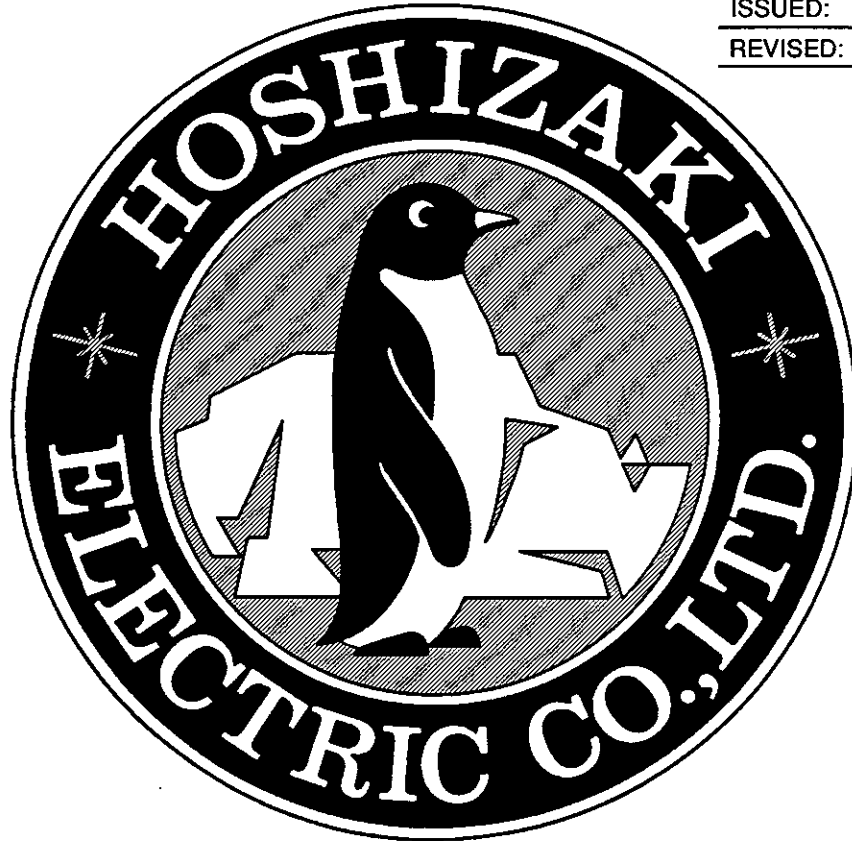

NO. U2GK-179

ISSUED: MAR. 28, 1990

REVISED: JUN. 3, 1992



**HOSHIZAKI
CUBELET ICE DISPENSER**

**MODEL DCM-450
 DCM-700**

SERVICE MANUAL

FOREWORD

This Service Manual contains the specifications and information in regard to transporting, unpacking, installing, operating and servicing the machine. You are encouraged to read it thoroughly in order to obtain maximum performance. You will find details on the construction, installation and maintenance.

If you encounter any problem not covered in this Service Manual, feel free to contact Hoshizaki America, Inc. We will be happy to provide whatever assistance is necessary.

Keep this Service Manual handy, and read it again when questions arise.

HOSHIZAKI AMERICA, INC.

618 HIGHWAY 74 SOUTH, PEACHTREE CITY,
GEORGIA 30269 U.S.A.
PHONE: 404-487-2331

HOSHIZAKI ELECTRIC CO., LTD.

TOYOAKE, AICHI, JAPAN
PHONE: 0562-97-2111
TELEX-NO: 04486-514 HOSHI J

CONTENTS

PAGE

I. SPECIFICATIONS.....	1
1. NAMEPLATE RATING	1
[a] SAMPLE NAMEPLATE	1
[b] NAMEPLATE SPECIFICATIONS	2
2. DIMENSIONS/CONNECTIONS	3
[a] DCM-450BAA.....	3
[b] DCM-450BWA.....	4
[c] DCM-700BAA	5
[d] DCM-700BWA.....	6
[e] DCM-450BAB.....	7
[f] DCM-450BWB.....	8
[g] DCM-700BAB.....	9
[h] DCM-700BWB.....	10
3. SPECIFICATIONS	11
[a] DCM-450BAA.....	11
[b] DCM-450BWA.....	12
[c] DCM-700BAA	13
[d] DCM-700BWA.....	14
[e] DCM-450BAB.....	15
[f] DCM-450BWB.....	16
[g] DCM-700BAB.....	17
[h] DCM-700BWB.....	18
II. GENERAL INFORMATION	19
1. CONSTRUCTION	19
2. OPERATION - How it works.....	21
3. TIMER BOARD	22
[a] SOLID-STATE CONTROL	22
[b] TIMER BOARD	22
[c] SEQUENCE	25
III. INSTALLATION AND OPERATING INSTRUCTIONS	27
1. CHECKS BEFORE INSTALLATION	27
2. HOW TO REMOVE PANELS	28
[a] DCM-450BAA, DCM-450BWA DCM-700BAA, DCM-700BWA	28
[b] DCM-450BAB, DCM-450BWB DCM-700BAB, DCM-700BWB	28
3. LOCATION	29
4. SET UP	29
5. CABINET STAND.....	30
6. ELECTRICAL CONNECTION	33
7. WATER SUPPLY AND DRAIN CONNECTIONS	34
8. FINAL CHECK LIST	36




9. START UP	37
10. CONTROLS AND ADJUSTMENT	39
11. PREPARING THE ICE DISPENSER FOR LONG STORAGE	40
IV. MAINTENANCE AND CLEANING INSTRUCTIONS	42
1. CLEANING INSTRUCTIONS	42
[a] WATER SYSTEM	42
[b] STORAGE BIN	43
[c] WATER VALVE	46
[d] STRAINER (Optional Extra)	47
2. MAINTENANCE	49
V. TECHNICAL INFORMATION	51
1. WATER CIRCUIT AND REFRIGERANT CIRCUIT	51
[a] DCM-450BAA, DCM-700BAA DCM-450BAB, DCM-700BAB (Air-cooled)	51
[b] DCM-450BWA, DCM-700BWA DCM-450BWB, DCM-700BWB (Water-cooled)	52
2. WIRING DIAGRAM	53
[a] DCM-450BAA	53
[b] DCM-450BWA	54
[c] DCM-700BAA	55
[d] DCM-700BWA	56
[e] DCM-450BAB, DCM-450BWB	57
[g] DCM-700BAB, DCM-700BWB	58
3. TIMING CHART	59
4. PERFORMANCE DATA	60
[a] DCM-450BAA, DCM-450BAB	60
[b] DCM-450BWA, DCM-450BWB	61
[c] DCM-700BAA, DCM-700BAB	62
[d] DCM-700BWA, DCM-700BWB	63
VI. ADJUSTMENT	64
1. CONSTANT PRESSURE EXPANSION VALVE	64
[a] HOW TO ADJUST	64
[b] SUCTION TEMPERATURE	64
[c] SUCTION PRESSURE	65
2. WATER REGULATING VALVE - WATER-COOLED MODEL ONLY	66
VII. SERVICE DIAGNOSIS	67
VIII. REMOVAL AND REPLACEMENT OF COMPONENTS	72
1. REFRIGERATION CIRCUIT	72
[a] REFRIGERANT RECOVERY	72
[b] EVACUATION AND RECHARGE	72
[c] BRAZING	73
[d] COMPRESSOR	73

[e] DRIER	75
[f] CONSTANT PRESSURE EXPANSION VALVE	76
[g] EVAPORATOR	77
[h] PRESSURE SWITCH	79
[i] WATER REGULATING VALVE	80
2. ICE MAKING MECHANISM AND WATER SYSTEM	81
[a] GEAR MOTOR AND BEARING-LOWER	81
[b] EXTRUDING HEAD	83
[c] AUGER	84
[d] MECHANICAL SEAL	85
[e] WATER VALVE	86
[f] FLOAT SWITCH	87
3. ELECTRICAL SYSTEM	88
[a] BIN CONTROL (PROXIMITY SWITCH)	88
[b] STARTER	88
[c] ELECTRICAL COMPONENTS	89
4. DISPENSING SYSTEM	90
[a] AGITATOR	90
[b] AGITATOR GEAR MOTOR	90
[c] DISPENSING AUGER	90

I. SPECIFICATIONS

1. NAMEPLATE RATING

[a] SAMPLE NAMEPLATE

HOSHIZAKI ICE MAKER			
MODEL NUMBER	DCM-		
SERIAL NUMBER			
AC SUPPLY VOLTAGE	/ /		
COMPRESSOR	V	RLA	LRA
GEAR MOTOR	V	FLA	HP
FAN MOTOR	V	FLA	W
AGITATING MOTOR	V	FLA	W
DISPENSING MOTOR	V	FLA	W
OTHERS	V	A	
MAXIMUM FUSE SIZE			AMPS
HACR TYPE BREAKER SIZE			AMPS
MINIMUM CIRCUIT AMPACITY			AMPS
DESIGN PRESSURE	HI-	PSI LO-	PSI
REFRIGERANT 12			Oz
MOTOR-COMPRESSOR THERMALLY PROTECTED			
 HOSHIZAKI ELECTRIC CO., LTD. Toyoake, Aichi, Japan			
 UL LISTED ICE MAKER 946Z			
 NSF			

See the Nameplate for electrical and refrigeration specifications. This Nameplate is located on the upper part of the Left Side Panel.

We reserve the right to make changes in specifications and design without prior notice.

[b] NAMEPLATE SPECIFICATIONS

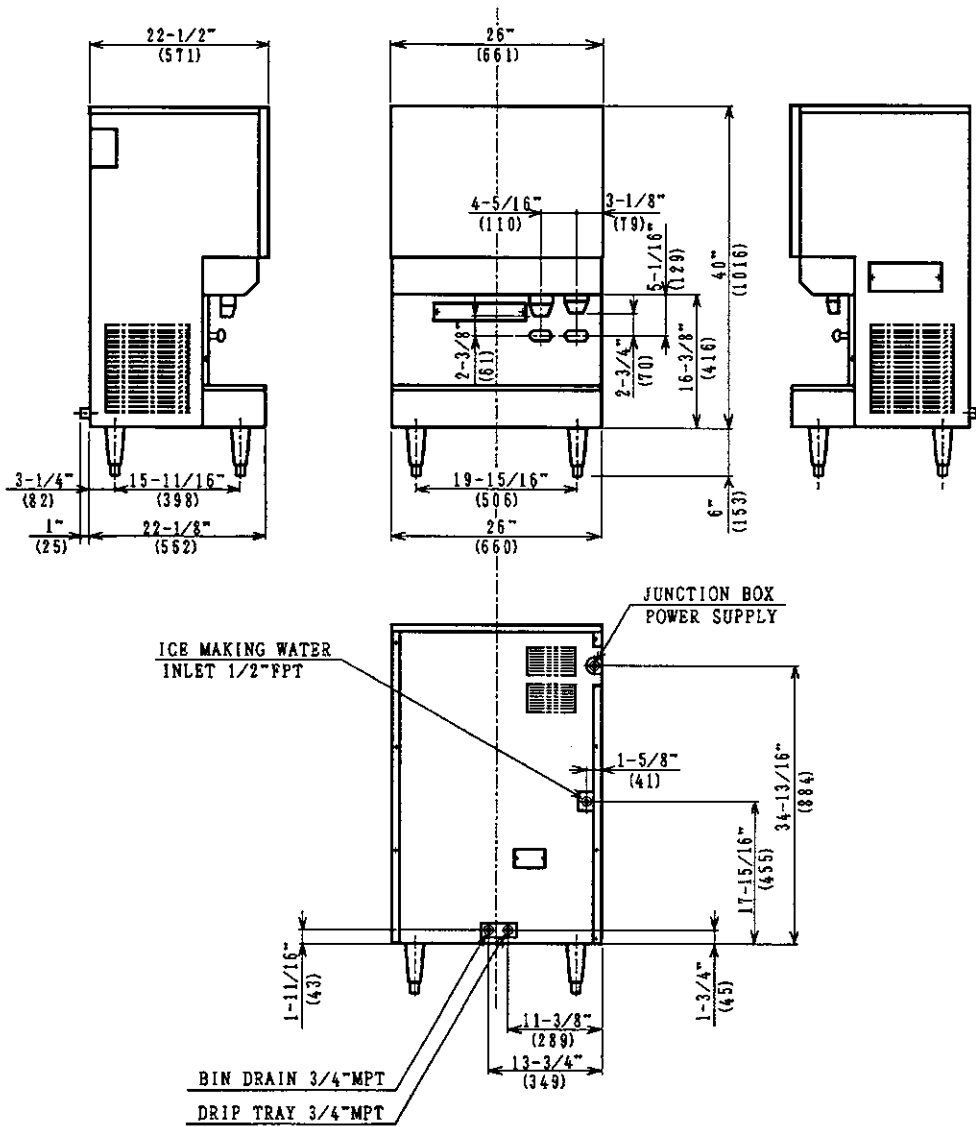
See the table below for the Nameplate specifications which are not included in "3. SPECIFICATIONS."

