamp switch which is easily recognizable.

In the other condition, if the fan motor does not run during the compressor OFF cycle when calling for ice and does run during the ON cycle of the compressor, then it must be a faulty AIS relay. The fan should never run 100% of the time when the container is full of ice cubes.

Fill Tube Heater:

The fill tube heater is merely a precaution against the possibility of the fill tube freezing. It is a 1½ Watt, 17 Volt heater connected in series with the one heater of the center mullion drier template. This is the heater that cycles with the compressor. Do not attempt to energize this fill tube heater with a jumper wire since it is rated at only 17 Volts. This heater is energized whenever the freezer fan motor runs.

To check for continuity, remove the Pink-Gray lead from the right terminal board and insert one ohmmeter probe into the crimp connector at the center mullion which connects the fill tube heater and the center mullion drier in series. This should read 190 ohms. The one probe could be connected to the White-Blue terminal of the right terminal board instead of the crimp connector as previously described. This way, the fill tube heater and the one center mullion drier continuity is checked. This reading should be approximately 1300 ohms.

Installation Instructions

It will be necessary to have a cold water supply connected to this model and this can best be accomplished by using kit 6597562, currently supplied from Service Stock. This kit contains 25 ft. ¼" O.D. copper tubing, necessary fittings and an instruction sheet. As an alternative to this kit suggested types

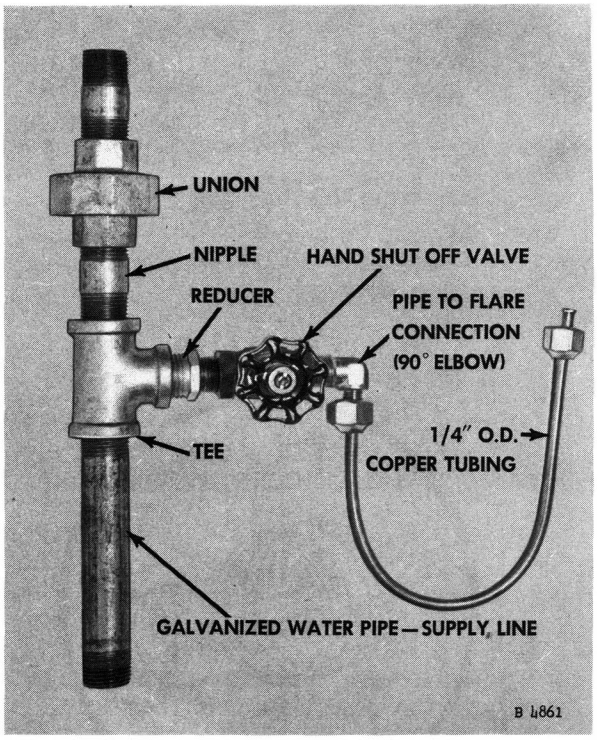


Figure 11
Typical Water Supply Hookup—Galvanized Pipe

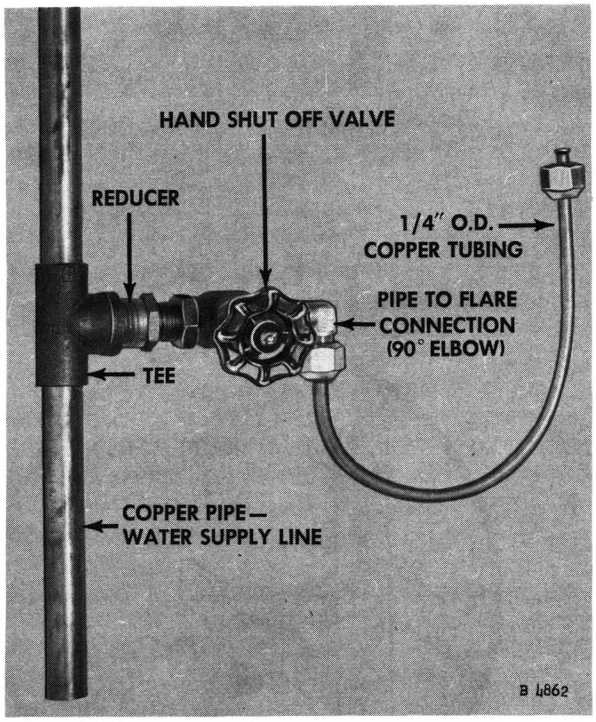


Figure 12
Typical Water Supply Hookup—Copper Pipe

of installations, Figures 11 and 12, with materials available locally, may be used to comform to existing codes.

We do not recommend this model be installed on a 50 cycle current supply. Due to a timed fill, an overfill, would result which would cause various problems.

To install a cold water supply line as suggested in 6597562 kit, proceed as follows, referring to Figure 13. In localities where it is deemed necessary, a filter may be added in the water line ahead of the water valve. This will minimize the possibility of the screen and/or water valve becoming clogged.

1. Position the refrigerator in it's approximate permanent location. Leave sufficient space between the rear of the refrigerator and the wall in which to work.
2. Gain access to the cold water supply line. Usually the best place is the kitchen sink which is easily accessible and close to the refrigerator. Shut off the water to this line and relieve the pressure from the line by opening the faucet. Wherever possible, a vertical run of pipe or tubing should be selected.
3. Install the saddle valve as illustrated in View A of Figure 13 as follows:
   a. Use the valve mounting clamp with the threaded hole as a template, mark the location for drilling a hole in the water supply line. Drill a ¼" O.D. hole at this location.
   b. Screw the valve into the threaded mounting clamp making sure the valve outlet is pointing in the desired direction. Place the sealing gasket over the pilot tube of the valve. Insert the pilot tube into the drilled hole, assemble and tighten the mounting clamps, View A.
4. Make the necessary openings through existing panels, partitions or floors to allow a ¼" O.D. copper tubing line to be routed from the cold water supply line to the refrigerator.
5. Remove the rear cover and insulation assembly from the refrigerator by prying off the retainer clips.
6. Install the ¼" flare elbow, furnished in the kit, to the ¼" flare nut which is part of the water valve inlet line, View C. Position the elbow in the general direction of the loops to be formed. This will usually point upwards.
7. Determine the desired method of forming the ¼" O.D. tubing at the rear of the refrigerator. It is suggested that two loops, approximately 18" in diameter, be formed near the flared end of the tubing to provide flexibility and to relieve strain on the tubing if the refrigerator should ever be pulled out for any reason. Temporarily install the flared end of the copper tubing (finger tight) to the flare elbow, View C, and form the two loops in the tubing as shown.
8. Route the tubing through openings, Step 4, to the saddle valve. Cut the tubing to the proper

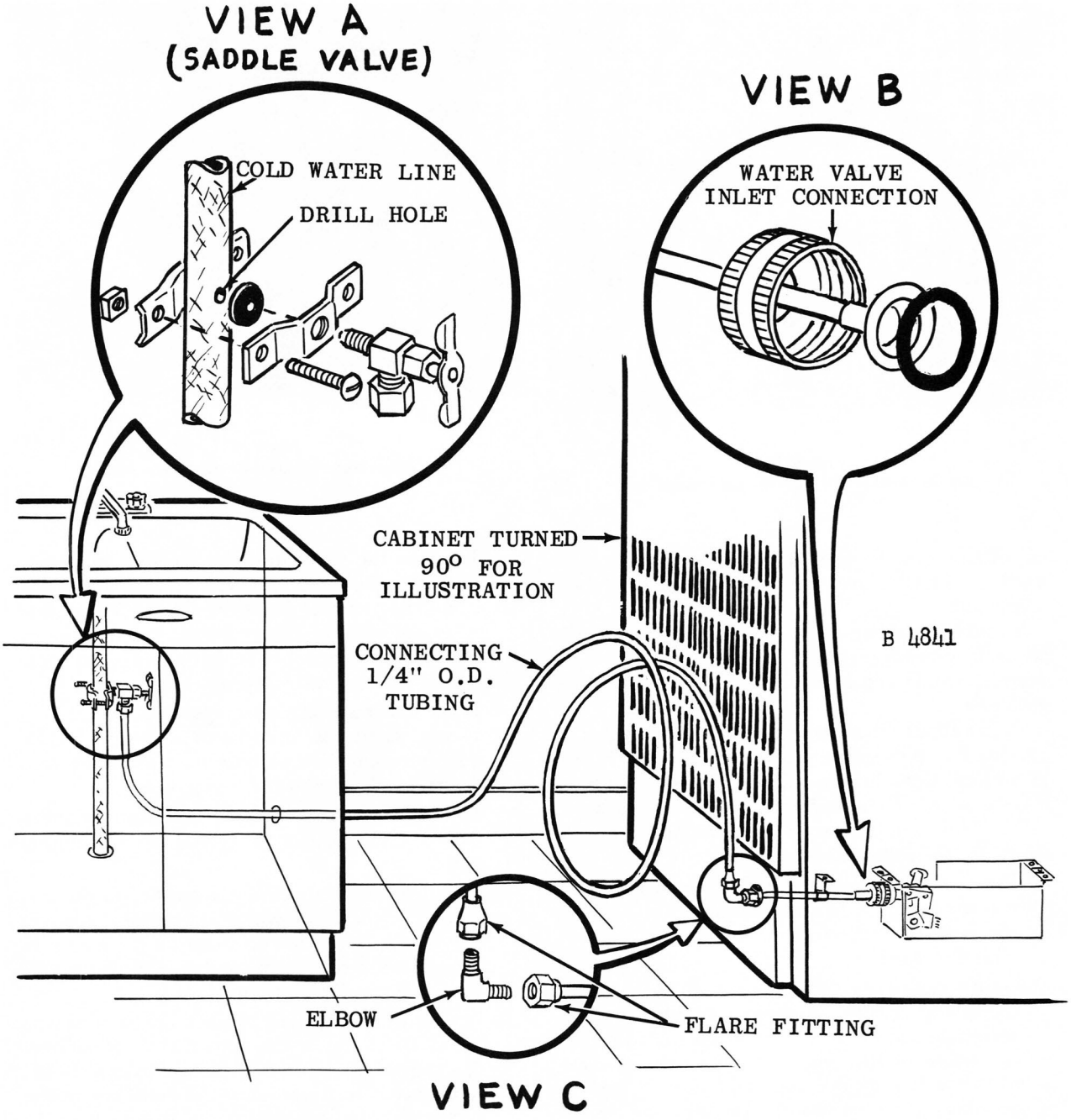


Figure 13
Water Supply Hookup Detail

length and install to the outlet of the saddle valve, using the compression fitting furnished with each valve. Tighten all connections at the saddle valve. Turn valve off.

9. Open the shutoff valve, Step 2, and check for leaks at the saddle valve. If none, remove the flare nut from the other end of the tubing which was only finger tight, Step 7 and View C, and flush out this line into a pail or bucket by opening the saddle valve. Turn off the saddle valve. Open the sink faucet to further flush the line.
10. After flushing the line and before reconnecting the tubing to the elbow, slide the cover and insulation assembly over the end of the tubing. Reconnect the tubing to the elbow but do not install the cover assembly yet. Tighten all connections.
11. Open the saddle valve subjecting the entire line to full water pressure. Check all connections for leaks, including the water valve connection, View B.
12. Install the rear cover and insulation assembly and position the loops in the tubing. Plug in the service cord of the refrigerator into the wall receptacle and place the refrigerator in its proper location.

    Note: *To provide even ice cubes, it is important that the refrigerator be properly leveled.*
13. After leveling, make a final check with a flashlight for leaks at the rear of the refrigerator and at the water valve inlet connection, View B, by removing the apron and disposal pan and looking for evidence of water on the floor. Also observe and correct any unusual sounds caused by vibrating tubing.
14. Instruct the user in the general operation of the product. Advise her the product must reach operating temperatures before cube making starts. This period will be approximately 2½ to 3 hours from the time the product is plugged in. Another 3 hours will be needed before the first cubes are released. This is a total of 5½-6 hours.