MODEL	COMPRESSOR	GEAR MOTOR	FAN MOTOR	AGITATING MOTOR	DISPENSING MOTOR	OTHERS
DCM-450BAB	120V 6.8RLA 55LRA	120V 1.6FLA 1/8HP	120V 0.6FLA 30W	120V 0.9FLA 55W	120V 0.9FLA 55W	120V 0.2A
DCM-450BWB	120V 6.3RLA 55LRA	120V 1.6FLA 1/8HP	————	120V 0.9FLA 55W	120V 0.9FLA 55W	120V 0.2A
DCM-700BAB	120V 8.8RLA 60LRA	120V 3FLA 1/4HP	120V 1FLA 30W	120V 1.8FLA (Total) 110W (Total)	120V 0.9FLA 55W	120V 0.6A
DCM-700BWB	120V 8.4RLA 60LRA	120V 3FLA 1/4HP	————	120V 1.8FLA (Total) 110W (Total)	120V 0.9FLA 55W	120V 0.6A

2. DIMENSIONS/CONNECTIONS

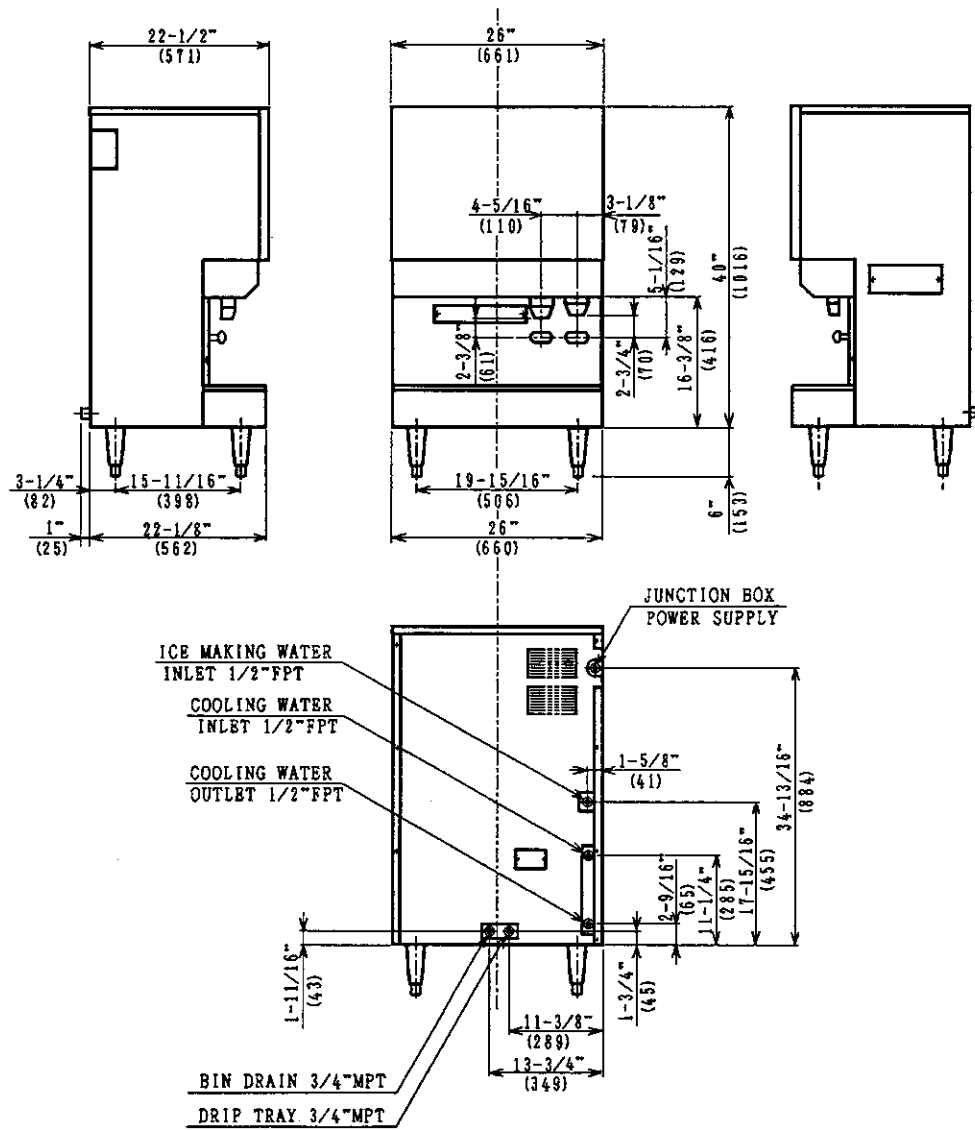
[a] DCM-450BAA

Unit: inch (mm)



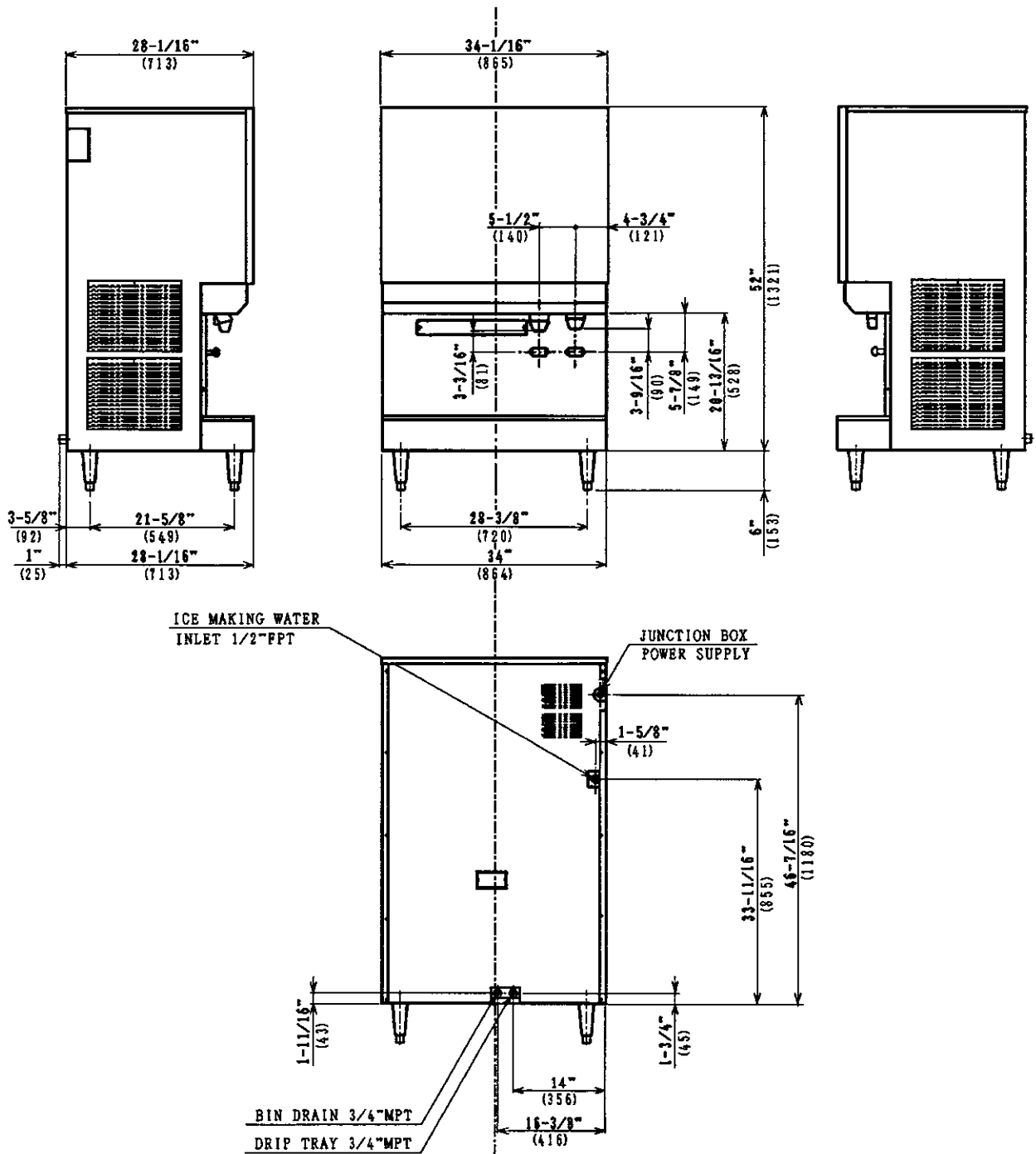
[b] DCM-450BWA

Unit: inch (mm)



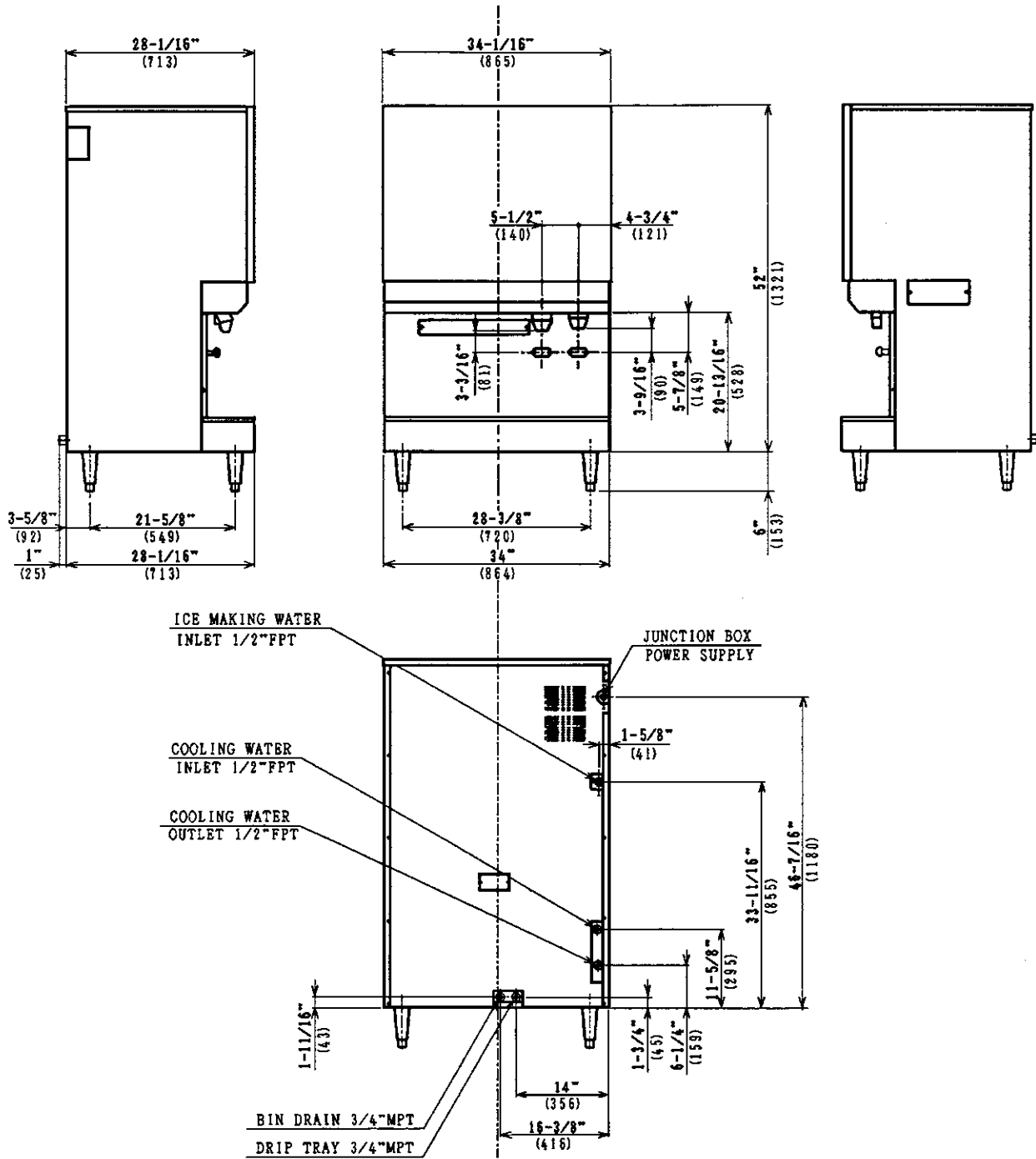
[c] DCM-700BAA

Unit: inch (mm)



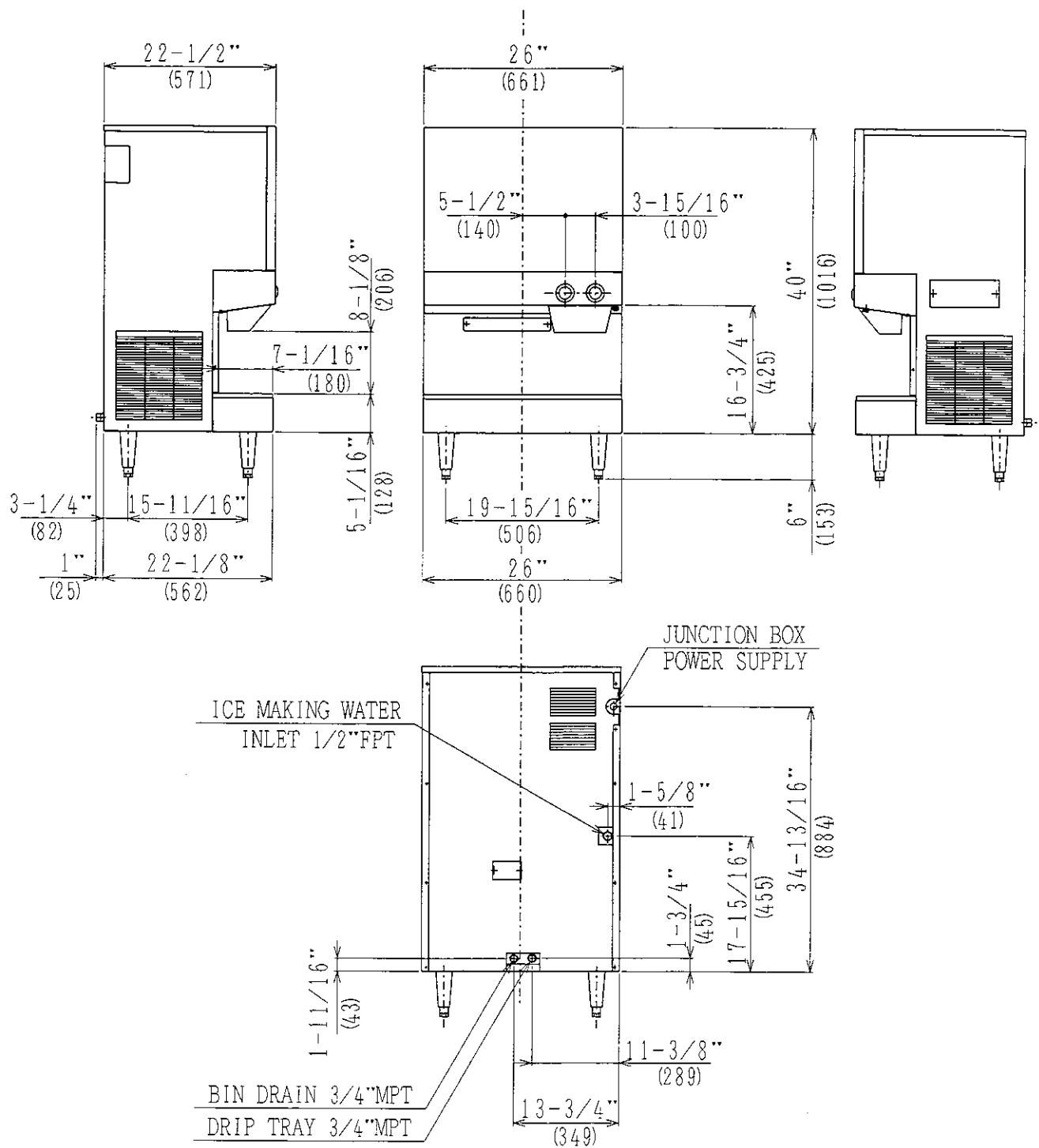
[d] DCM-700BWA

Unit: inch (mm)



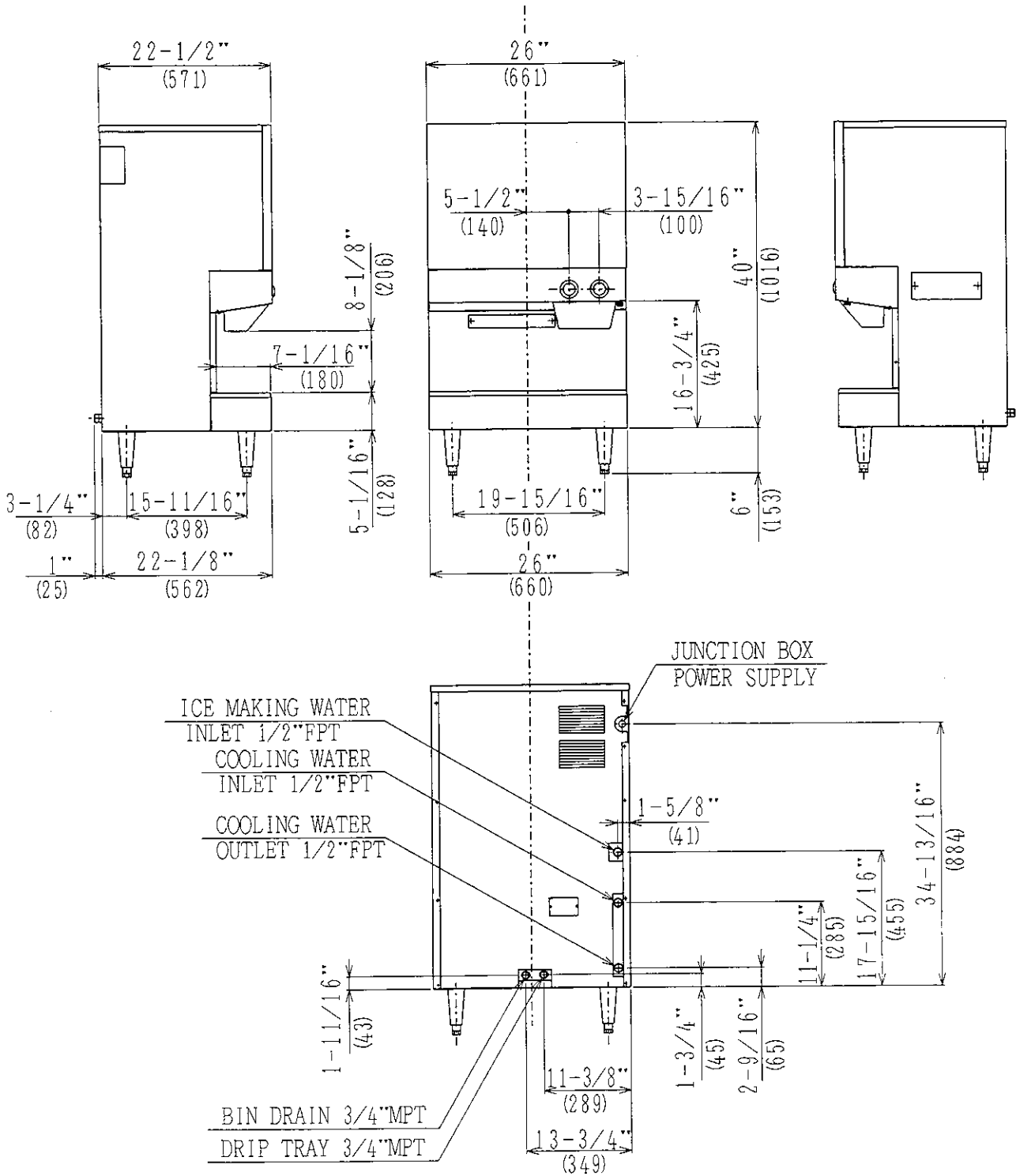
[e] DCM-450BAB

Unit: inch (mm)



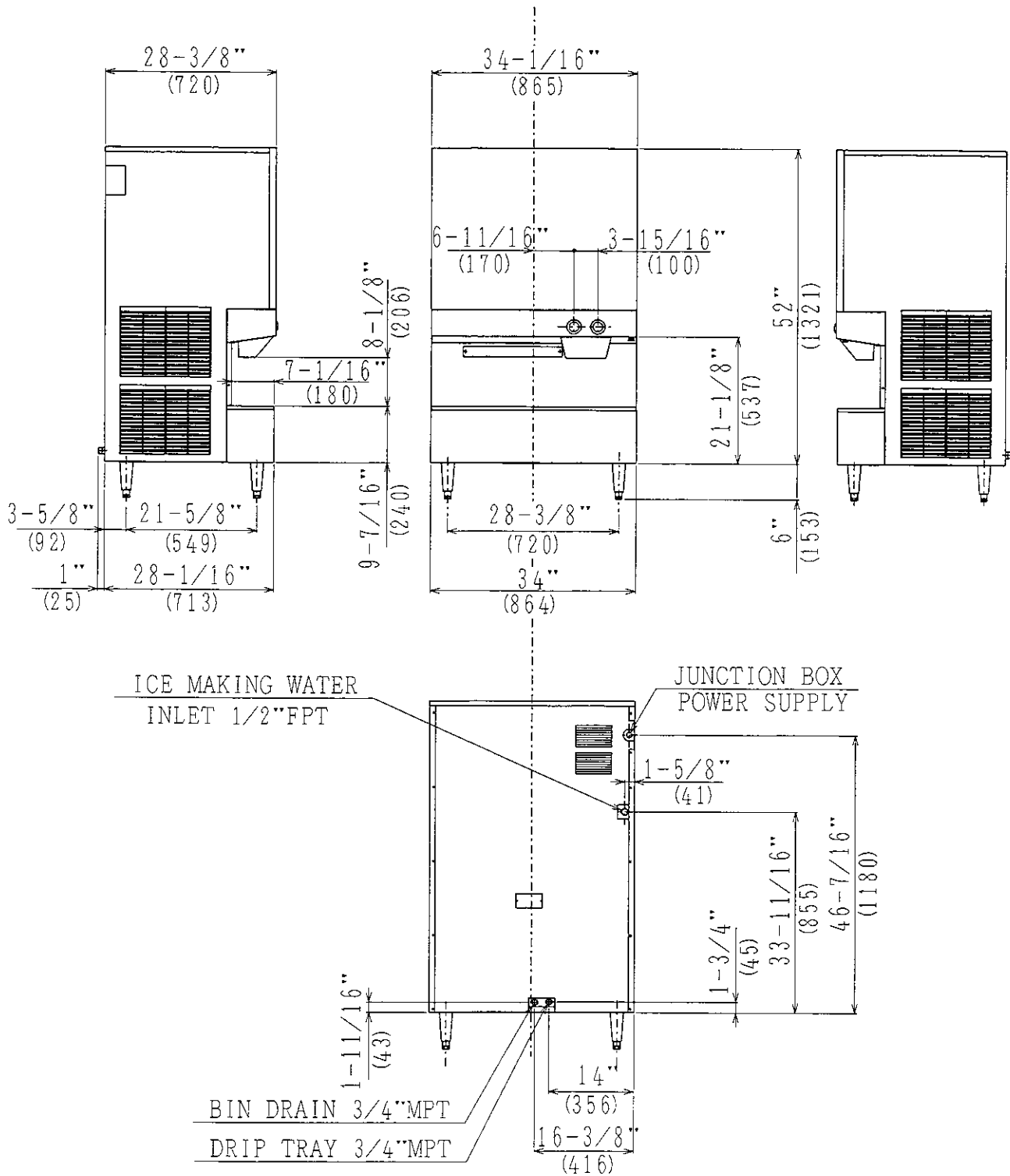
[f] DCM-450BWB

Unit: inch (mm)



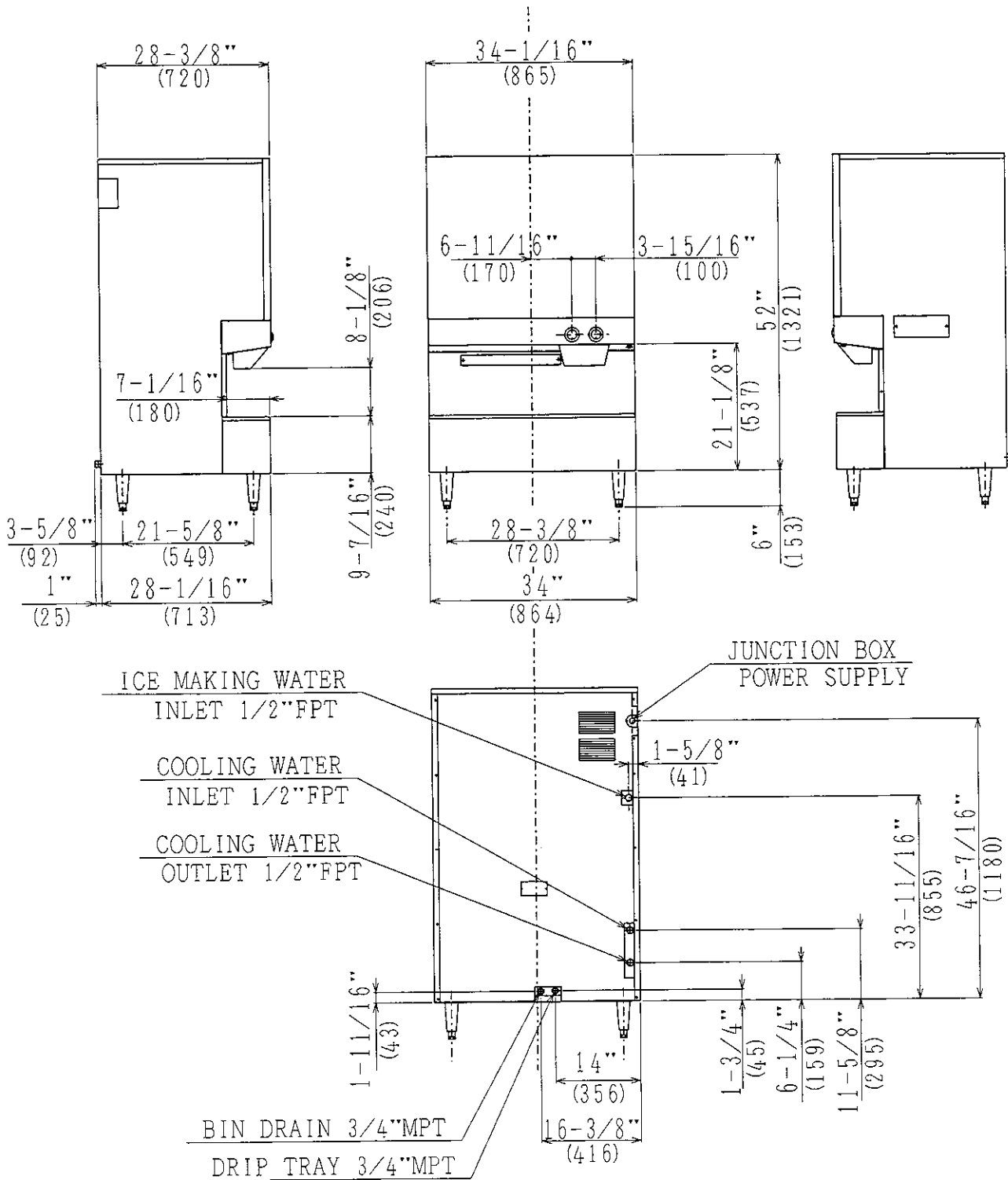
[g] DCM-700BAB

Unit: inch (mm)



[h] DCM-700BWB

Unit: inch (mm)



3. SPECIFICATIONS

[a] DCM-450BAA

AC SUPPLY VOLTAGE	115-120/60/1		
AMPERAGE	9 A		
MINIMUM CIRCUIT AMPACITY	20 A		
MAXIMUM FUSE SIZE	20 A		
APPROXIMATE ICE PRODUCTION PER 24 HR.	Ambient Temp. (° F)	Water Temp. (° F)	
lbs./day (kg/day)		50	70
Reference without *marks	70	* 425(193)	374(170)
	80	400(181)	358(162)
	90	365(166)	* 334(152)
	100	308(140)	281(127)
		90	304(138)
SHAPE OF ICE	Cubelet		
ICE QUALITY	Approx. 90 %, Ice (90/70 ° F, Conductivity 200 μs/cm)		
APPROXIMATE STORAGE CAPACITY	40 lbs. (Based on calculation)		
PERFORMANCE	90 ° F/ 70 ° F, 70 ° F/ 50 ° F,		
ELECTRIC CONSUMPTION	890 W	900 W	
WATER CONSUMPTION PER 24 HR.	40 gal.	51 gal.	
EXTERIOR DIMENSIONS (WxDxH)	26" x 22-31/64" x 39-31/32" (661 x 571 x 1015 mm)		
EXTERIOR FINISH	Stainless Steel, Galvanized Steel (Rear)		
WEIGHT	Net 251 lbs. (114 kg), Shipping 276 lbs. (125 kg)		
CONNECTIONS - ELECTRIC	Permanent Connection		
- WATER SUPPLY	Inlet 1/2" FPT		
- DRAIN	Outlet 3/4" MPT x2		
ICE MAKING SYSTEM	Auger type		
HARVESTING SYSTEM	Direct driven Auger (100 W Gear Motor)		
ICE MAKING WATER CONTROL	Float Switch		
COOLING WATER CONTROL	N/A		
BIN CONTROL SYSTEM	Mechanical Bin Control (Proximity Sw.)		
COMPRESSOR	Hermetic 600 W, Model CL75J-1U		
CONDENSER	Air-cooled, Fin and tube type		
EVAPORATOR	Copper Tube on Cylinder		
REFRIGERANT CONTROL	Constant Pressure Expansion Valve		
REFRIGERANT CHARGE	R12, 14.1 oz. (400 g)		
DESIGN PRESSURE	High 235 PSIG, Low 140 PSIG		
P.C.BOARD CIRCUIT PROTECTION	High Voltage Cut-out Relay		
COMPRESSOR PROTECTION	Auto-reset Overload Protector		
GEAR MOTOR PROTECTION	Auto-reset Thermal Protector		
	Manual-reset Circuit Beaker		
REFRIGERANT CIRCUIT PROTECTION	Auto reset High Pressure Control Switch		
LOW WATER PROTECTION	Float Switch and Timer		
ACCESSORIES - SUPPLIED	Spare Fuse		
- REQUIRED	Legs		
OPERATION CONDITIONS	VOLTAGE RANGE	103 - 132 V	
	AMBIENT TEMP.	41 - 100 ° F	
	WATER SUPPLY TEMP.	41 - 90 ° F	
	WATER SUPPLY PRESS.	7 - 113 PSIG	

* We reserve the right to make changes in specifications and design without prior notice.