Certain sounds are normal. During the fill period, a water fill sound can be heard. The sound level increases as the water pressure increases. There is approximately a 2 minute delay between the two shots of fill water. The next time this sound is heard is in 22 minutes. Also, the first cubes to fall into the container can be heard but after the bottom of the container is covered with cubes, the sound is hardly noticeable.

Tables in this issue pertain only to the Automatic Ice Service portion of the refrigerator. We assume that all other controls, components, etc. are functioning properly. Some other fault (i.e. freezer fan motor fails to run or freezer coil is iced up) would affect the operation or harvesting of ice cubes. See TECH-TALK, Volume 65, No. 6 Service Diagnosis.

Service Diagnosis

Problem and Possible Cause	Remedy
Mechanism Will Not Run:	
Freezer Compartment Not Cold Enough.	AIS control thermostat still open because temperatures are not below thermostat closing setting of +9°. Allow time for compartment to reach operating temperatures.
Faulty A.I.S. Control Thermostat.	Check continuity of thermostat if normal freezer temperatures prevail. Replace if necessary.
Faulty Cam Follower Switch.	Check continuity and operation of cam follower switch. Replace if necessary.
Cam Follower Switch Arm Stuck—Not Free to Follow Cam—Spring Broken or Missing.	The Drive and Sensing Assembly must be removed to check these items.
Ice In Track.	This is not a normal possibility but this could be caused by tipping or moving the cabinet. Also, if the serviceman is going to remove the complete ice maker unit, he should first advance the conveyor manually, catching the cubes and/or water in the ice cube container.
Faulty Drive Motor.	Replace if necessary.
Shear Pin Broken or Missing.	This is the pin on the drive motor. Replace drive motor.
Ice Cube Container Not in Place.	Install container to engage indicator arm.
Faulty Wiring.	Check continuity of leads and for good contact on terminals.
Package Interference.	This is not very probable but it is a possibility. Remove the interference.
Mechanism Running—No Water Fill:	
Faulty A.I.S. Timer.	To check the A.I.S. timer, supply power from black terminal on L.H. terminal board to the dark green leads or light green leads, at their respective crimp connectors (see Figure 30), using an insulated jumper wire. A four second fill should result from energizing one or the other, i.e. if no fill is obtained when energizing dark green leads, try the light green. After obtaining a fill on one, change to the other and another four second fill should result. This indicates the A.I.S. Timer is O.K. If no fill is obtained when energizing both sets of leads alternately, remove control box and check for disconnected leads, etc. A.I.S. Timer may then be checked directly at the timer terminals, after disconnecting leads, for proper continuity.
Faulty Fill Valve	Check coil with ohmmeter. If coil is open, replace. Repair or replace fill valve as necessary.
Clogged Water Line	Check screen in water valve or restricted condition in water line.
Fill Tube Heater Inoperative	This can be checked for continuity at the right-hand terminal board. Replace if necessary.
Low Water Pressure or Water Is Turned Off	Check water shutoff valve. Water pressure should be at least 20 psi.
Link Pin Bearing	Bearing could be broken, missing, not contacting the fill switch.
Inoperative Fill Switch	Check mechanical and electrical operation of this switch. Replace if necessary.
Obstruction in Fill Tube	Not very probable but one way to tell is if water should be on the floor adjacent to the aluminum protector tube inlet.
Faulty Wiring	Check continuity of leads and for good contact on terminals.
Wet Ice Cubes or Water:	
Faulty A.I.S. Control Thermostat.	Check continuity of thermostat if normal freezer temperatures prevail. Replace if necessary.
Faulty A.I.S. Relay	Freezer fan motor may not be running during normal off cycle of refrigerating unit. Check relay coil for open, shorted or grounded condition. Replace relay if necessary.
Freezer Door Not Sealing	Top left corner of freezer door is not sealing properly or door not closing completely due to foot pedal interference. Adjust as necessary.
Ice Maker Duct Not Sealing	A strip of adhesive backed insulation strip goes along the top left edge to prevent air leak out of duct.
Ice Cubes Falling Out:	
Ice Guard Position	Ice guard not properly located or broken. Correct as necessary.

Service Operations

To provide safety and to avoid repetition of this caution throughout the service operation, *always break the source of electrical supply before attempting to service an electrical component of the refrigerator.* Always follow color coding when rewiring or when connecting leads to electrical components. The wiring diagrams show resistance values to assist in diagnosis. Unless otherwise stated, assembly operations are the reverse of disassembly procedures. For rewiring and connecting of leads, refer to the wiring diagrams at the end of this issue or to the wiring diagram on the front of the cabinet.

The following service operations pertain only to the FPI-16BAJ model and basically cover only the Automatic Ice Service components. All other service operations are the same as given for the FPI-16BJ in TECH-TALK, Volume 65, No. 6. One point should be made here that the FPI-16BAJ model provides for electrical bonding of the exterior doors, food liner and cold storage liner to the cabinet shell. Therefore, whenever a bonding electrical lead is removed in the process of servicing, be sure to reconnect it. A grounding condition exists now with a copper water line clamped to the inner bottom of the cabinet shell.

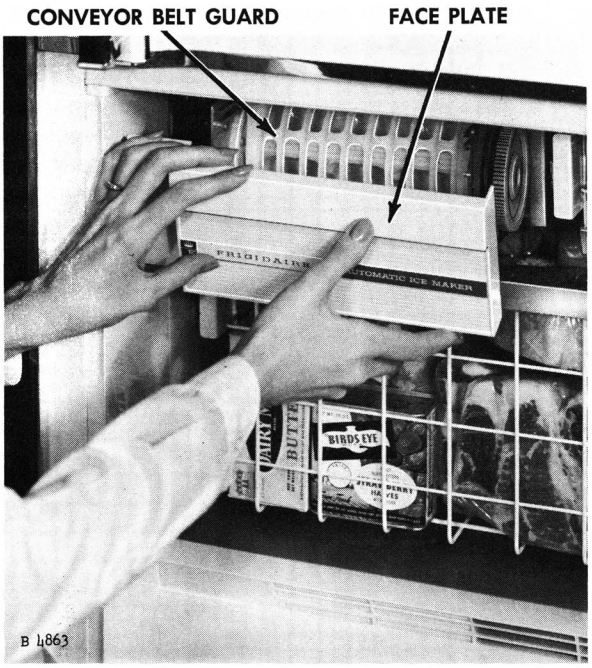


Figure 14
Face Plate Removal

A. Plate, Face — Removal:

Pull the plate out at the top and roll it off the bottom pins, Figure 14. To replace, snap it onto the bottom pins, swing it up and then push onto the top pins.

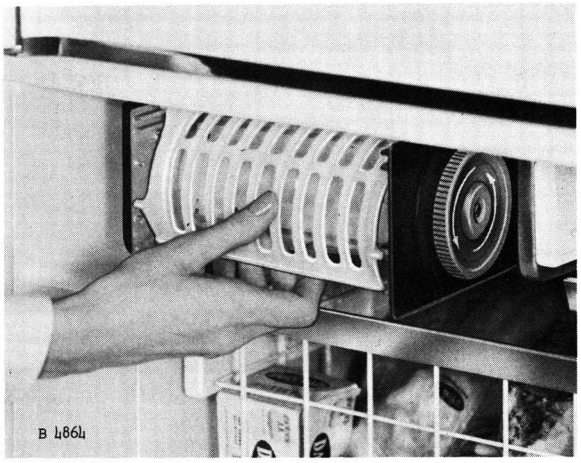


Figure 15
Conveyor Belt Guard Removal

B. Guard, Conveyor Belt — Removal:

Remove the face plate, Procedure A. Pull up at the bottom of the guard, Figure 15, to remove the lower portion and then remove the top part. The guard is flexible enough to squeeze together to remove each plastic leg or pin portion of the guard from the track assembly.

C. Unit, Ice Maker — Removal:

1. Remove the face plate and belt guard, Procedures A and B.

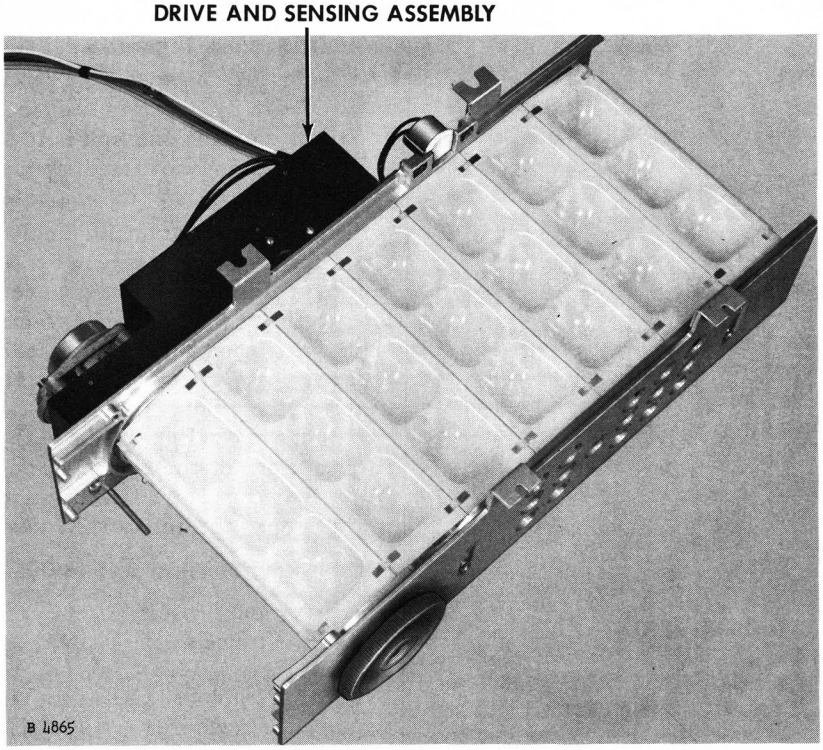


Figure 16
Ice Maker Unit Assembly—Removed

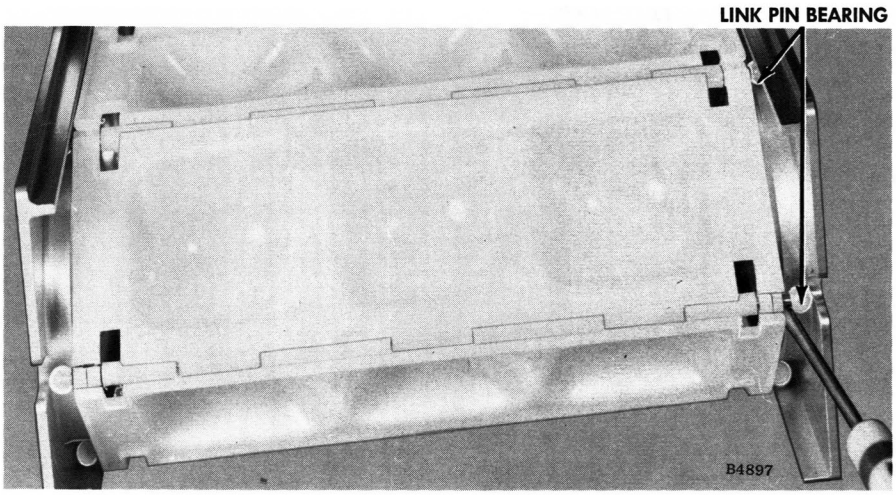


Figure 17
Link Pin Bearing—Removal

2. Remove the baskets that extend under the ice maker unit assembly, as the case may be, for R. H. or L. H. models.
3. Remove the two screws, on the right-hand side at the top of the freezer compartment, which support the ice maker unit.
4. Pull the unit assembly to the right to drop it off mounting pegs on the left side. Disconnect the electrical lead plug and remove the unit assembly, Figure 16.