[b] DCM-450BWA

AC SUPPLY VOLTAGE	115-120/60/1																									
AMPERAGE	9 A																									
MINIMUM CIRCUIT AMPACITY	20 A																									
MAXIMUM FUSE SIZE	20 A																									
APPROXIMATE ICE PRODUCTION PER 24 HR.	<table border="1"> <thead> <tr> <th rowspan="2">Ambient Temp. (°F)</th> <th colspan="3">Water Temp. (°F)</th> </tr> <tr> <th>50</th> <th>70</th> <th>90</th> </tr> </thead> <tbody> <tr> <td>70</td> <td>* 437 (198)</td> <td>401 (182)</td> <td>366 (166)</td> </tr> <tr> <td>80</td> <td>423 (192)</td> <td>392 (178)</td> <td>355 (161)</td> </tr> <tr> <td>90</td> <td>417 (189)</td> <td>* 375 (170)</td> <td>340 (154)</td> </tr> <tr> <td>100</td> <td>412 (187)</td> <td>373 (169)</td> <td>335 (152)</td> </tr> </tbody> </table>			Ambient Temp. (°F)	Water Temp. (°F)			50	70	90	70	* 437 (198)	401 (182)	366 (166)	80	423 (192)	392 (178)	355 (161)	90	417 (189)	* 375 (170)	340 (154)	100	412 (187)	373 (169)	335 (152)
Ambient Temp. (°F)	Water Temp. (°F)																									
	50	70	90																							
70	* 437 (198)	401 (182)	366 (166)																							
80	423 (192)	392 (178)	355 (161)																							
90	417 (189)	* 375 (170)	340 (154)																							
100	412 (187)	373 (169)	335 (152)																							
lbs./day (kg/day)																										
Reference without *marks																										
SHAPE OF ICE	Cubelet																									
ICE QUALITY	Approx. 90 %, Ice (90/70 °F, Conductivity 200 μs/cm)																									
APPROXIMATE STORAGE CAPACITY	40 lbs. (Based on calculation)																									
PERFORMANCE	90 °F/70 °F, 70 °F/50 °F,																									
ELECTRIC CONSUMPTION	837 W	840 W																								
WATER CONSUMPTION PER 24 HR.	577 gal.	433 gal.																								
EXTERIOR DIMENSIONS (WxDxH)	26" x 22-31/64" x 39-31/32" (661 x 571 x 1015 mm)																									
EXTERIOR FINISH	Stainless Steel, Galvanized Steel (Rear)																									
WEIGHT	Net 245 lbs. (111 kg), Shipping 269 lbs. (122 kg)																									
CONNECTIONS - ELECTRIC	Permanent Connection																									
- WATER SUPPLY	Inlet 1/2" FPT	Condenser Inlet 1/2" FPT																								
- DRAIN	Outlet 3/4" MPTx2	Condenser Outlet 1/2" FPT																								
ICE MAKING SYSTEM	Auger type																									
HARVESTING SYSTEM	Direct driven Auger (100 W Gear Motor)																									
ICE MAKING WATER CONTROL	Float Switch																									
COOLING WATER CONTROL	Water Regulative Valve																									
BIN CONTROL SYSTEM	Mechanical Bin Control (Proximity Sw.)																									
COMPRESSOR	Hermetic 600 W, Model CL75J-1U																									
CONDENSER	Water-cooled, Double tube type																									
EVAPORATOR	Copper Tube on Cylinder																									
REFRIGERANT CONTROL	Constant Pressure Expansion Valve																									
REFRIGERANT CHARGE	R12, 10.6 oz. (300 g)																									
DESIGN PRESSURE	High 235 PSIG, Low 140 PSIG																									
P.C.BOARD CIRCUIT PROTECTION	High Voltage Cut-out Relay																									
COMPRESSOR PROTECTION	Auto-reset Overload Protector																									
GEAR MOTOR PROTECTION	Auto-reset Thermal Protector																									
	Manual-reset Circuit Beaker																									
REFRIGERANT CIRCUIT PROTECTION	Auto reset High Pressure Control Switch																									
LOW WATER PROTECTION	Float Switch and Timer																									
ACCESSORIES - SUPPLIED	Spare Fuse																									
- REQUIRED	Legs																									
OPERATION CONDITIONS	VOLTAGE RANGE	103 - 132 V																								
	AMBIENT TEMP.	41 - 100 °F																								
	WATER SUPPLY TEMP.	41 - 90 °F																								
	WATER SUPPLY PRESS.	7 - 113 PSIG																								

* We reserve the right to make changes in specifications and design without prior notice.

[c] DCM-700BAA

AC SUPPLY VOLTAGE	115-120/60/1																									
AMPERAGE	13.5 A																									
MINIMUM CIRCUIT AMPACITY	20 A																									
MAXIMUM FUSE SIZE	20 A																									
APPROXIMATE ICE PRODUCTION PER 24 HR.	<table border="1"> <thead> <tr> <th rowspan="2">Ambient Temp. (° F)</th> <th colspan="3">Water Temp. (° F)</th> </tr> <tr> <th>50</th> <th>70</th> <th>90</th> </tr> </thead> <tbody> <tr> <td>70</td> <td>* 660 (299)</td> <td>608 (276)</td> <td>548 (249)</td> </tr> <tr> <td>80</td> <td>625 (284)</td> <td>568 (258)</td> <td>515 (234)</td> </tr> <tr> <td>90</td> <td>583 (264)</td> <td>* 531 (241)</td> <td>483 (219)</td> </tr> <tr> <td>100</td> <td>507 (230)</td> <td>470 (213)</td> <td>449 (204)</td> </tr> </tbody> </table>			Ambient Temp. (° F)	Water Temp. (° F)			50	70	90	70	* 660 (299)	608 (276)	548 (249)	80	625 (284)	568 (258)	515 (234)	90	583 (264)	* 531 (241)	483 (219)	100	507 (230)	470 (213)	449 (204)
Ambient Temp. (° F)	Water Temp. (° F)																									
	50	70	90																							
70	* 660 (299)	608 (276)	548 (249)																							
80	625 (284)	568 (258)	515 (234)																							
90	583 (264)	* 531 (241)	483 (219)																							
100	507 (230)	470 (213)	449 (204)																							
lbs./day (kg/day)																										
Reference without *marks																										
SHAPE OF ICE	Cubelet																									
ICE QUALITY	Approx. 90 %, Ice (90/70 ° F, Conductivity 200 μs/cm)																									
APPROXIMATE STORAGE CAPACITY	95 lbs. (Based on calculation)																									
PERFORMANCE	90 ° F/ 70 ° F, 70 ° F/ 50 ° F,																									
ELECTRIC CONSUMPTION	1410 W	1430 W																								
WATER CONSUMPTION PER 24 HR.	64 gal.	79 gal.																								
EXTERIOR DIMENSIONS (WxDxH)	34-1/16" x 28-1/16" x 52" (865 x 713 x 1321 mm)																									
EXTERIOR FINISH	Stainless Steel, Galvanized Steel (Rear)																									
WEIGHT	Net 370 lbs. (168 kg), Shipping 397 lbs. (180 kg)																									
CONNECTIONS - ELECTRIC	Permanent Connection																									
- WATER SUPPLY	Inlet 1/2" FPT																									
- DRAIN	Outlet 3/4" MPT x2																									
ICE MAKING SYSTEM	Auger type																									
HARVESTING SYSTEM	Direct driven Auger (200 W Gear Motor)																									
ICE MAKING WATER CONTROL	Float Switch																									
COOLING WATER CONTROL	N/A																									
BIN CONTROL SYSTEM	Mechanical Bin Control (Proximity Sw.)																									
COMPRESSOR	Hermetic 600 W, Model CL75JD-1U																									
CONDENSER	Air-cooled, Fin and tube type																									
EVAPORATOR	Copper Tube on Cylinder																									
REFRIGERANT CONTROL	Constant Pressure Expansion Valve																									
REFRIGERANT CHARGE	R502, 1 lbs. 12.2 oz. (800 g)																									
DESIGN PRESSURE	High 400 PSIG, Low 230 PSIG																									
P.C. BOARD CIRCUIT PROTECTION	High Voltage Cut-out Relay																									
COMPRESSOR PROTECTION	Auto-reset Overload Protector																									
GEAR MOTOR PROTECTION	Auto-reset Thermal Protector																									
	Manual-reset Circuit Breaker																									
REFRIGERANT CIRCUIT PROTECTION	Auto reset High Pressure Control Switch																									
LOW WATER PROTECTION	Float Switch and Timer																									
ACCESSORIES - SUPPLIED	Spare Fuse																									
- REQUIRED	Legs																									
OPERATION CONDITIONS	VOLTAGE RANGE	103 - 132 V																								
	AMBIENT TEMP.	41 - 100 ° F																								
	WATER SUPPLY TEMP.	41 - 90 ° F																								
	WATER SUPPLY PRESS.	7 - 113 PSIG																								

* We reserve the right to make changes in specifications and design without prior notice.

[d] DCM-700BWA

AC SUPPLY VOLTAGE	115-120/60/1		
AMPERAGE	13 A		
MINIMUM CIRCUIT AMPACITY	20 A		
MAXIMUM FUSE SIZE	20 A		
APPROXIMATE ICE PRODUCTION PER 24 HR.	Ambient Temp. (° F)	Water Temp. (° F)	
lbs./day (kg/day)		50	70
Reference without *marks	70	* 638(289)	540(245)
	80	624(283)	537(244)
	90	615(279)	* 530(240)
	100	603(274)	521(236)
SHAPE OF ICE	Cubelet		
ICE QUALITY	Approx. 90 %, Ice (90/70 ° F, Conductivity 200 μ s/cm)		
APPROXIMATE STORAGE CAPACITY	95 lbs. (Based on calculation)		
PERFORMANCE	90 ° F/ 70 ° F, 70 ° F/ 50 ° F,		
ELECTRIC CONSUMPTION	1250 W	1285 W	
WATER CONSUMPTION PER 24 HR.	956 gal.	589 gal.	
EXTERIOR DIMENSIONS (WxDxH)	34-1/16" x 28-1/16" x 52" (865 x 713 x 1321 mm)		
EXTERIOR FINISH	Stainless Steel, Galvanized Steel(Rear)		
WEIGHT	Net 366 lbs. (166 kg), Shipping 397 lbs. (180 kg)		
CONNECTIONS - ELECTRIC	Permanent Connection		
- WATER SUPPLY	Inlet 1/2" FPT	Condenser Inlet 1/2" FPT	
- DRAIN	Outlet 3/4" MPT x2	Condenser Outlet 1/2" FPT	
ICE MAKING SYSTEM	Auger type		
HARVESTING SYSTEM	Direct driven Auger (200 W Gear Motor)		
ICE MAKING WATER CONTROL	Float Switch		
COOLING WATER CONTROL	Water Regulating Valve		
BIN CONTROL SYSTEM	Mechanical Bin Control (Proximity Sw.)		
COMPRESSOR	Hermetic 600 W, Model CL75JD-1U		
CONDENSER	Water-cooled, Double tube type		
EVAPORATOR	Copper Tube on Cylinder		
REFRIGERANT CONTROL	Constant Pressure Expansion Valve		
REFRIGERANT CHARGE	R502, 1 lbs. 6.9 oz. (650 g)		
DESIGN PRESSURE	High 400 PSIG, Low 230 PSIG		
P.C.BOARD CIRCUIT PROTECTION	High Voltage Cut-out Relay		
COMPRESSOR PROTECTION	Auto-reset Overload Protector		
GEAR MOTOR PROTECTION	Auto-reset Thermal Protector		
	Manual-reset Circuit Breaker		
REFRIGERANT CIRCUIT PROTECTION	Auto reset High Pressure Control Switch		
LOW WATER PROTECTION	Float Switch and Timer		
ACCESSORIES - SUPPLIED	Spare Fuse		
- REQUIRED	Legs		
OPERATION CONDITIONS	VOLTAGE RANGE	103 - 132 V	
	AMBIENT TEMP.	41 - 100 ° F	
	WATER SUPPLY TEMP.	41 - 90 ° F	
	WATER SUPPLY PRESS.	7 - 113 PSIG	

* We reserve the right to make changes in specifications and design without prior notice.

[e] DCM-450BAB

AC SUPPLY VOLTAGE	115-120/60/1																									
COMPRESSOR	120 V	6.8 RLA	55 LRA																							
GEAR MOTOR	120 V	1.6 FLA	1/8 HP																							
FAN MOTOR	120 V	0.6 FLA	30 W																							
AGITATING MOTOR	120 V	0.9 FLA	55 W																							
DISPENSING MOTOR	120 V	0.9 FLA	55 W																							
OTHERS	120 V	0.2 A																								
MAXIMUM FUSE SIZE OR HACR TYPE	20 AMPS																									
BREAKER SIZE (CONADA EXEMPT)	20 AMPS																									
MINIMUM CIRCUIT AMPACITY	20 AMPS																									
APPROXIMATE ICE PRODUCTION PER 24 HR.	<table border="1"> <thead> <tr> <th rowspan="2">Ambient Temp. (° F)</th> <th colspan="3">Water Temp. (° F)</th> </tr> <tr> <th>50</th> <th>70</th> <th>90</th> </tr> </thead> <tbody> <tr> <td>70</td> <td>* 425(193)</td> <td>374(170)</td> <td>349(158)</td> </tr> <tr> <td>80</td> <td>400(181)</td> <td>358(162)</td> <td>330(149)</td> </tr> <tr> <td>90</td> <td>365(166)</td> <td>* 334(152)</td> <td>304(138)</td> </tr> <tr> <td>100</td> <td>308(140)</td> <td>281(127)</td> <td>260(118)</td> </tr> </tbody> </table>			Ambient Temp. (° F)	Water Temp. (° F)			50	70	90	70	* 425(193)	374(170)	349(158)	80	400(181)	358(162)	330(149)	90	365(166)	* 334(152)	304(138)	100	308(140)	281(127)	260(118)
Ambient Temp. (° F)	Water Temp. (° F)																									
	50	70	90																							
70	* 425(193)	374(170)	349(158)																							
80	400(181)	358(162)	330(149)																							
90	365(166)	* 334(152)	304(138)																							
100	308(140)	281(127)	260(118)																							
lbs./day (kg/day)	Reference without *marks																									
SHAPE OF ICE	Cubelet (Compressed Flake Ice)																									
ICE QUALITY	Approx. 90 % Ice (90/70° F, Conductivity 200 μ s/cm)																									
APPROXIMATE STORAGE CAPACITY	40 lbs. (Based on calculation)																									
ELECTRIC & WATER CONSUMPTION	90° F/ 70° F, 70° F/ 50° F,																									
ELECTRIC W (kWH/100 lbs.)	890 (6.4)	900 (5.1)																								
POTABLE WATER	40 (12.0)	51 (12.0)																								
gal./24HR (gal./100 lbs.)																										
EXTERIOR DIMENSIONS (WxDxH)	26" x 22-1/2" x 40" (661 x 571 x 1016 mm)																									
EXTERIOR FINISH	Stainless Steel, Galvanized Steel(Rear)																									
WEIGHT	Net 251 lbs. (114 kg), Shipping 276 lbs. (125 kg)																									
CONNECTIONS - ELECTRIC	Permanent Connection																									
- WATER SUPPLY	Inlet 1/2" FPT																									
- DRAIN	Outlet 3/4" MPT x2																									
ICE MAKING SYSTEM	Auger type																									
HARVESTING SYSTEM	Direct driven Auger (100 W Gear Motor)																									
ICE MAKING WATER CONTROL	Float Switch																									
COOLING WATER CONTROL	N/A																									
BIN CONTROL SYSTEM	Mechanical Bin Control (Proximity Sw.)																									
COMPRESSOR	Hermetic 600 W, Model CL75J-1U																									
CONDENSER	Air-cooled, Fin and tube type																									
EVAPORATOR	Copper Tube on Cylinder																									
REFRIGERANT CONTROL	Constant Pressure Expansion Valve																									
REFRIGERANT CHARGE	R12, 14.1 oz. (400 g)																									
DESIGN PRESSURE	High 235 PSIG, Low 140 PSIG																									
P. C. BOARD CIRCUIT PROTECTION	High Voltage Cut-out Relay																									
COMPRESSOR PROTECTION	Auto-reset Overload Protector																									
GEAR MOTOR PROTECTION	Auto-reset Thermal Protector																									
	Manual-reset Circuit Breaker																									
REFRIGERANT CIRCUIT PROTECTION	Auto-reset High Pressure Control Switch																									
LOW WATER PROTECTION	Float Switch and Timer																									
ACCESSORIES - SUPPLIED	Spare Fuse																									
- REQUIRED	Legs																									
OPERATION CONDITIONS	<table border="0"> <tr> <td>VOLTAGE RANGE</td> <td>104 - 132 V</td> </tr> <tr> <td>AMBIENT TEMP.</td> <td>45 - 100° F</td> </tr> <tr> <td>WATER SUPPLY TEMP.</td> <td>45 - 90° F</td> </tr> <tr> <td>WATER SUPPLY PRESS.</td> <td>7 - 113 PSIG</td> </tr> </table>			VOLTAGE RANGE	104 - 132 V	AMBIENT TEMP.	45 - 100° F	WATER SUPPLY TEMP.	45 - 90° F	WATER SUPPLY PRESS.	7 - 113 PSIG															
VOLTAGE RANGE	104 - 132 V																									
AMBIENT TEMP.	45 - 100° F																									
WATER SUPPLY TEMP.	45 - 90° F																									
WATER SUPPLY PRESS.	7 - 113 PSIG																									

* We reserve the right to make changes in specifications and design without prior notice.