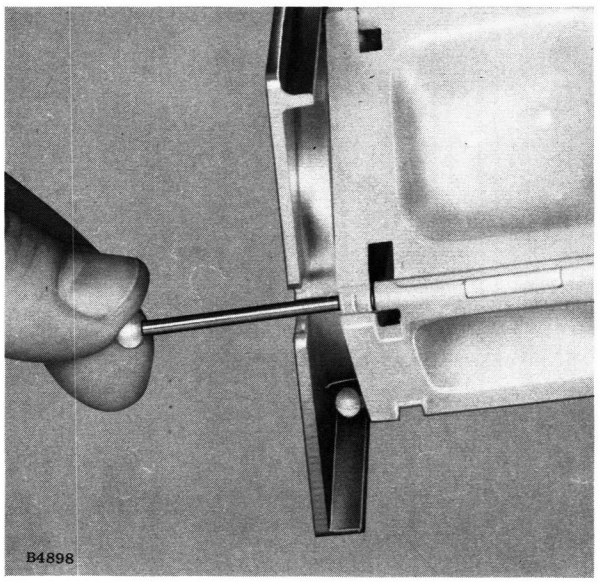


Figure 18
Link Pin—Removal

D. Link, Conveyor Belt — Removal:

1. Remove the Ice Maker Unit, Procedure C.
2. Advance the conveyor belt until the link you desire to replace is at the opposite end from the manual knob.
3. Use a small flat-bladed screwdriver and pry off the link pin bearing, Figure 17. Each bearing rides on the track and supports the conveyor belt.
4. Remove the opposite end of the link pin by pulling straight out through the slot provided in the frame, Figure 18.
5. The entire conveyor belt can be removed if you so desire by merely advancing the knob, Figure 19. If only the one link is to be removed, repeat steps 3 and 4 above and remove the next link pin.

Upon reassembly of the conveyor belt, either end will feed into the frame. Quickly align all edges of the links and the link bearings so they are spaced approximately the same from the edge of each link. One method is to place the frame on the edge of a table with the conveyor belt extending down over the edge. As the knob is rotated, the conveyor aligns in the grooves in the track. Advance the knob until the links align in the rear for reassembly in reverse order of the link pin and link pin bearing. ***Note:*** It is important that the sprockets be aligned in the proper opening of the links. See Procedure O.

E. Drive and Sensing Assembly — Removal:

The drive and Sensing Assembly is mounted to the side of the frame assembly by three screws. The two forward screws, Figure 10, can readily be removed by using a stubby screwdriver. The other, however, requires a screwdriver with at least an 8 inch shaft to reach the far side of the frame, Figure 20. The assembly is removed by pulling straight off, Figure 21.

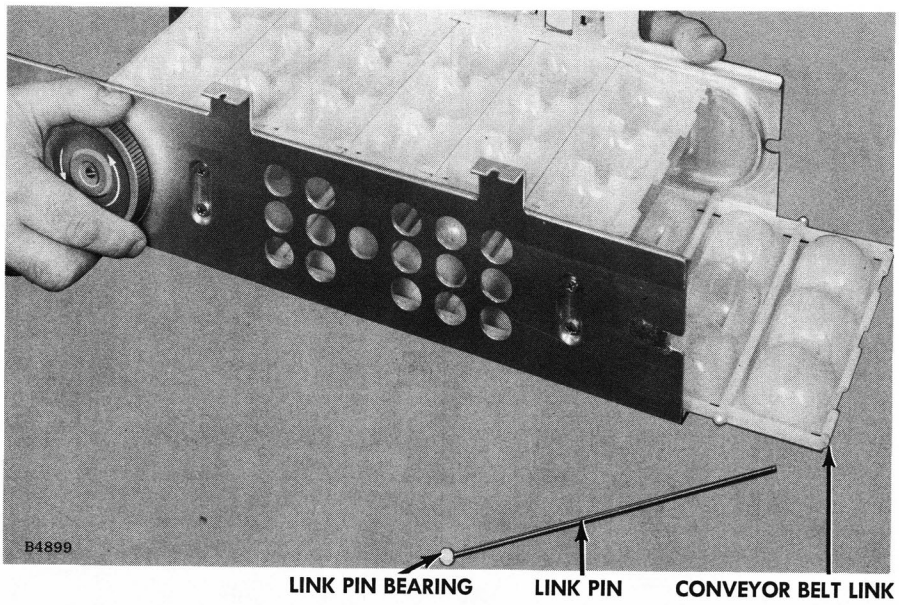


Figure 19
Conveyor Belt—Removal

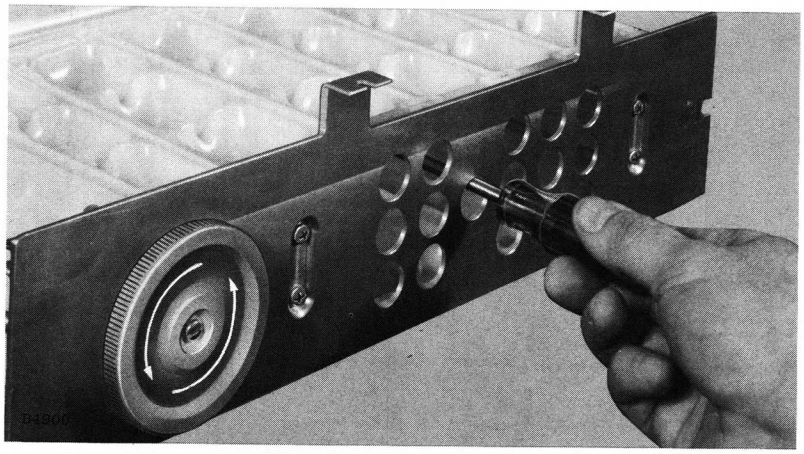


Figure 20
Drive and Sensing Assembly Mounting Screw—Method of Removal

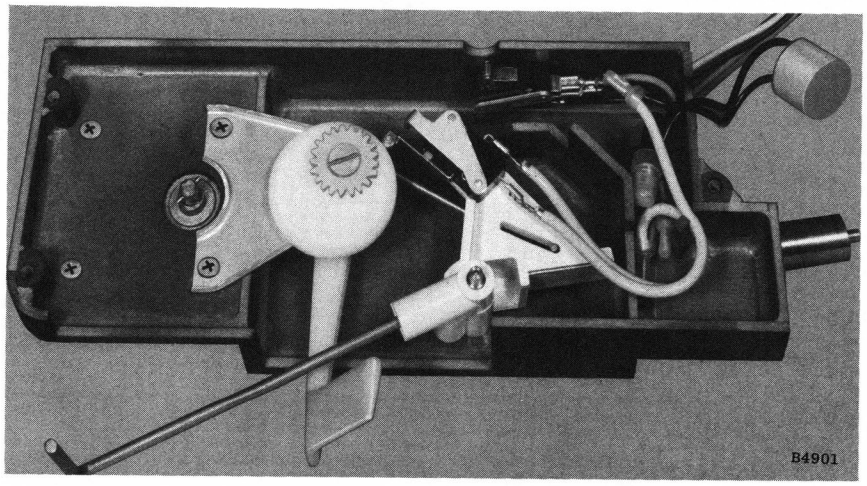


Figure 21
Drive and Sensing Assembly Removed

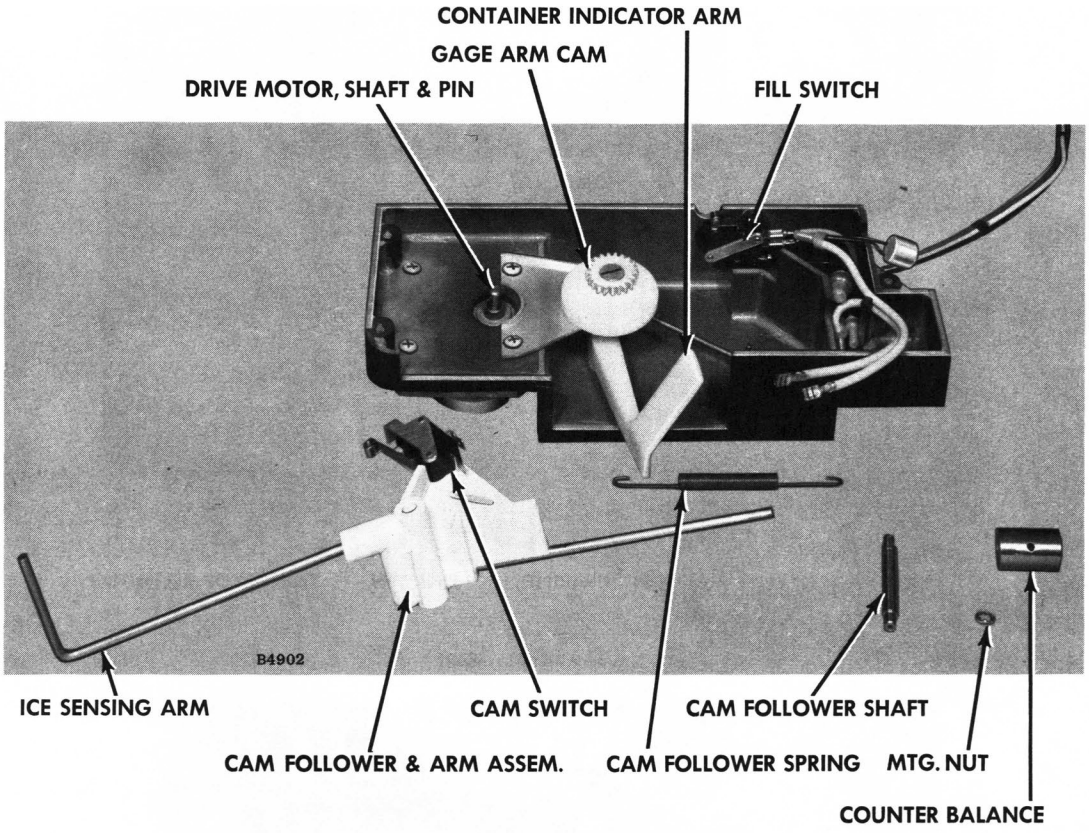


Figure 22
Drive and Sensing Assembly—Interior Parts

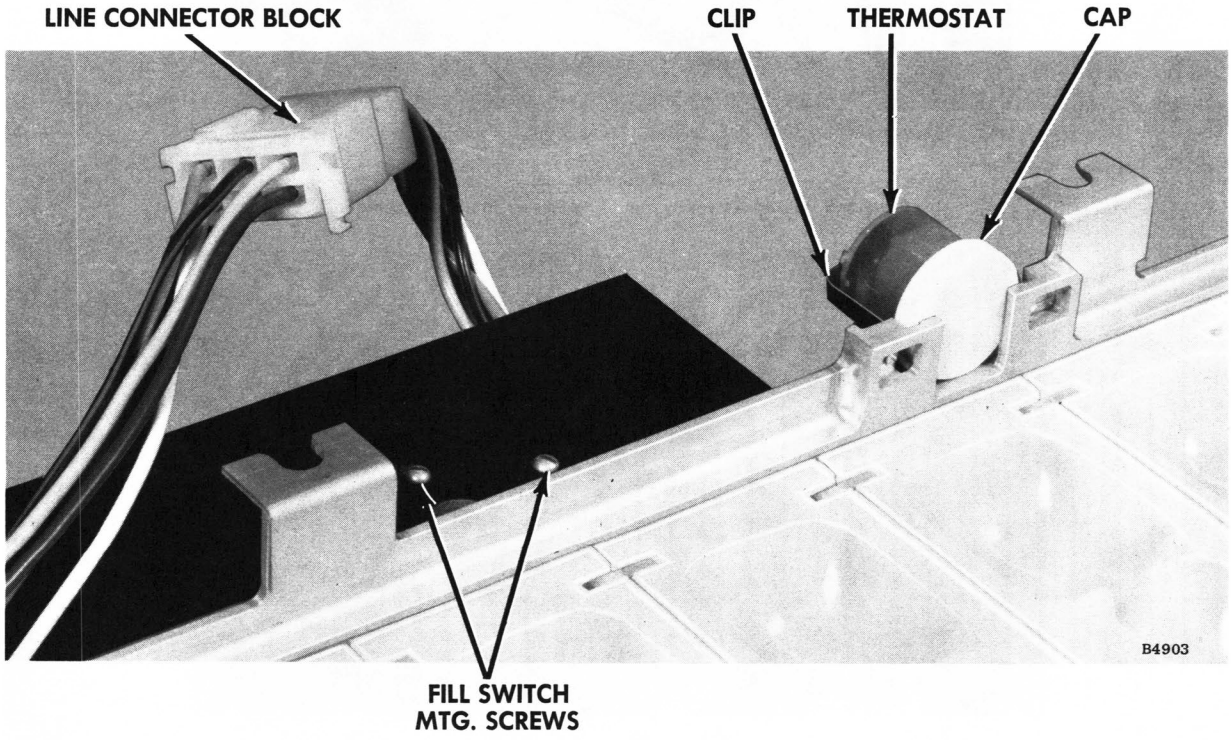


Figure 23
AIS Thermostat and Line Connector Block

Note: Upon reassembly of the Drive and Sensing Assembly:

1. Align drive motor shaft to keyway of cam drive gear, Procedure N.
2. Align all electrical leads with the Drive and Sensing Assembly.
3. Align cam follower shaft or pivot pin into frame.
4. Align fill switch into slot of frame.

From this point, complete accessibility is provided for either inspection, removal or replacement of the interior parts, Figure 22. The previous procedures A, B, C and E must be performed to reach this point. When electrical leads are cut, be sure to use new crimp or solderless connectors of appropriate size. Sometimes, removing and reconnecting one lead at a time is helpful in preventing miswired leads. Figure 39 will aid in reassembly of the parts.

F. Motor, Drive — Removal:

Remove the 4 screws and the electrical leads as necessary.

G. Thermostat, AIS — Removal:

Remove the spring clip and cap, Figure 23. Cut the electrical leads as necessary.

H. Cam, Gage Arm — Removal:

Remove the two drive motor mounting screws and remove the gage arm cam and bracket assembly.

I. Arm, Container Indicator — Removal:

Remove the gage arm cam and bracket assembly, Procedure H, and then remove the container indicator arm and pin.

J. Balance, Counter — Removal:

An Allen Wrench to fit a 6-32 Allen head screw is necessary. Loosen the screw and remove the counter balance. Upon reassembly, space the counter balance 3/16″ from end of shaft, Figure 24.

K. Cam Follower and Arm Assembly — Removal:

Disconnect the leads from the cam switch, noting which lead is to what connector. Remove the lock washer from the gage arm shaft on the opposite side of the plastic housing. Remove the counter balance from the cam follower arm, Procedure J. Unhook one end of the cam follower spring and remove the assembly.

L. Switch, Cam — Removal:

Perform Procedure J and then remove two screws which mount the cam switch to the cam follower and arm assembly.

M. Switch, Fill — Removal:

Disconnect the three electrical leads and remove the two mounting screws, Figure 25. For final adjust-

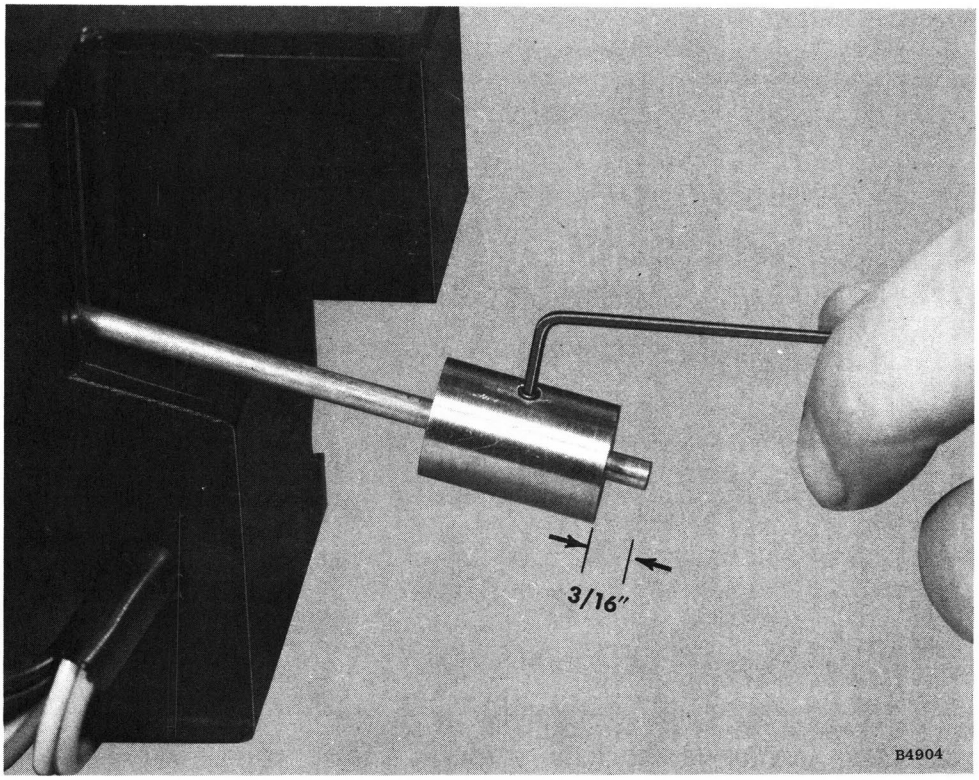


Figure 24
Counter Balance Adjustment

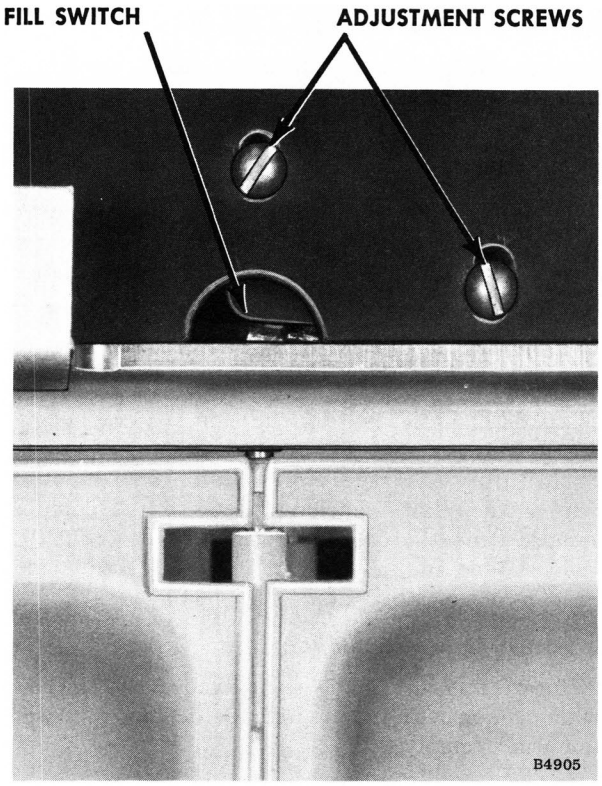


Figure 25
Fill Switch Final Adjustment

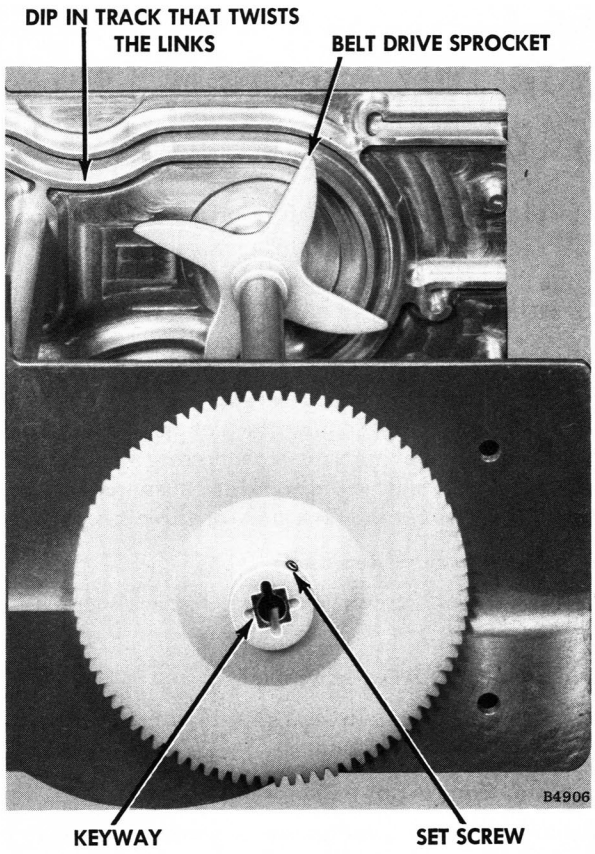


Figure 26
Cam Drive Gear and Frame Assembly

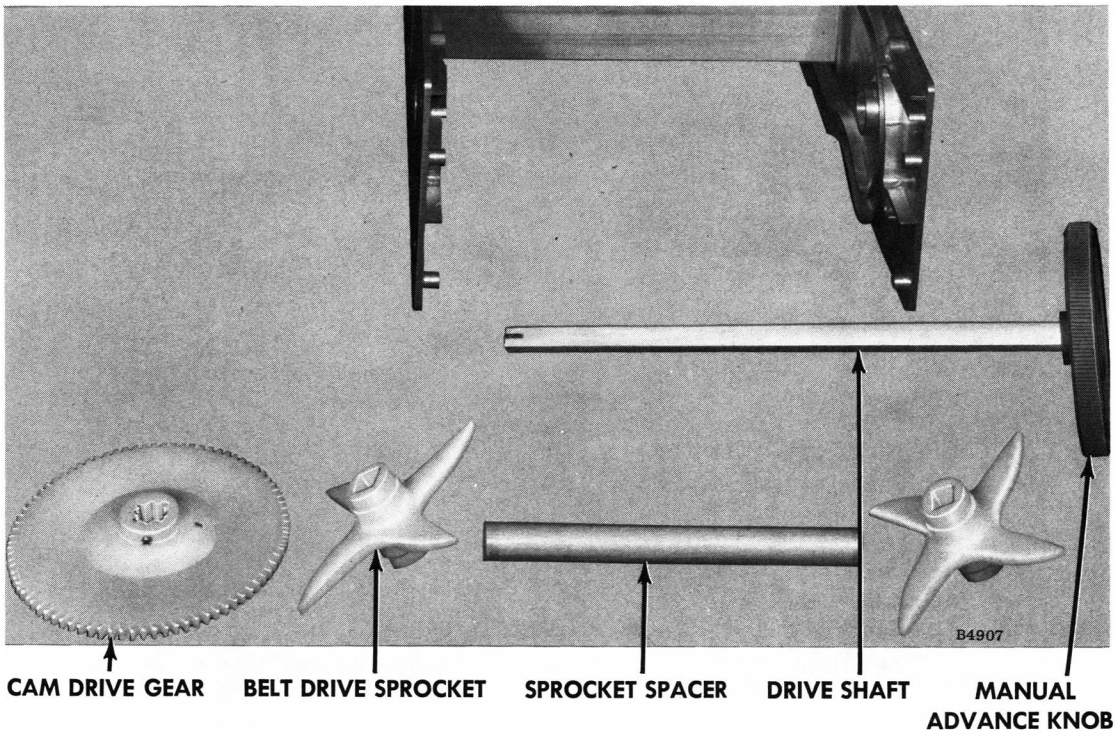


Figure 27
Belt Drive Components

ment of this switch, loosen the two screws and move the switch in or out for proper adjustment of the switch to the link pin bearing. Be sure the plastic arm is depressed each time a link pin bearing passes it. This is what actuates the switch for fill purposes.

N. Gear, Cam Drive — Removal:

Use a 6-32 Allen set screw wrench to loosen and remove the cam drive gear, Figure 26. Note the motor drive shaft must align with the keyway in the cam drive gear.