[f] DCM-450BWB

AC SUPPLY VOLTAGE	115-120/60/1																									
COMPRESSOR	120 V	6.3 RLA	55 LRA																							
GEAR MOTOR	120 V	1.6 FLA	1/8 HP																							
FAN MOTOR																										
AGITATING MOTOR	120 V	0.9 FLA	55 W																							
DISPENSING MOTOR	120 V	0.9 FLA	55 W																							
OTHERS	120 V	0.2 A																								
MAXIMUM FUSE SIZE OR HACR TYPE	20 AMPS																									
BREAKER SIZE (CANADA EXEMPT)	20 AMPS																									
MINIMUM CIRCUIT AMPACITY	20 AMPS																									
APPROXIMATE ICE PRODUCTION PER 24 HR.	<table border="1"> <thead> <tr> <th rowspan="2">Ambient Temp. (° F)</th> <th colspan="3">Water Temp. (° F)</th> </tr> <tr> <th>50</th> <th>70</th> <th>90</th> </tr> </thead> <tbody> <tr> <td>70</td> <td>* 437(198)</td> <td>401(182)</td> <td>366(166)</td> </tr> <tr> <td>80</td> <td>423(192)</td> <td>392(178)</td> <td>355(161)</td> </tr> <tr> <td>90</td> <td>417(189)</td> <td>* 375(170)</td> <td>340(154)</td> </tr> <tr> <td>100</td> <td>412(187)</td> <td>373(169)</td> <td>335(152)</td> </tr> </tbody> </table>			Ambient Temp. (° F)	Water Temp. (° F)			50	70	90	70	* 437(198)	401(182)	366(166)	80	423(192)	392(178)	355(161)	90	417(189)	* 375(170)	340(154)	100	412(187)	373(169)	335(152)
Ambient Temp. (° F)	Water Temp. (° F)																									
	50	70	90																							
70	* 437(198)	401(182)	366(166)																							
80	423(192)	392(178)	355(161)																							
90	417(189)	* 375(170)	340(154)																							
100	412(187)	373(169)	335(152)																							
lbs./day (kg/day)	Reference without *marks																									
SHAPE OF ICE	Cubelet (Compressed Flake Ice)																									
ICE QUALITY	Approx. 90 % Ice (90/70° F, Conductivity 200 μs/cm)																									
APPROXIMATE STORAGE CAPACITY	40 lbs. (Based on calculation)																									
ELECTRIC & WATER CONSUMPTION	90° F/70° F, 70° F/50° F,																									
ELECTRIC W (kWH/100 lbs.)	837 (5.4)	840 (4.6)																								
POTABLE WATER	45 (12.0)	52 (12.0)																								
WATER - COOLED CONDENSER	532 (141.9)	381 (87.2)																								
gal./24HR (gal./100 lbs.)																										
EXTERIOR DIMENSIONS (WxDxH)	26" x 22-1/2" x 40" (661 x 571 x 1016 mm)																									
EXTERIOR FINISH	Stainless Steel, Galvanized Steel(Rear)																									
WEIGHT	Net 245 lbs. (111 kg), Shipping 269 lbs. (122 kg)																									
CONNECTIONS - ELECTRIC	Permanent Connection																									
- WATER SUPPLY	Inlet 1/2" FPT	Condenser Inlet 1/2" FPT																								
- DRAIN	Outlet 3/4" MPTx2	Condenser Outlet 1/2" FPT																								
ICE MAKING SYSTEM	Auger type																									
HARVESTING SYSTEM	Direct driven Auger (100 W Gear Motor)																									
ICE MAKING WATER CONTROL	Float Switch																									
COOLING WATER CONTROL	Water Regulative Valve																									
BIN CONTROL SYSTEM	Mechanical Bin Control (Proximity Sw.)																									
COMPRESSOR	Hermetic 600 W, Model CL75J-1U																									
CONDENSER	Water-cooled, Double tube type																									
EVAPORATOR	Copper Tube on Cylinder																									
REFRIGERANT CONTROL	Constant Pressure Expansion Valve																									
REFRIGERANT CHARGE	R12, 10.6 oz. (300 g)																									
DESIGN PRESSURE	High 235 PSIG, Low 140 PSIG																									
P. C. BOARD CIRCUIT PROTECTION	High Voltage Cut-out Relay																									
COMPRESSOR PROTECTION	Auto-reset Overload Protector																									
GEAR MOTOR PROTECTION	Auto-reset Thermal Protector																									
	Manual-reset Circuit Breaker																									
REFRIGERANT CIRCUIT PROTECTION	Auto-reset High Pressure Control Switch																									
LOW WATER PROTECTION	Float Switch and Timer																									
ACCESSORIES - SUPPLIED	Spare Fuse																									
- REQUIRED	Legs																									
OPERATION CONDITIONS	<table border="1"> <tr> <td>VOLTAGE RANGE</td> <td colspan="2">104 - 132 V</td> </tr> <tr> <td>AMBIENT TEMP.</td> <td colspan="2">45 - 100° F</td> </tr> <tr> <td>WATER SUPPLY TEMP.</td> <td colspan="2">45 - 90° F</td> </tr> <tr> <td>WATER SUPPLY PRESS.</td> <td colspan="2">7 - 113 PSIG</td> </tr> </table>			VOLTAGE RANGE	104 - 132 V		AMBIENT TEMP.	45 - 100° F		WATER SUPPLY TEMP.	45 - 90° F		WATER SUPPLY PRESS.	7 - 113 PSIG												
VOLTAGE RANGE	104 - 132 V																									
AMBIENT TEMP.	45 - 100° F																									
WATER SUPPLY TEMP.	45 - 90° F																									
WATER SUPPLY PRESS.	7 - 113 PSIG																									

* We reserve the right to make changes in specifications and design without prior notice.

[g] DCM-700BAB

AC SUPPLY VOLTAGE	115-120/60/1																									
COMPRESSOR	120 V	8.8 RLA	60 LRA																							
GEAR MOTOR	120 V	3 FLA	1/4 HP																							
FAN MOTOR	120 V	1 FLA	30 W																							
AGITATING MOTOR	120 V	1.8 FLA (TOTAL)	110 W																							
DISPENSING MOTOR	120 V	0.9 FLA	55 W																							
OTHERS	120 V	0.6 A																								
MAXIMUM FUSE SIZE OR HACR TYPE	20 AMPS																									
BREAKER SIZE (CANADA EXEMPT)	20 AMPS																									
MINIMUM CIRCUIT AMPACITY	20 AMPS																									
APPROXIMATE ICE PRODUCTION PER 24 HR.	<table border="1"> <thead> <tr> <th rowspan="2">Ambient Temp. (° F)</th> <th colspan="3">Water Temp. (° F)</th> </tr> <tr> <th>50</th> <th>70</th> <th>90</th> </tr> </thead> <tbody> <tr> <td>70</td> <td>* 660(299)</td> <td>608(276)</td> <td>548(249)</td> </tr> <tr> <td>80</td> <td>625(284)</td> <td>568(258)</td> <td>515(234)</td> </tr> <tr> <td>90</td> <td>583(264)</td> <td>* 531(241)</td> <td>483(219)</td> </tr> <tr> <td>100</td> <td>507(230)</td> <td>470(213)</td> <td>449(204)</td> </tr> </tbody> </table>			Ambient Temp. (° F)	Water Temp. (° F)			50	70	90	70	* 660(299)	608(276)	548(249)	80	625(284)	568(258)	515(234)	90	583(264)	* 531(241)	483(219)	100	507(230)	470(213)	449(204)
Ambient Temp. (° F)	Water Temp. (° F)																									
	50	70	90																							
70	* 660(299)	608(276)	548(249)																							
80	625(284)	568(258)	515(234)																							
90	583(264)	* 531(241)	483(219)																							
100	507(230)	470(213)	449(204)																							
lbs./day (kg/day)	Reference without *marks																									
SHAPE OF ICE	Cubelet (Compressed Flake Ice)																									
ICE QUALITY	Approx. 90 % Ice (90/70° F, Conductivity 200 μ s/cm)																									
APPROXIMATE STORAGE CAPACITY	95 lbs. (Based on calculation)																									
ELECTRIC & WATER CONSUMPTION	90° F/ 70° F, 70° F/ 50° F,																									
ELECTRIC W (kWH/100 lbs.)	1410 (6.4)	1430 (5.2)																								
POTABLE WATER	64 (12.0)	79 (12.0)																								
gal./24HR (gal./100 lbs.)																										
EXTERIOR DIMENSIONS (WxDxH)	34-1/16" x 28-3/8" x 52" (865 x 720 x 1321 mm)																									
EXTERIOR FINISH	Stainless Steel, Galvanized Steel(Rear)																									
WEIGHT	Net 370 lbs. (168 kg), Shipping 397 lbs. (180 kg)																									
CONNECTIONS - ELECTRIC	Permanent Connection																									
- WATER SUPPLY	Inlet 1/2" FPT																									
- DRAIN	Outlet 3/4" MPT x2																									
ICE MAKING SYSTEM	Auger type																									
HARVESTING SYSTEM	Direct driven Auger (200 W Gear Motor)																									
ICE MAKING WATER CONTROL	Float Switch																									
COOLING WATER CONTROL	N/A																									
BIN CONTROL SYSTEM	Mechanical Bin Control (Proximity Sw.)																									
COMPRESSOR	Hermetic 600 W, Model CL75JD-1U																									
CONDENSER	Air-cooled, Fin and tube type																									
EVAPORATOR	Copper Tube on Cylinder																									
REFRIGERANT CONTROL	Constant Pressure Expansion Valve																									
REFRIGERANT CHARGE	R502, 1 lbs. 12.2 oz. (800 g)																									
DESIGN PRESSURE	High 400 PSIG, Low 230 PSIG																									
P. C. BOARD CIRCUIT PROTECTION	High Voltage Cut-out Relay																									
COMPRESSOR PROTECTION	Auto-reset Overload Protector																									
GEAR MOTOR PROTECTION	Auto-reset Thermal Protector																									
	Manual-reset Circuit Breaker																									
REFRIGERANT CIRCUIT PROTECTION	Auto-reset High Pressure Control Switch																									
LOW WATER PROTECTION	Float Switch and Timer																									
ACCESSORIES - SUPPLIED	Spare Fuse																									
- REQUIRED	Legs																									
OPERATION CONDITIONS	VOLTAGE RANGE	104 - 132 V																								
	AMBIENT TEMP.	45 - 100° F																								
	WATER SUPPLY TEMP.	45 - 90° F																								
	WATER SUPPLY PRESS.	7 - 113 PSIG																								

* We reserve the right to make changes in specifications and design without prior notice.

[h] DCM-700BWB

AC SUPPLY VOLTAGE	115-120/60/1																									
COMPRESSOR	120 V	8.4 RLA	60 LRA																							
GEAR MOTOR	120 V	3 FLA	1/4 HP																							
FAN MOTOR																										
AGITATING MOTOR	120 V	1.8 FLA (TOTAL)	110 W																							
DISPENSING MOTOR	120 V	0.9 FLA	55 W																							
OTHERS	120 V	0.6 A																								
MAXIMUM FUSE SIZE OR HACR TYPE	20 AMPS																									
BREAKER SIZE (CANADA EXEMPT)	20 AMPS																									
MINIMUM CIRCUIT AMPACITY	20 AMPS																									
APPROXIMATE ICE PRODUCTION PER 24 HR.	<table border="1"> <thead> <tr> <th rowspan="2">Ambient Temp. (° F)</th> <th colspan="3">Water Temp. (° F)</th> </tr> <tr> <th>50</th> <th>70</th> <th>90</th> </tr> </thead> <tbody> <tr> <td>70</td> <td>* 638(289)</td> <td>540(245)</td> <td>472(214)</td> </tr> <tr> <td>80</td> <td>624(283)</td> <td>537(244)</td> <td>460(209)</td> </tr> <tr> <td>90</td> <td>615(279)</td> <td>* 530(240)</td> <td>446(202)</td> </tr> <tr> <td>100</td> <td>603(274)</td> <td>521(236)</td> <td>427(194)</td> </tr> </tbody> </table>			Ambient Temp. (° F)	Water Temp. (° F)			50	70	90	70	* 638(289)	540(245)	472(214)	80	624(283)	537(244)	460(209)	90	615(279)	* 530(240)	446(202)	100	603(274)	521(236)	427(194)
Ambient Temp. (° F)	Water Temp. (° F)																									
	50	70	90																							
70	* 638(289)	540(245)	472(214)																							
80	624(283)	537(244)	460(209)																							
90	615(279)	* 530(240)	446(202)																							
100	603(274)	521(236)	427(194)																							
lbs./day (kg/day)																										
Reference without *marks																										
SHAPE OF ICE	Cubelet (Compressed Flake Ice)																									
ICE QUALITY	Approx. 90 % Ice (90/70° F, Conductivity 200 μs/cm)																									
APPROXIMATE STORAGE CAPACITY	95 lbs. (Based on calculation)																									
ELECTRIC & WATER CONSUMPTION	90° F/ 70° F, 70° F/ 50° F,																									
ELECTRIC W (kWH/100 lbs.)	1250 (5.7)	1285 (4.8)																								
POTABLE WATER	64 (12.0)	77 (12.0)																								
WATER - COOLED CONDENSER	892 (168.3)	512 (80.3)																								
gal./24HR (gal./100 lbs.)																										
EXTERIOR DIMENSIONS (WxDxH)	34-1/16" x 28-3/8" x 52" (865 x 720 x 1321 mm)																									
EXTERIOR FINISH	Stainless Steel, Galvanized Steel(Rear)																									
WEIGHT	Net 366 lbs. (166 kg), Shipping 393 lbs. (178 kg)																									
CONNECTIONS - ELECTRIC	Permanent Connection																									
- WATER SUPPLY	Inlet 1/2" FPT	Condenser Inlet 1/2" FPT																								
- DRAIN	Outlet 3/4" MPT x2	Condenser Outlet 1/2" FPT																								
ICE MAKING SYSTEM	Auger type																									
HARVESTING SYSTEM	Direct driven Auger (200 W Gear Motor)																									
ICE MAKING WATER CONTROL	Float Switch																									
COOLING WATER CONTROL	Water Regulating Valve																									
BIN CONTROL SYSTEM	Mechanical Bin Control (Proximity Sw.)																									
COMPRESSOR	Hermetic 600 W, Model CL75JD-1U																									
CONDENSER	Water-cooled, Double tube type																									
EVAPORATOR	Copper Tube on Cylinder																									
REFRIGERANT CONTROL	Constant Pressure Expansion Valve																									
REFRIGERANT CHARGE	R502, 1 lbs. 6.9 oz. (650 g)																									
DESIGN PRESSURE	High 400 PSIG, Low 230 PSIG																									
P. C. BOARD CIRCUIT PROTECTION	High Voltage Cut-out Relay																									
COMPRESSOR PROTECTION	Auto-reset Overload Protector																									
GEAR MOTOR PROTECTION	Auto-reset Thermal Protector																									
	Manual-reset Circuit Breaker																									
REFRIGERANT CIRCUIT PROTECTION	Auto-reset High Pressure Control Switch																									
LOW WATER PROTECTION	Float Switch and Timer																									
ACCESSORIES - SUPPLIED	Spare Fuse																									
- REQUIRED	Legs																									
OPERATION CONDITIONS	VOLTAGE RANGE	104 - 132 V																								
	AMBIENT TEMP.	45 - 100° F																								
	WATER SUPPLY TEMP.	45 - 90° F																								
	WATER SUPPLY PRESS.	7 - 113 PSIG																								

* We reserve the right to make changes in specifications and design without prior notice.