O. Sprocket, Belt Drive — Removal:

Once the cam drive gear is removed, pull the drive shaft out to remove either sprocket, sprocket spacer or drive shaft, Figure 27. Upon reassembly, you can't put the drive shaft in wrong and still mount the manual advance knob. This end of the shaft has a tapped hole to which the knob is mounted. There is no difference between the two sprockets. However, the sprockets should be mounted with the curved portion, Figure 26, towards the front. Allow approximately .010″ play in all parts upon reassembly, so the assembly turns freely.

Upon reassembly of the conveyor belt, Procedure D, the sprockets should align in the front slot of each link, Figure 28. If the sprockets are in the wrong slot, the belt won't advance.

P. Heater, Fill Nozzle — Replacement:

1. Remove the Ice Maker Unit, Procedure C.
2. Remove one screw and the access panel at the top rear of the freezer liner assembly directly behind the ice maker unit.
3. Remove the piece of fibrous glass insulation, then unwrap the blanket of insulation around the heater and template. Pull out the heater and template.
4. Cut and splice the leads.

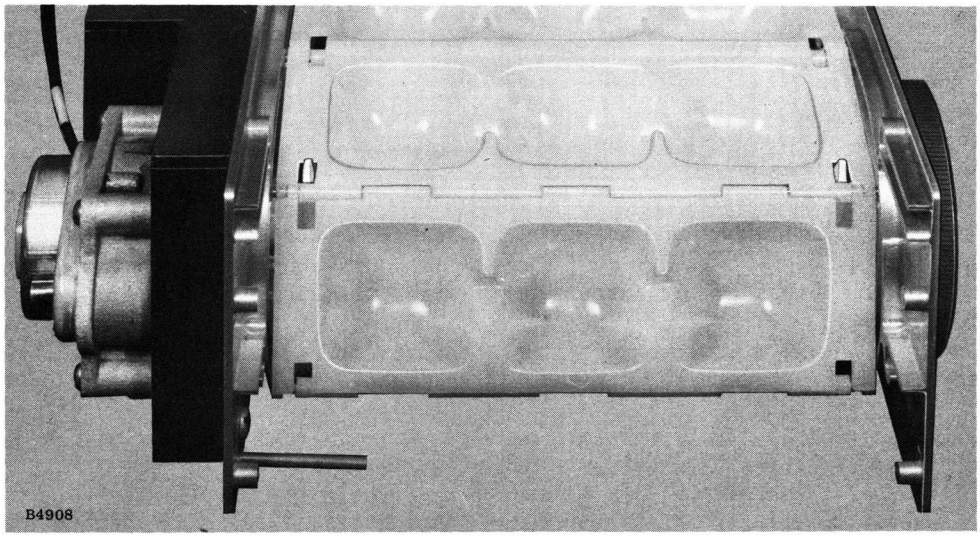


Figure 28
Proper Assembly of Sprockets in Each Link

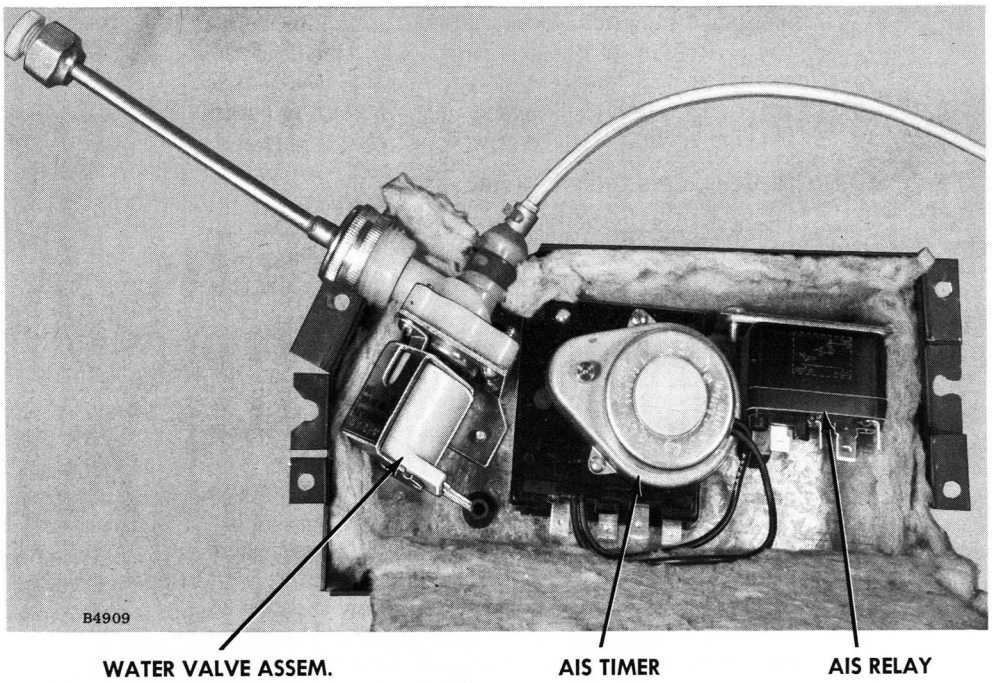


Figure 29
Control Box Assembly—Removed

Q. Box, Control — Removal:

This control box assembly, Figure 29, is located in the machine compartment, Figure 5. To gain access to this box, the cabinet must be pulled away from the rear wall.

1. Shut off the water supply to the refrigerator.
2. Remove the rear insulation and duct assembly.
3. Remove the water supply line clamp and screw.
4. Remove the two rear screws which secure this box assembly to the inner bottom of the cabinet, pull the box off it's front mounting peg, and lay the box on the floor.
5. Remove the apron and preferably, the drain disposal pan, and pull the control box assembly out the front of the cabinet. The coiled copper water line should allow you to do this. The plastic fill tube should be partially removed from the aluminum protector tube.

Once the control box assembly is removed, any of its components can be replaced easily. Push the rubber grommets through that secure the mounting plate to the control box.

The additional electrical connections required by the Automatic Ice Service components at the left and right-hand terminal board, are shown in Figures 30 and 31.

R. Valve, Water — Removal:

Remove the control box assembly, Procedure Q, and remove the rubber grommets securing the mounting plate. Remove screws as necessary. Remove the large plastic hose clamp and the threaded nut on the water valve inlet line. You can now make repairs or replacement of the water valve.

S. Timer, AIS — Removal:

Remove the control box assembly, Procedure Q, and remove the rubber grommets securing the mounting plate. Remove screws and electrical leads necessary to remove the timer. To prevent miswired leads, transfer one lead at a time from the old timer to the replacement, Figure 32.

T. Relay, AIS — Removal:

Remove the control box assembly, Procedure Q, and remove the rubber grommets securing the mounting plate. Remove screws and electrical leads as necessary to remove the relay. To prevent miswired leads, transfer one lead at a time from the old relay to the replacement, Figure 32.

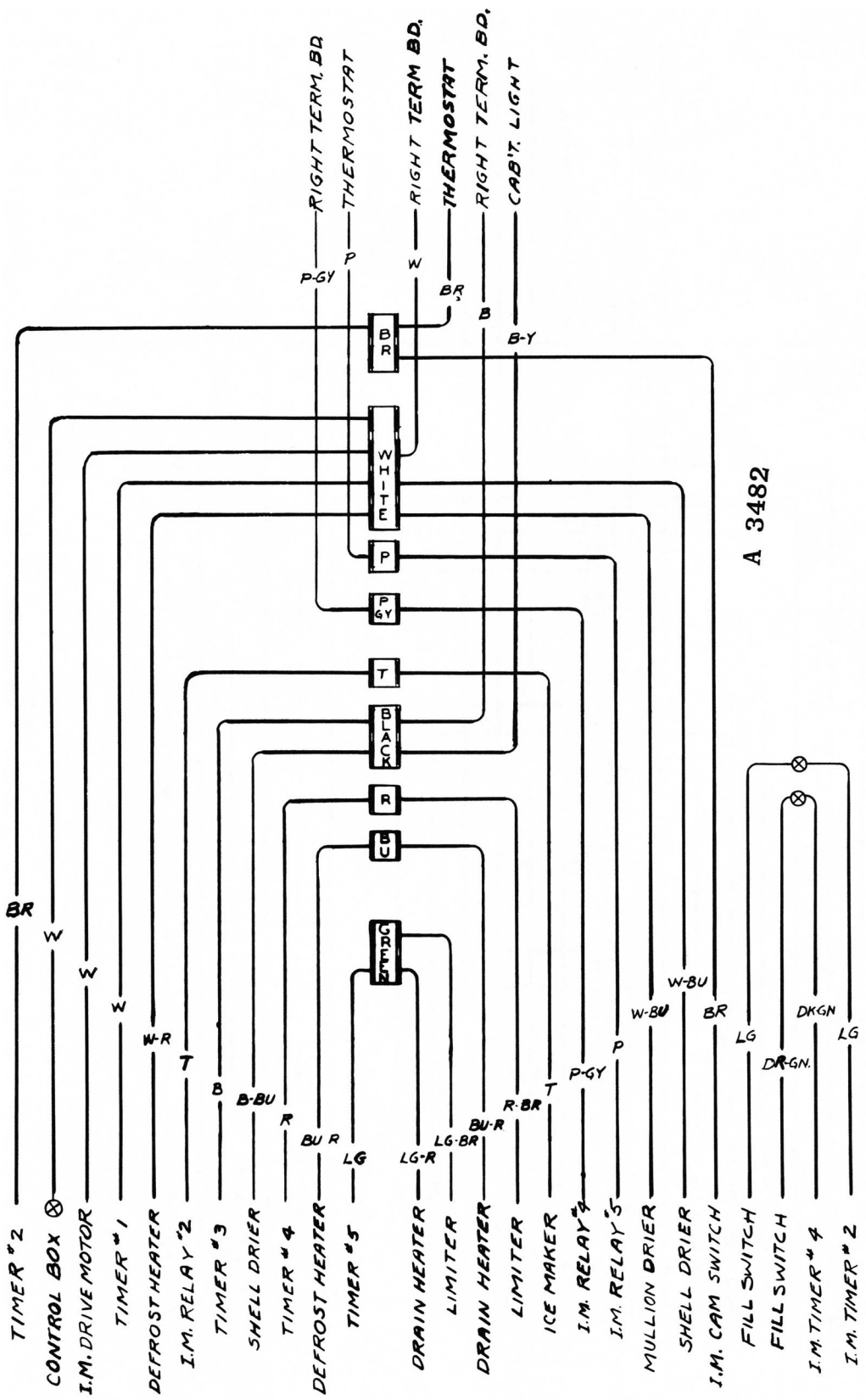


Figure 30
Left Terminal Board

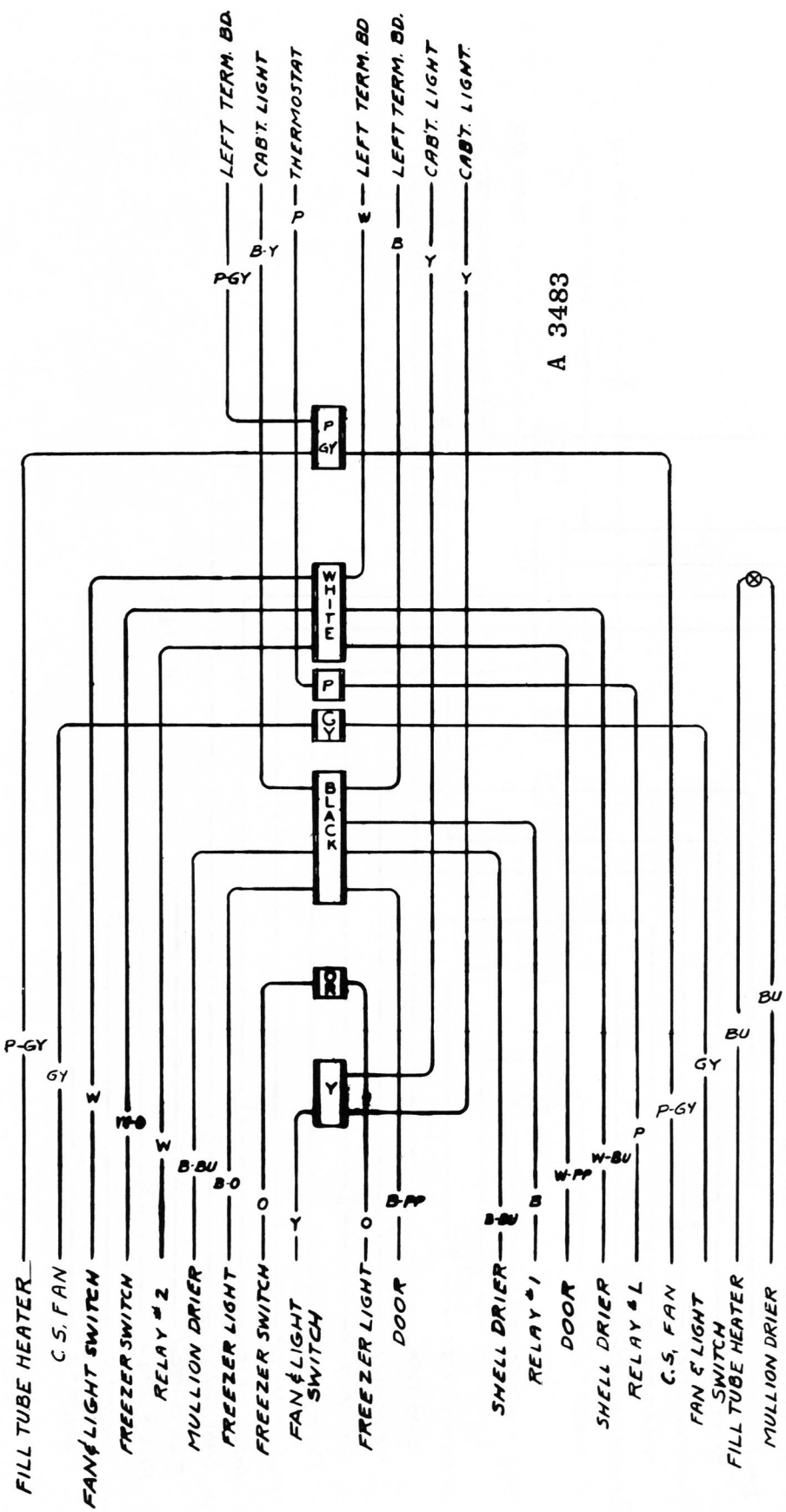


Figure 31
Right-Hand Terminal Board

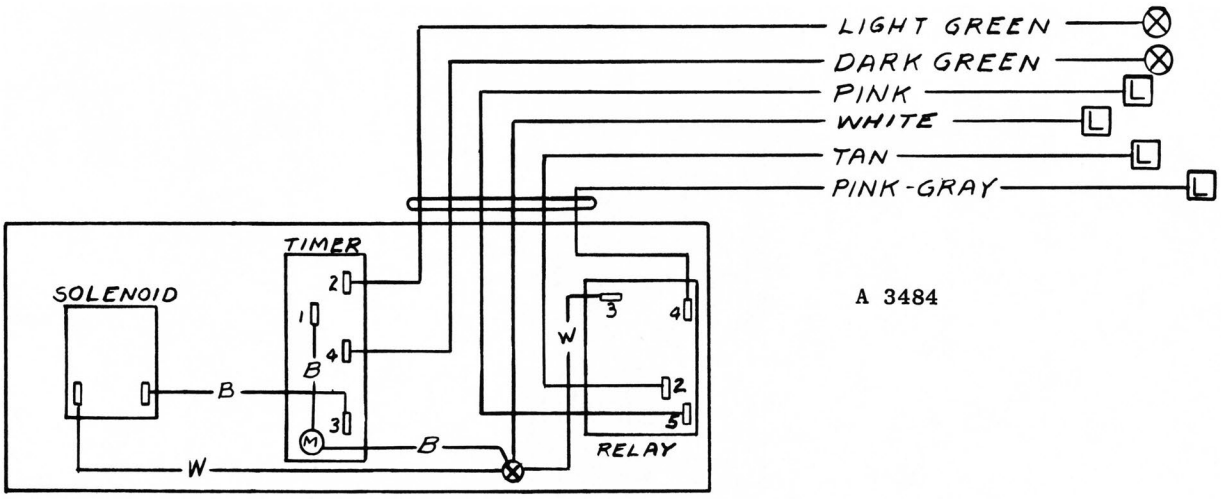


Figure 32
Wiring Diagram—Control Box

Serviceman's Self-Examination

1. The basic differences between the right-hand model and left-hand model are _____, _____, _____, and _____.
2. It is necessary to connect a cold water supply line to this product when it is installed. True _____ False_____.
3. The ice cube container has a capacity of _____ pounds of ice or _____ ice cubes.
4. When the product is delivered and plugged in, ice cube making starts immediately. True _____ False_____.
5. After the first cubes are delivered to the container, _____ ice cubes are produced every 24 minutes thereafter.
6. Two separate four second shots of water spaced approximately two minutes apart for a total of 50 cc. of water constitute the fill cycle. True _____ False_____.
7. Removing the ice cube container is a good way of stopping the complete operation of the ice cube maker. True _____ False _____.
8. The ice cubes are ejected by twisting each individual link directly over the ice cube container. True_____ False _____.
9. No ice cubes are produced during the refrigeration OFF cycle. True _____ False _____.
10. When the ice cube container is full, the_____ _____ causes the cam switch to open thus stopping the conveyor.