II. GENERAL INFORMATION

1. CONSTRUCTION

Hoshizaki Cubelet Ice Dispensers, models DCM-450BAA, DCM-450BWA, DCM-700BAA, DCM-700BWA, DCM-450BAB, DCM-450BWB, DCM-700BAB and DCM-700BWB include Water Supply, Freezer, Condensing, Storage, Dispensing and Control Assemblies.

DCM-450BAA, DCM-450BWA
DCM-700BAA, DCM-700BWA

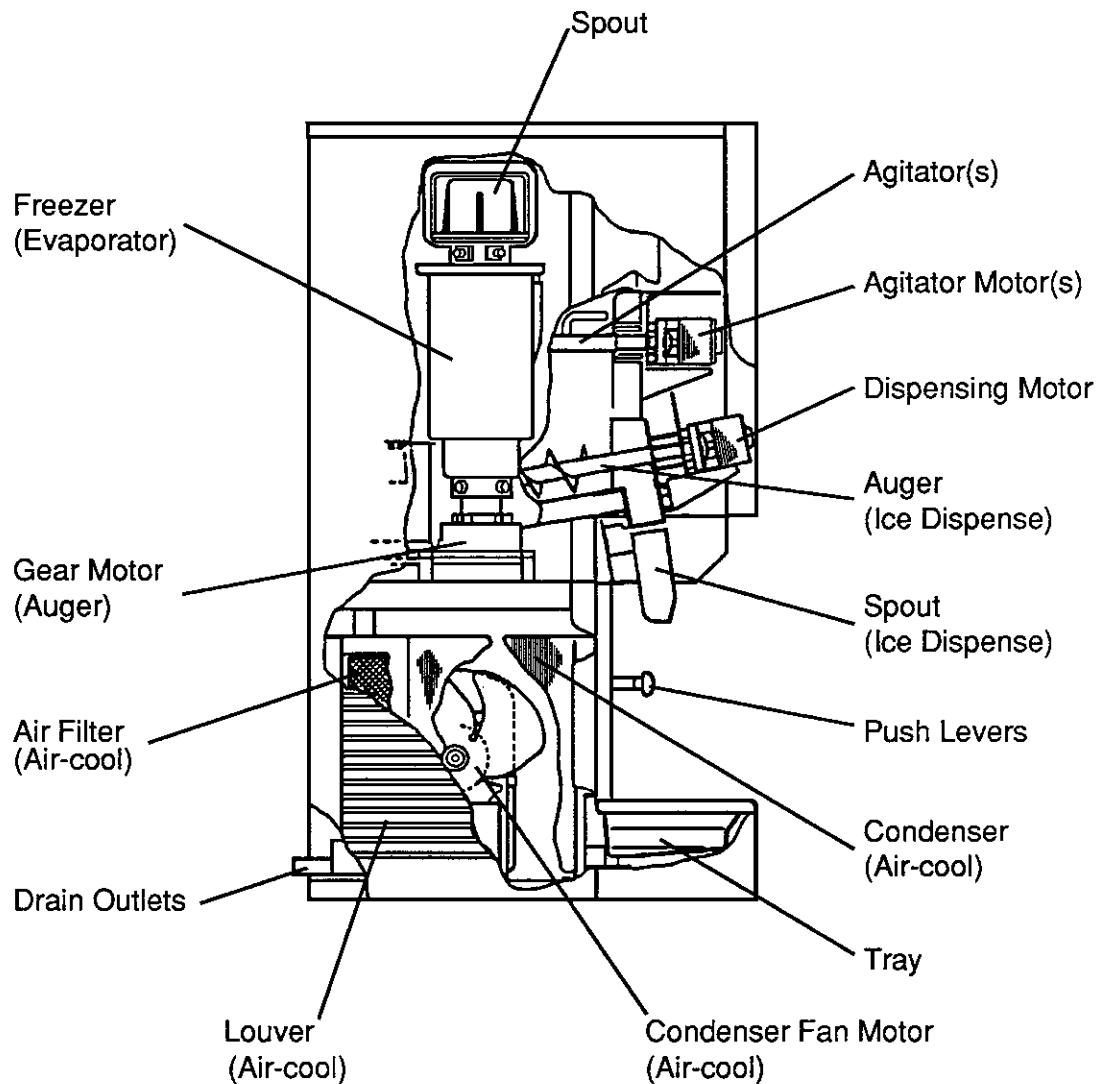


Fig. 1

**DCM-450BAB, DCM-450BWB
DCM-700BAB, DCM-700BWB**

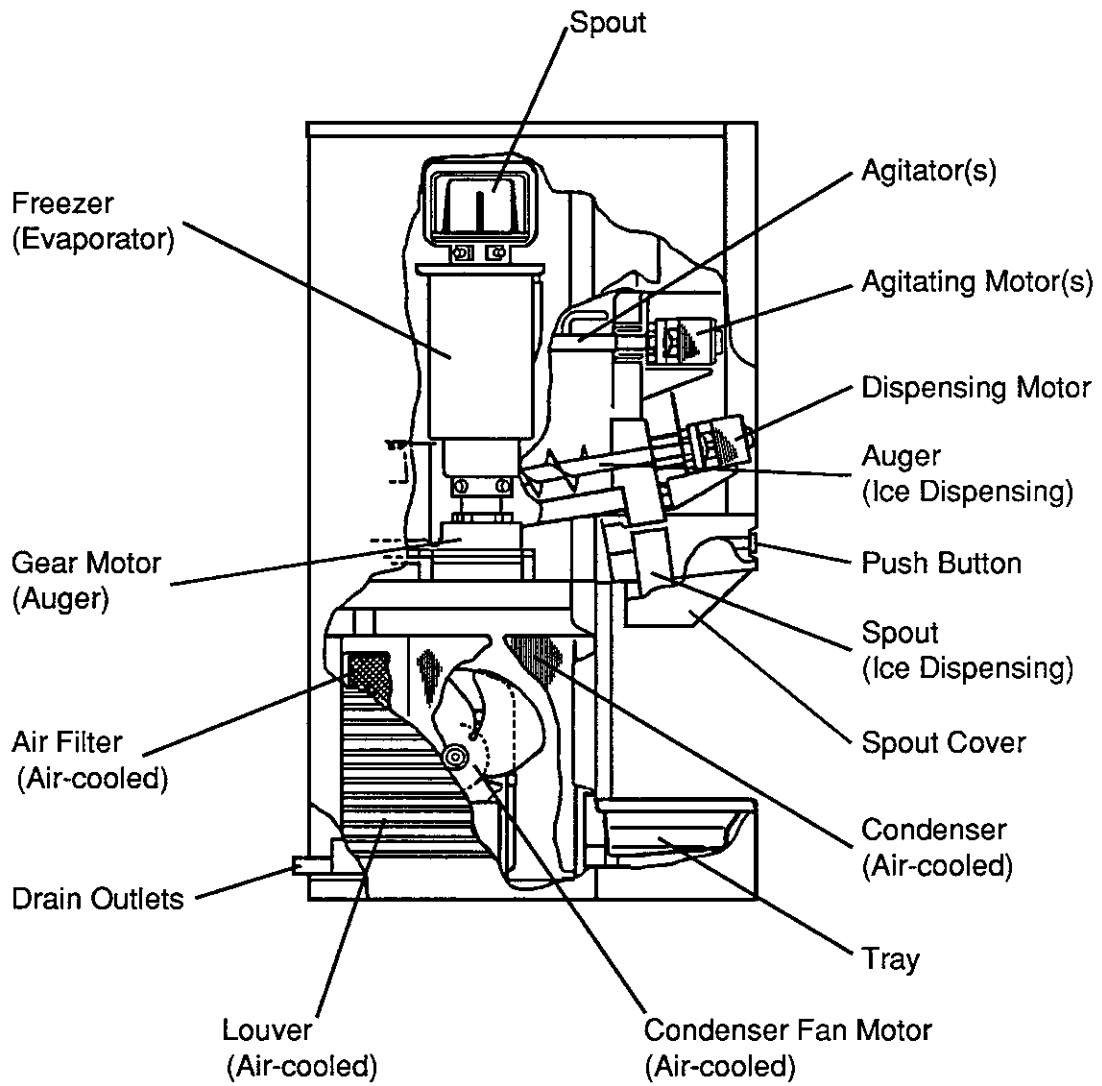


Fig. 2

2. OPERATION - How it works

Water flows from a potable water source through the Water Supply Line Shut-off Valve, enters at the water inlet fitting and on to the Water Supply Assembly. The Water Supply functions to maintain a constant water level inside the Freezer Assembly. Water from the Water Supply enters at the bottom of the Freezer and is changed into ice by heat-exchanging refrigerant from the Condensing Assembly.

A stainless steel Auger inside the Freezer is directly driven by the Gear Motor, and the rotating Auger carries the ice upward to the end of the Auger, where excess water is pressed out of the ice, as it is extruded and broken into cubelet ice (compressed ice) and then pushed out into the Ice Storage bin through the Ice Spout.

Turning on the Power Switch on the Control Box starts the automatic and continuous ice making process. When the Ice Storage Bin is filled with ice, the Bin Control Switch, located on the top of the Storage Bin, shuts off the icemaking process. As the ice is removed from the Storage Bin, the Bin Control Switch gets reset automatically and restarts the icemaking process.

Moving the Change Switch to the "PORTION" position gives the user a portion-controlled mode, resulting in dispensing a certain amount of ice (See "III. 10.CONTROLS AND ADJUSTMENT") when the Push Lever or the Push Button is pressed. Moving the switch to the "CONTINUOUS" position, gives a continuous dispensing mode, resulting in dispensing ice while the Push Lever or the Push Button is being pressed.

An Agitator mechanism in the Storage Bin functions to get a smooth ice flow and to prevent making an ice block.

3. TIMER BOARD

[a] SOLID-STATE CONTROL

- 1) A HOSHIZAKI exclusive solid-state control is employed in DCM-450BAA, DCM-450BWA, DCM-700BAA, DCM-700BWA, DCM-450BAB, DCM-450BWB, DCM-700BAB, DCM-700BWB cubelet ice dispensers. This control includes a Micro Processor (LSI), developed by HOSHIZAKI.
- 2) A Printed Circuit Board (hereafter called "Timer Board") includes a stable and high-quality control system.
- 3) Any complicated adjustment is not required. All models are pretested and factory-adjusted.

[b] TIMER BOARD

CAUTION

1. Fragile, handle very carefully.
2. A timer board contains CMOS (Complementary Metal-Oxide Semiconductor) integrated circuits, which are susceptible to failure due to static discharge. It is especially important to use an anti-static wrist strap when handling or replacing the board.
3. Do not touch the electronic devices on the board or at the back of the board to prevent damage to the board.
4. Do not change wiring and connections. Especially, never misconnect K1, K2, K3 and K4.
5. Do not fix the electronic devices or parts on the board in the field. Always replace the whole board assembly when it goes bad.

See below for the appropriate Timer Board for each model:

ICE DISPENSER MODEL	PART CODE	MODEL
DCM-450BAA/BWA DCM-700BAA/BWA	2U0098-01	H2AA086C01 or C02
DCM-450BAB/BWB DCM-700BAB/BWB	2U0098-02	H2AA086C03

Note: Be sure to use the Timer Board proper for the model installed.

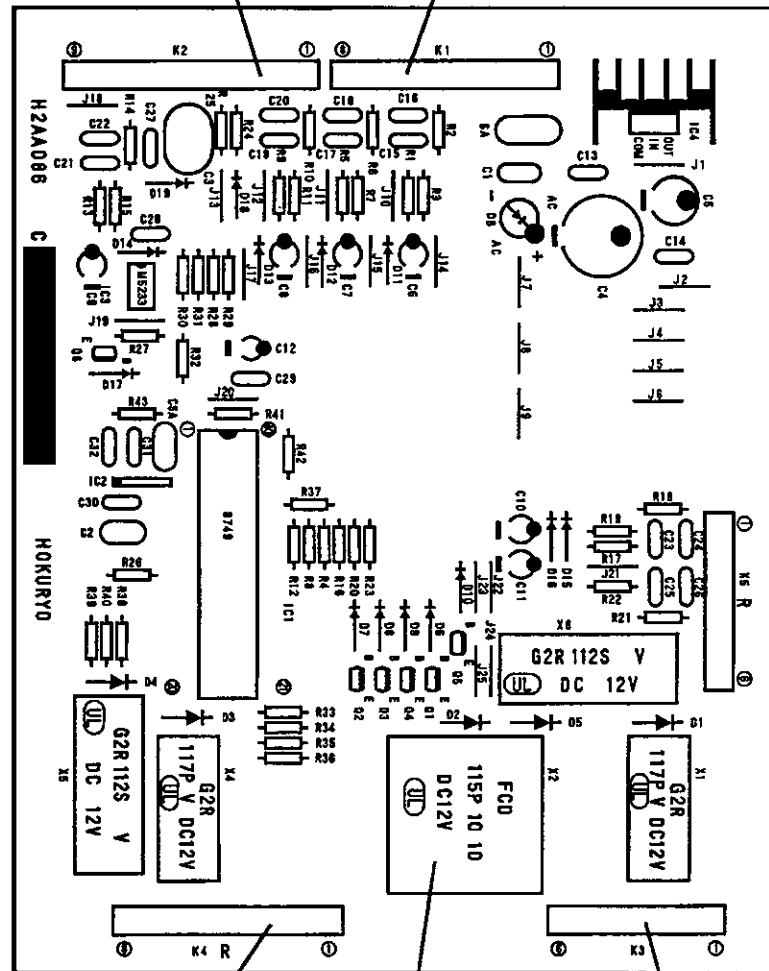
**DCM-450BAA, DCM-450BWA
DCM-700BAA, DCM-700BWA**

Connector K2

- #1,2 Pressure Switch
- #3,4 Variable Resistor
- #6,7 Ice Switch
(continuous)
- #8,9 Time Meter

Connector K1

- #1,2 Power
- #3,4 Bin Controlled Circuit
- #7,8 Ice Switch
(portion controlled)



Connector K4

- #5,6 X4 Relay
(Agitating Mot.)
- #7,8 X5 Relay
(Dispensing Mot.)
(Solenoid)

X2 Relay
(Comp. Relay)
(Fan Mot.)

Connector K3
#2,3 X1 Relay
(Gear Mot.)

Fig. 3

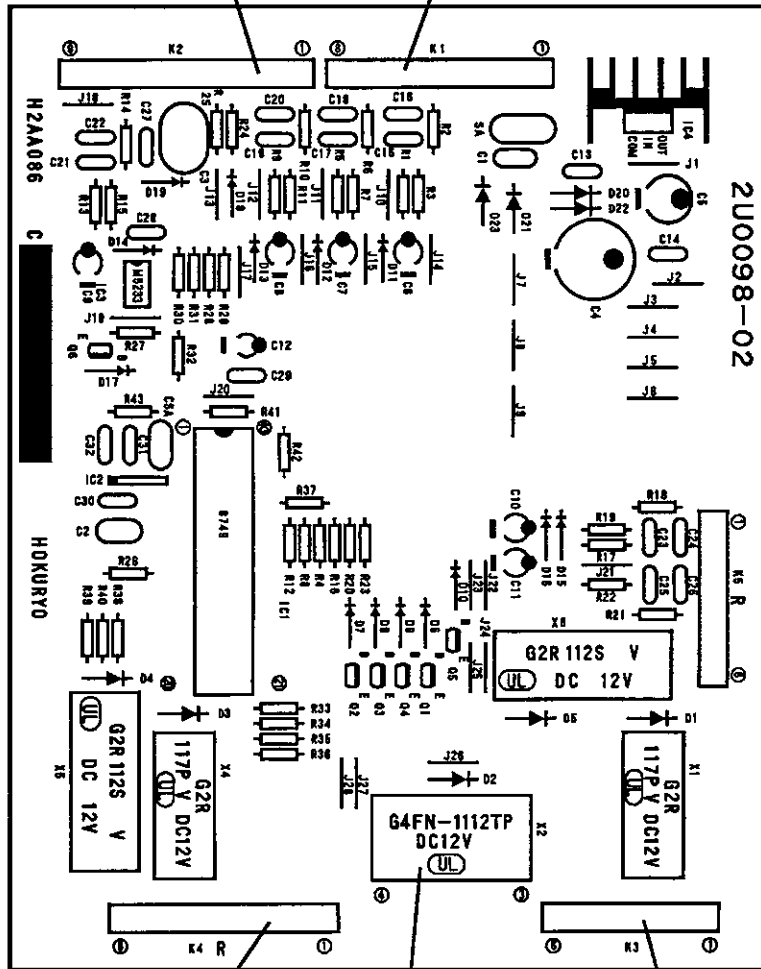
**DCM-450BAB, DCM-450BWB
DCM-700BAB, DCM-700BWB**

Connector K2

- #1,2 Pressure Switch
- #3,4 Variable Resistor
- #6,7 Ice Switch
(continuous)

Connector K1

- #1,2 Power
- #3,4 Bin Controlled Circuit
- #7,8 Ice Switch
(portion controlled)



Connector K4

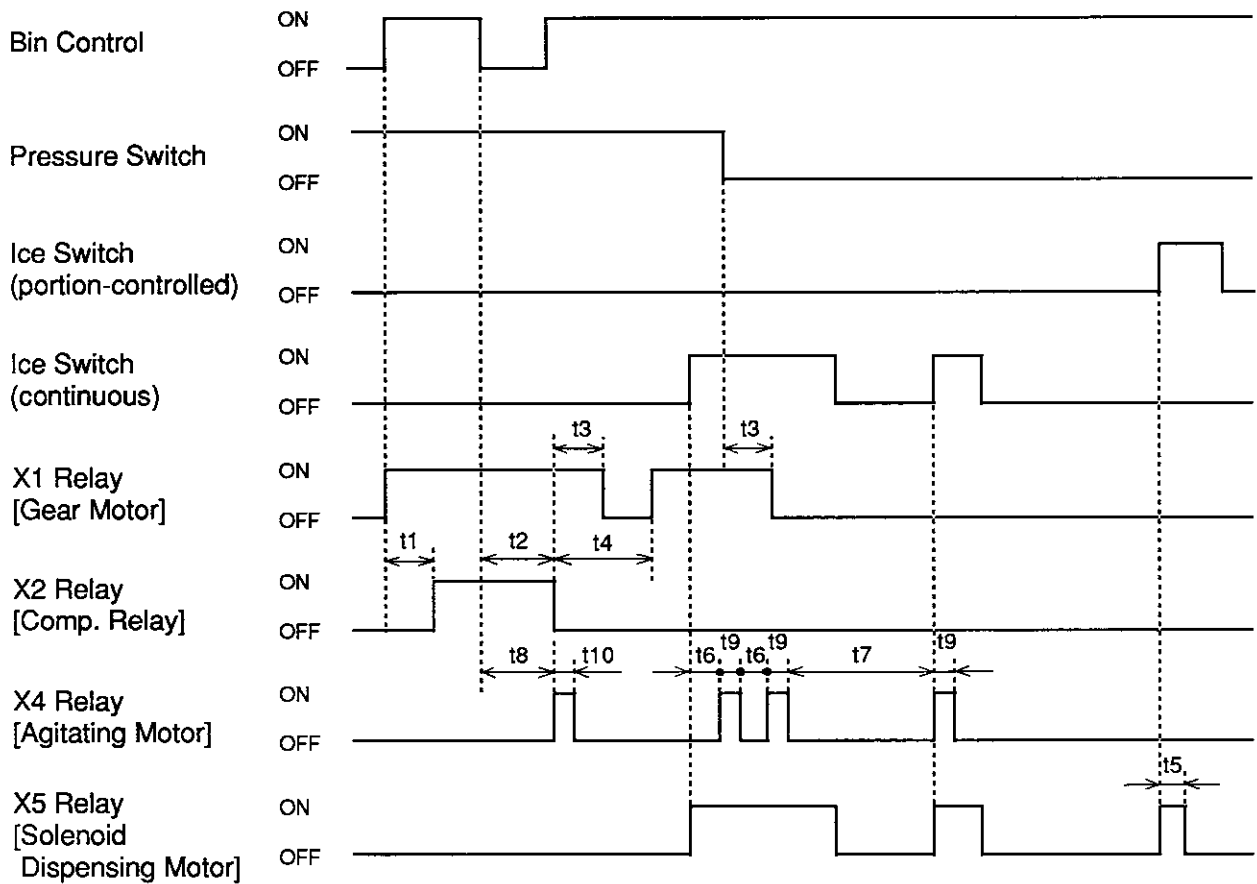
- #1,2 X2 Relay Coil
(Comp. Relay)
- #5,6 X4 Relay
(Agitating Mot.)
- #7,8 X5 Relay
(Dispensing Mot.)
(Solenoid)

X2 Relay
(Comp. Relay)
(Fan Mot.)

Connector K3
#2,3 X1 Relay
(Gear Mot.)

Fig. 4

[c] SEQUENCE



MARK	ITEM		TIME
t1	X2 Relay ON-delay Time		60 sec
t2	X2 Relay OFF-delay Time		90 sec
t3	X1 Relay OFF-delay Time		60 sec
t4	X1 Relay Restarting Delay Time		120 sec
t5	X5 Relay ON Time	Minimum	0.6 sec
		Maximum	20 sec
t6	X4 Relay Anti-restart Time		12 sec
t7	X4 Relay Anti-reset Time		20 min
t8	X4 Relay ON-delay Time		90 sec
t9	X4 Relay ON Time (after completing t6)		0.6 sec
t10	X4 Relay ON Time (after completing t8)		0.6 sec

Operating Instructions

1) X1

- * is made just as Bin Control Circuit is closed.
- * is released t3 sec. later than X2 is released after t2 sec. delay since Bin Control Circuit is opened.
- * is not made for t4 sec. after X2 is released, even if Bin Control Circuit is closed.

2) X2

- * is made t1 sec. after Bin Control Circuit is closed.
- * is released t2 sec. after Bin Control Circuit is opened.
- * is not made while Pressure Switch is off, regardless of Bin Control Circuit's being ON or OFF.

3) X4

- * is made for t10 sec. after t8 sec. delay since Bin Control Circuit is closed.
- * is made for t9 sec. after t6 sec. delay since X5 is made by closing Ice Switch (portion controlled) or Ice Switch (continuous).
- * is made just as X5 is made by closing Ice Switch (portion controlled) or Ice Switch (continuous), after t7 min. has passed since X4 is opened.

4) X5

- * is made for t5 sec. after Ice Switch (portion controlled) is closed.
- * is ON while Ice Switch (continuous) is ON.

III. INSTALLATION AND OPERATING INSTRUCTIONS

1. CHECKS BEFORE INSTALLATION

WARNING

Remove shipping carton, tape(s) and packing. If packing material is left in the ice dispenser, it will not work properly.

- 1) Remove the Upper Front, Top and Side Panels to prevent damage when installing the ice dispenser. (See "2. HOW TO REMOVE PANELS.")
- 2) Remove the package containing accessories.
- 3) Check that refrigerant lines do not rub or touch lines or other surfaces, and that the fan blade moves freely.
- 4) Check that the compressor is snug on all mounting pads.
- 5) See the Nameplate on the upper part of the Left Side Panel, and check that your voltage supplied corresponds with the voltage specified on the Nameplate.
- 6) Check that a spare fuse is provided as an accessory. For DCM-450, 1 A and 0.5 A fuses, and for DCM-700, 3 A and 0.5 A fuses are located on the control box.

2. HOW TO REMOVE PANELS

[a] DCM-450BAA, DCM-450BWA DCM-700BAA, DCM-700BWA

- a) Upper Front Panel Remove the screws. Lift up and pull toward you.
- b) Top Panel Remove the Thumb-screw. Lift up the front and push away.
- c) Side Panel Remove the screws and pull toward you.

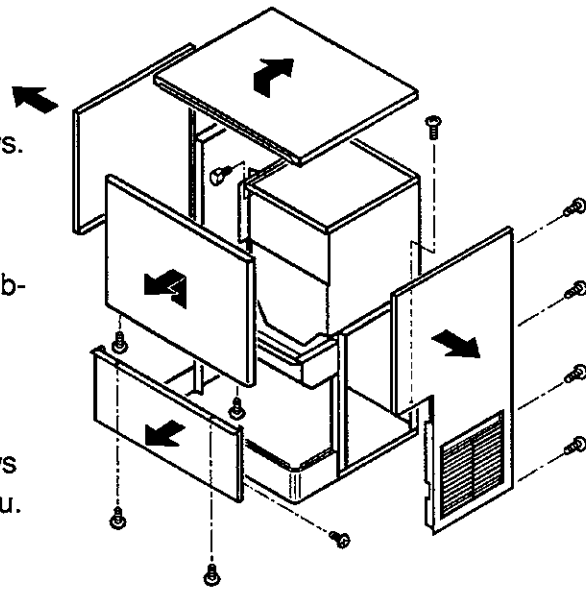


Fig. 5

[b] DCM-450BAB, DCM-450BWB DCM-700BAB, DCM-700BWB

- a) Upper Front Panel Remove the screw. Pull the bottom toward you.
- b) Top Panel Remove the Thumb-screw. Lift up the front and push away.
- c) Side Panel Remove the screws and pull toward you.

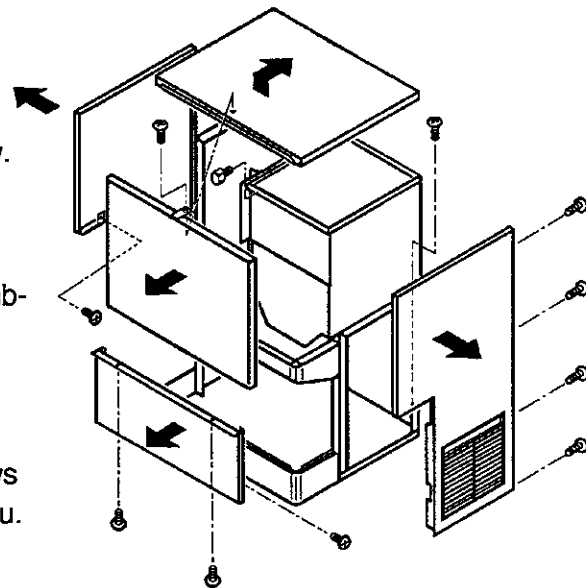


Fig. 6

3. LOCATION

WARNING

This ice dispenser is not designed for unsheltered outdoor installations. Normal operating ambient temperature should be within +45°F to +100°F. Normal operating water temperature should be within +45°F to +90°F. Operation of the ice dispenser, for extended periods, outside of these normal temperature ranges may affect production capacity.

For best operating results:

- * Ice dispenser should not be located next to ovens, grills or other high heat producing equipment.
- * Location should provide a firm and level foundation for the equipment.
- * Allow 6" clearance at rear, sides and top for proper air circulation and ease of maintenance and/or service should they be required.
- * Avoid a site where dripping is not allowed.

4. SET UP

- 1) Unpack the ice dispenser and remove all shipping cartons, tapes and packings.
- 2) Provide four 6" adjustable legs and attach them to the bottom of the ice dispenser.

Note: When placing the ice dispenser on the Cabinet Stand, see "5. CABINET STAND."

- 3) Position the ice dispenser in the selected permanent site.
- 4) Level the ice dispenser in both the left-to-right and front-to-rear directions.

5. CABINET STAND

When placing the ice dispenser on the Cabinet Stand:

- 1) Attach four adjustable legs to the Cabinet Stand. (Cabinet Stand accessory)
- 2) Remove the protective plastic film from the panels.
- 3) Remove the Front Panel by lifting up and pull toward you.
- 4) Place the ice dispenser onto the Cabinet Stand.

Combination: SD-450DCM-450BAA, BWA
DCM-450BAB, BWB
SD-700DCM-700BAA, BWA
DCM-700BAB, BWB

- 5) Secure the ice dispenser to the Cabinet Stand with four bolts. (Cabinet Stand accessory)
- 6) Seal the seam all around between the ice dispenser and the Cabinet Stand with food grade silicone. See Fig. 7.
- 7) Place the Front Panel in position.