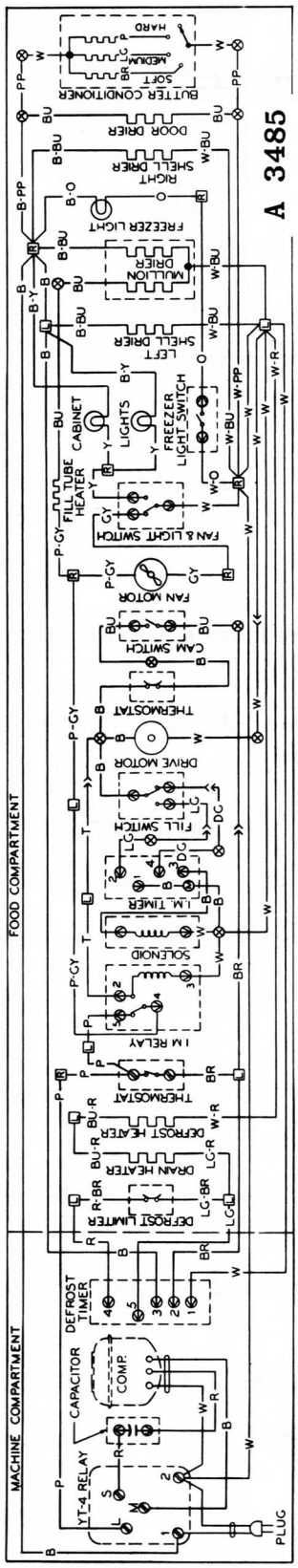


Figure 33
Wiring Diagram—FPI-16BAJ

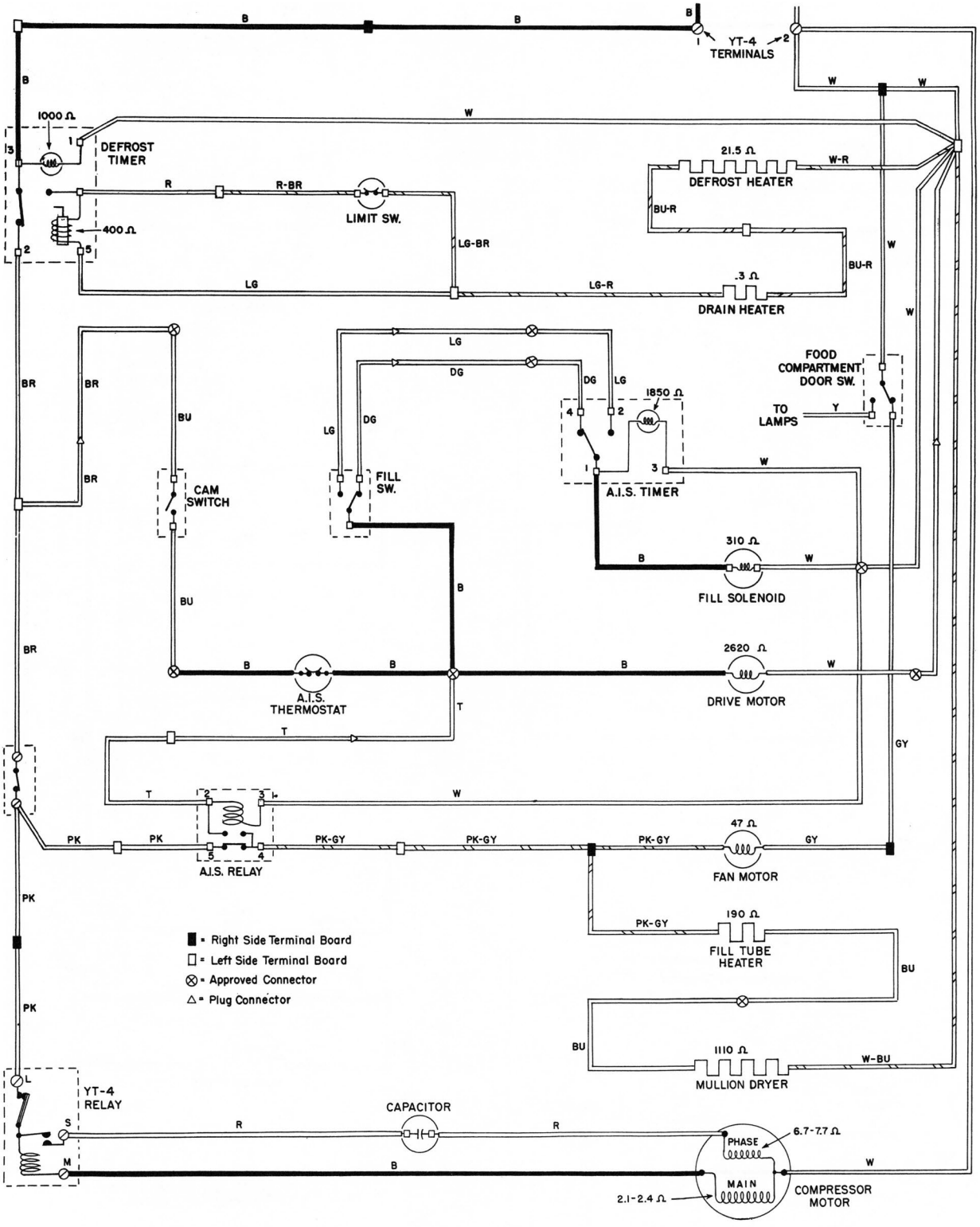


Figure 34
Electrical Circuit Diagram

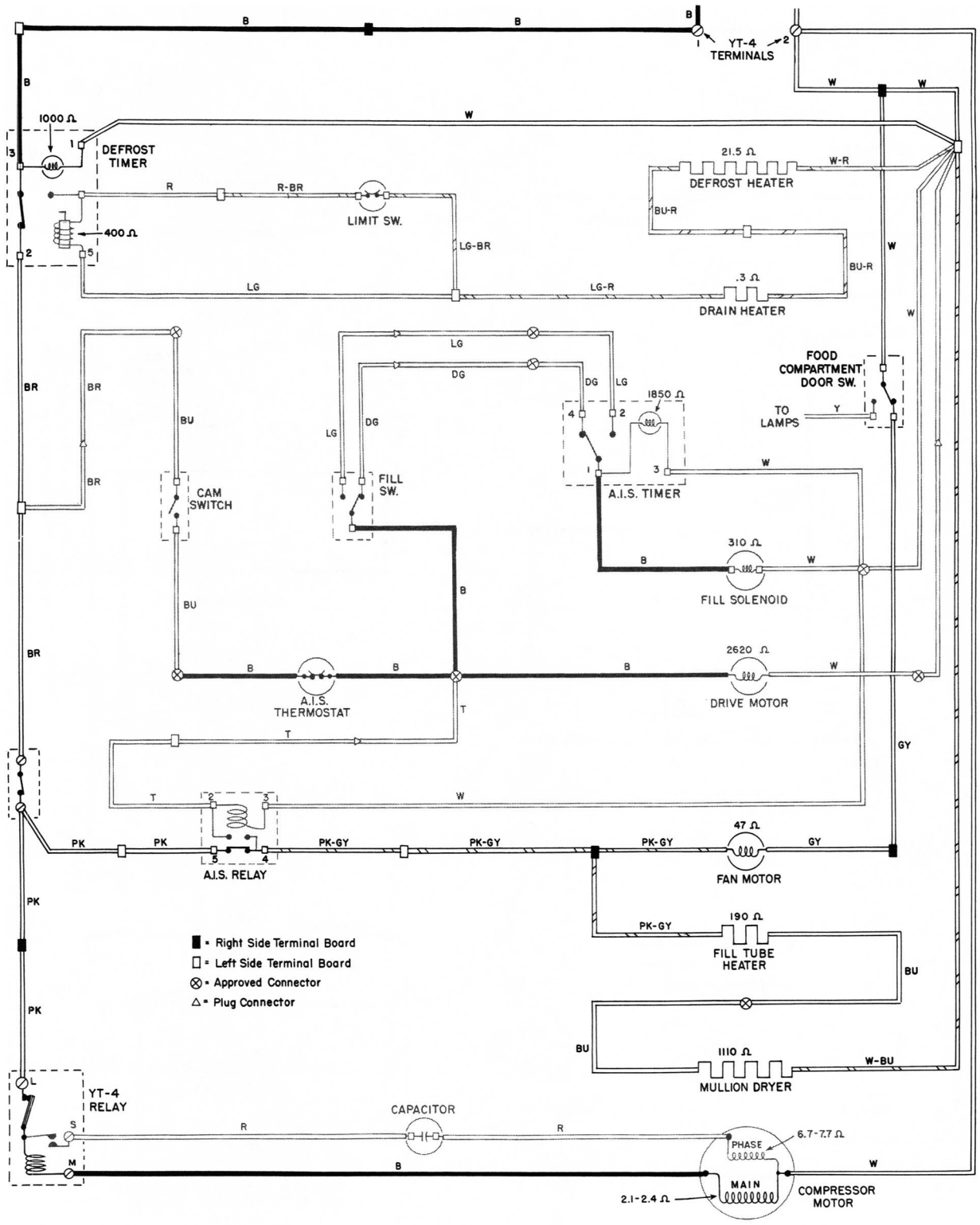


Figure 35
Electrical Circuit Diagnosis Cooling Circuit—Ice Container Full

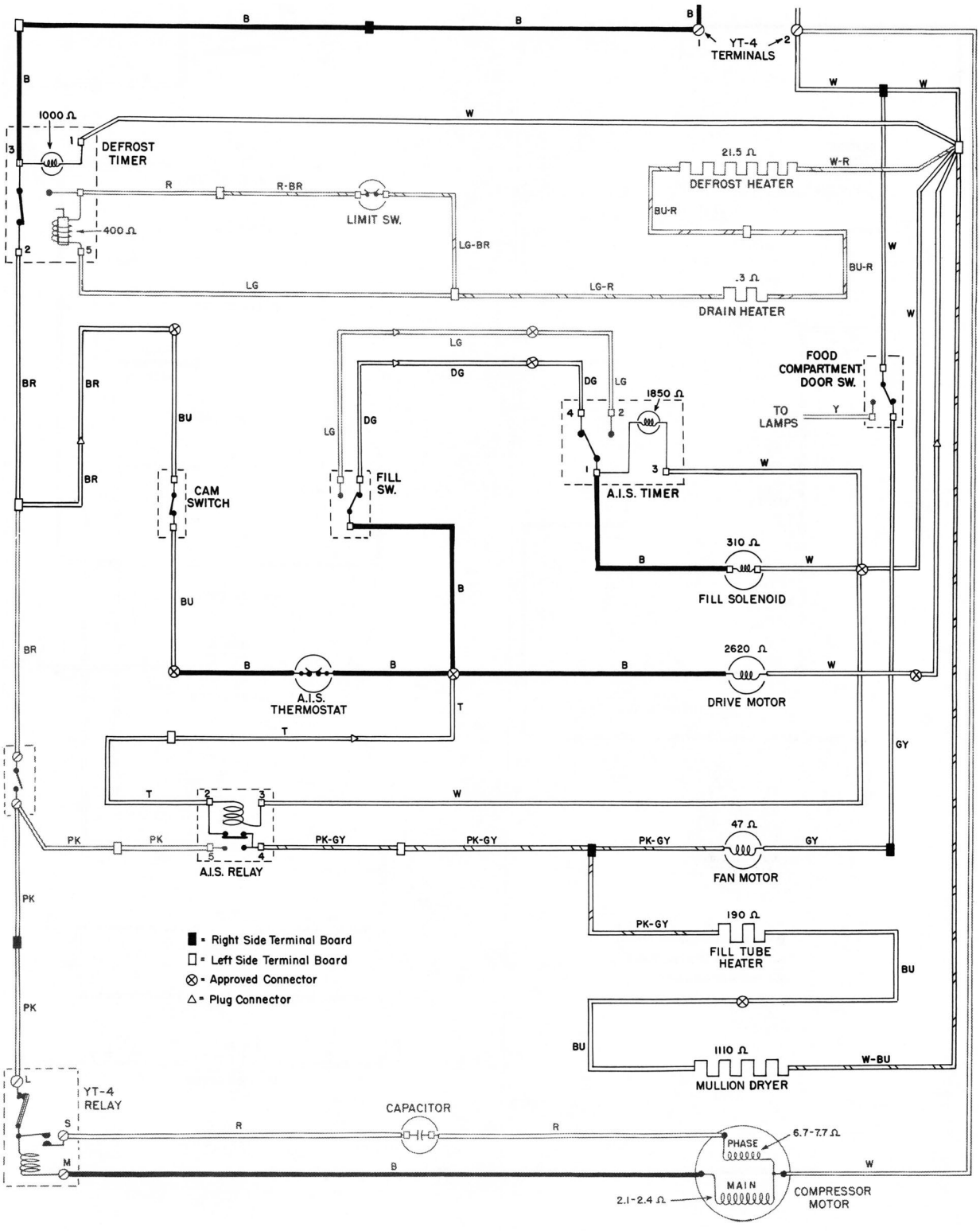


Figure 36
Electrical Circuit Diagnosis—Off Cycle Ice Making—Water Fill Circuit

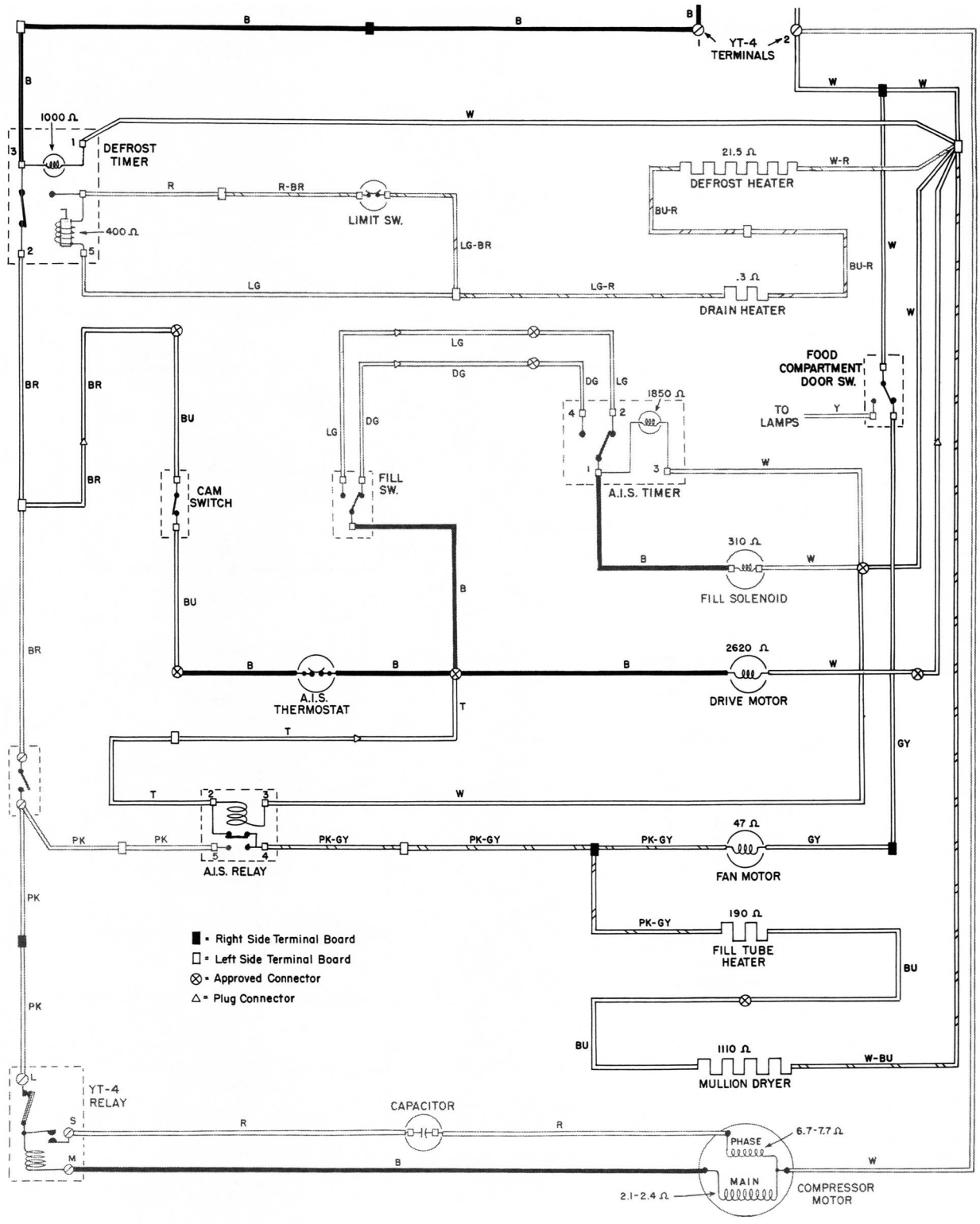


Figure 37
Electrical Circuit Diagnosis—Off Cycle Ice Making Circuit

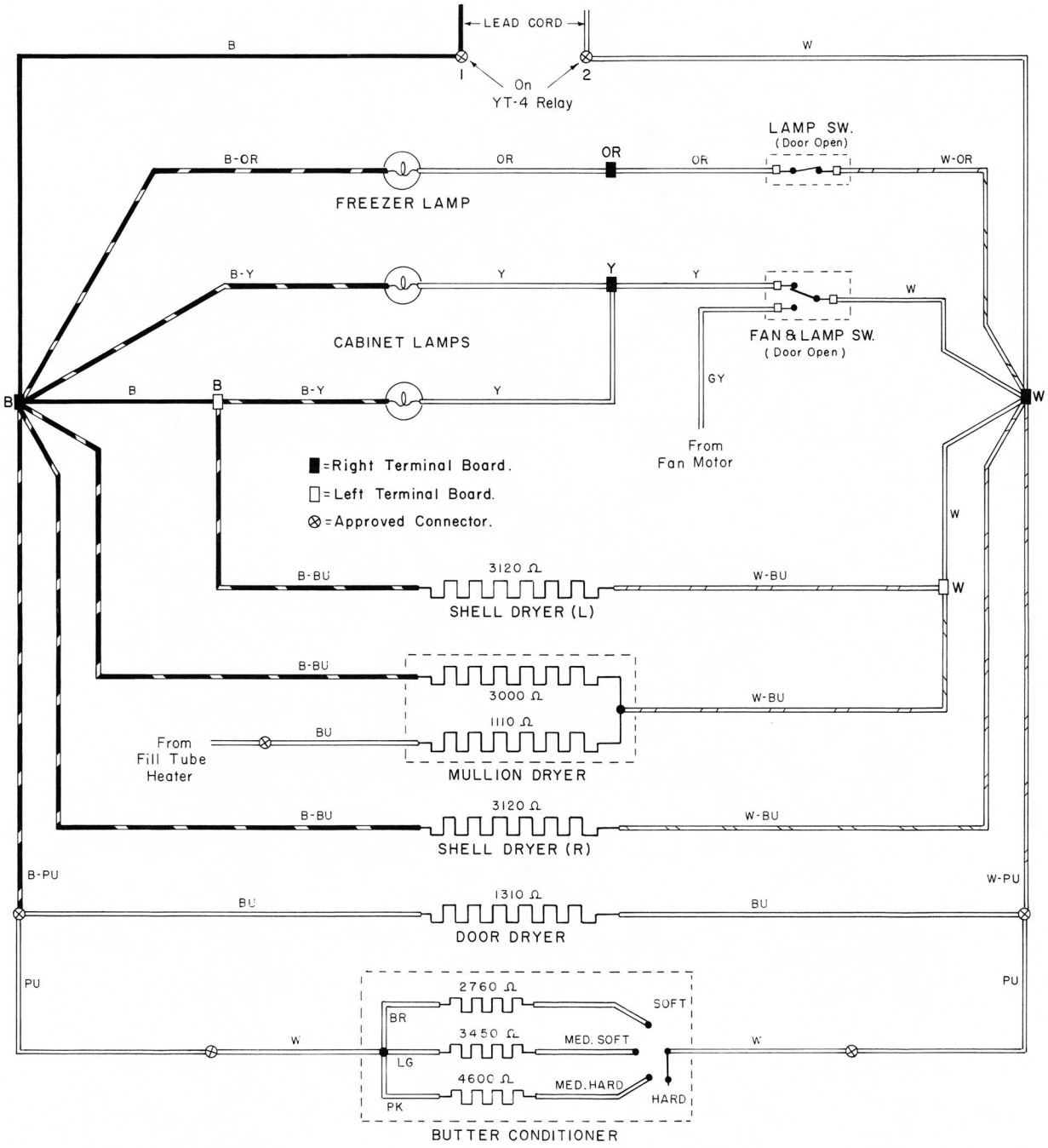


Figure 38
Electrical Circuit Diagnosis—Condensate Driers and Butter Conditioner

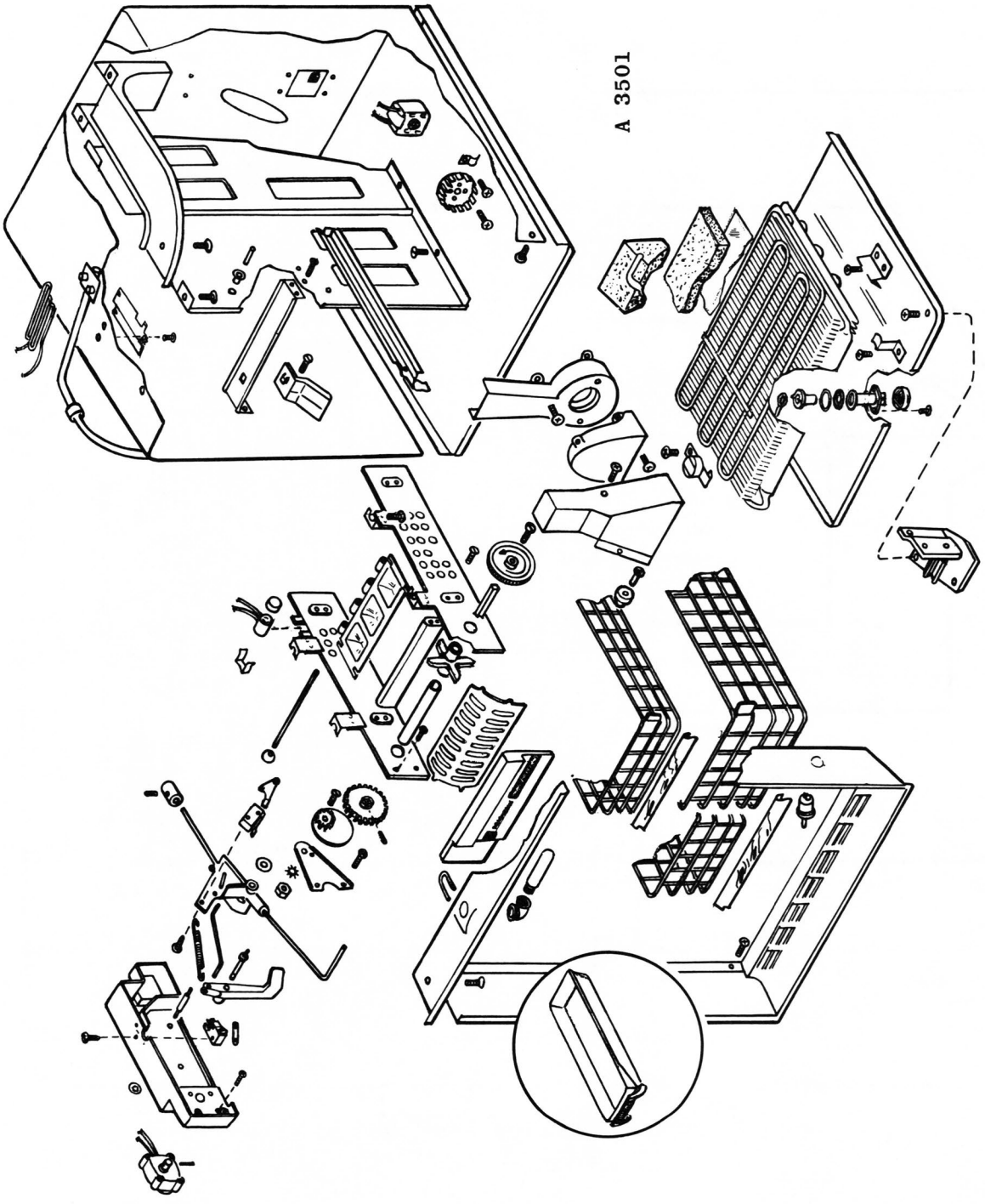


Figure 39
Exploded View—Freezer Compartment

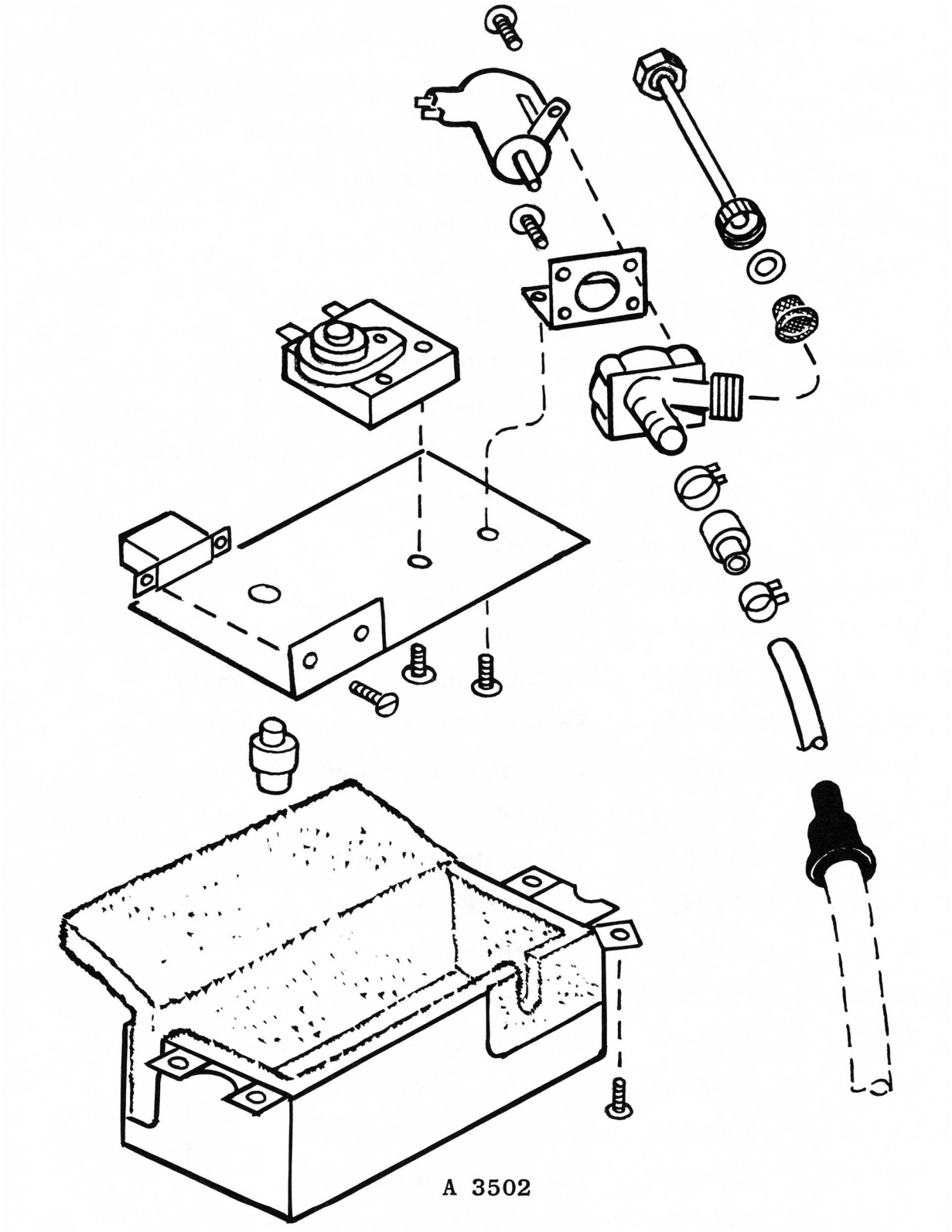


Figure 40
Exploded View—Control Box

Functional Parts for FPI-16 BAJ

2.080	7544443	Element, Heater—Fill tube
3.035	5891100	Capacitor, starting 189-0+20% MFD, 110V
3.188	5876838	Relay, starting and overload
3.1881	7543232	Relay—Ice Maker
3.249	7543234	Timer—Ice Maker
3.277	7543233	Valve—Water
7.157	6597118	Panel, Inside—Food door
7.203	7512519	Seal, door—Food Compartment
12,482	6580915	Switch—Temperature control
12.510	5901188	Control, Air Flow—Food Compartment
13.044	5901839	Compressor
13.082	6580715	Evaporator
13.089	6580316	Drier—Filter
13.402	6580714	Condenser
14.241	7512281	Switch, lamp—Food Compartment
14.241	7543146	Switch, lamp—Freezer Compartment
19.080	7517924	Element, heater—drain tube
19,0801	7516452	Element, heater—defrost
19.240	6595363	Switch, defrost—limit
19.249	7512407	Timer—defrost
20.143	7516457	Motor—Blower
22.203	7512520	Seal, door—Freezer Compartment
24.011	7548477	Bearing—Ice Maker link pin
24.050	7548489	Container—Ice
24.143	7543229	Motor, drive—Ice Maker
24.242	7544247	Thermostat—Ice Maker
24.348	7548476	Link—Ice Maker conveyor
24.366	7543254	Arm and Cam Follower—Ice Maker
24.396	7543249	Switch, Cam Follower—Ice Maker
24.3961	7543248	Switch, Fill—Ice Maker