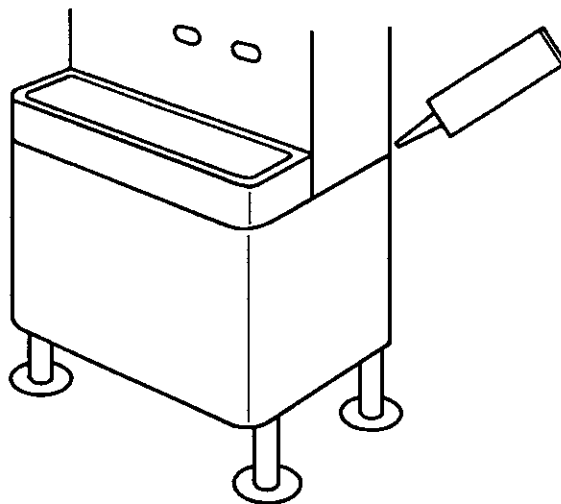


Fig. 7

DIMENSIONS WITH DCM-450BAB ON SD-450

Unit: inch (mm)

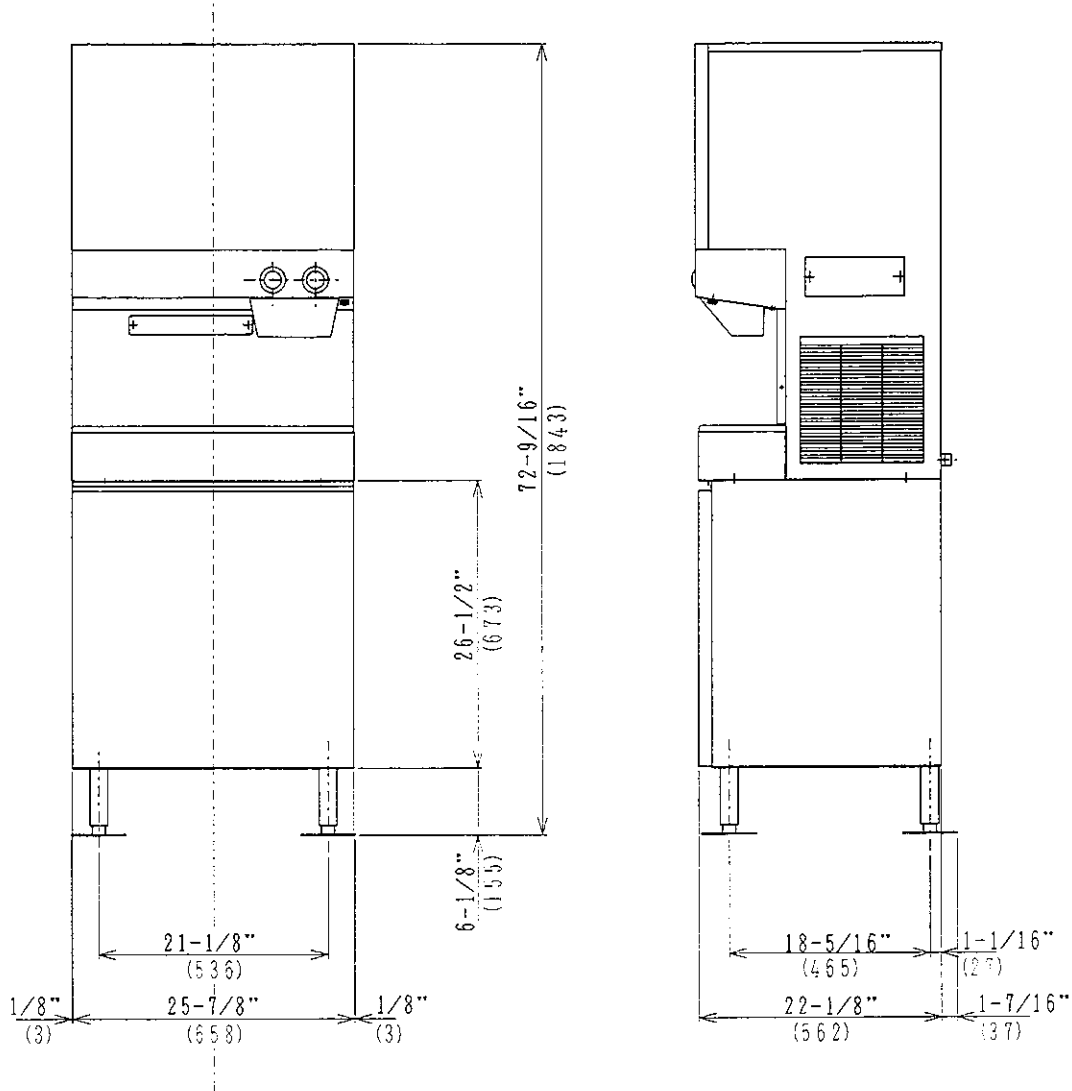


Fig. 8

DIMENSIONS WITH DCM-700BAB ON SD-700

Unit: inch (mm)

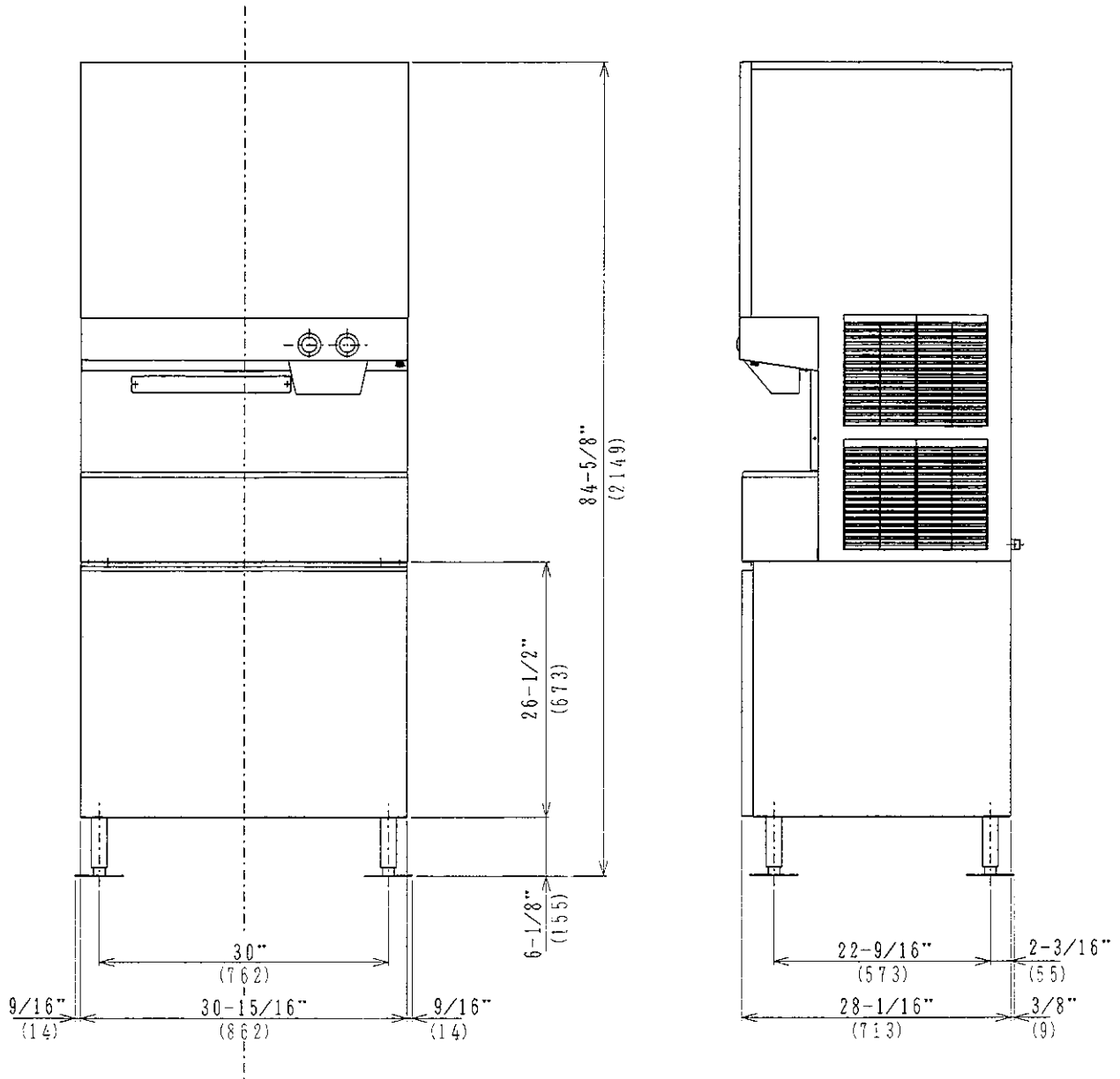


Fig. 9

6. ELECTRICAL CONNECTION

WARNING

1. Electrical connection must be made in accordance with the instructions on a "WARNING" tag, provided with the pig tail leads in the Junction Box.
2. This ice dispenser requires a ground that meets the national and local electrical code requirements. To prevent possible electrical shock to individuals or extensive damage to the equipment, install a proper ground wire to the ice dispenser.

* The white lead must be connected to the neutral conductor of the power source. Miswiring results in severe damage to the ice dispenser. See Fig. 10.

* This ice dispenser must have a separate power supply or receptacle of proper capacity. See the Nameplate.

* Usually an electrical permit and services of a licensed electrician are required.

WARNING

ELECTRICAL CONNECTION

The white lead must be connected to the neutral conductor of the power source. Miswiring results in severe damage to the ice dispenser. (See Fig. below.)

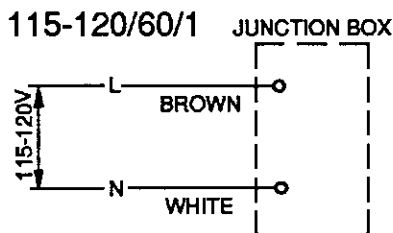


Fig. 10

Rear View

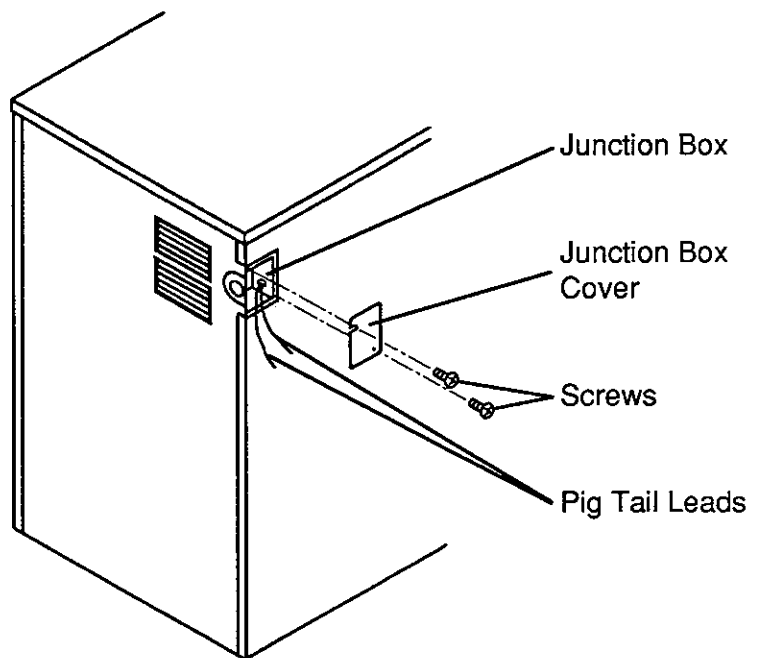


Fig. 11

7. WATER SUPPLY AND DRAIN CONNECTIONS - See Fig. 12, 13

* Water supply inlet is 1/2" female pipe thread (FPT). A strainer should be installed with the clean-out plug down. Locate the strainer in the water supply line, next to the ice dispenser with the arrow on the strainer in the direction of the water flow.

Note: a) A Part Code 311166A01 strainer is an optional extra.

b) On water-cooled models, a 1/2" FPT is provided for the Condenser Water Inlet.

* A water supply line shut-off valve and drain valve should be installed.

* Water supply pressure should be minimum 7 PSIG and maximum 113 PSIG. If the pressure exceeds 113 PSIG, use a pressure reducing valve.

* Two drain outlets are 3/4" male pipe thread (MPT).

Note: On water-cooled models, a 1/2" FPT is provided for the Condenser Drain Outlet.

* The drains must have 1/4" fall per foot on horizontal runs to get a good flow.

* Keep more than a 2" air gap between drain pipe ends or hose ends and a sink.

* A plumbing permit and services of a licensed plumber may be required in some areas.

* A back flow preventer may be required in some areas.

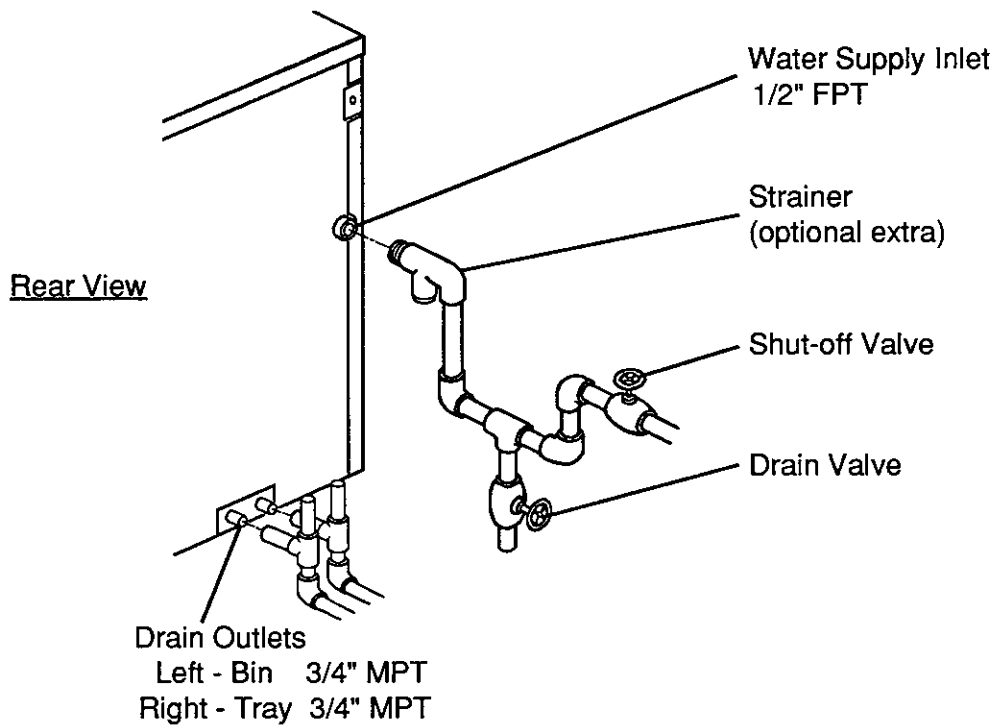


Fig. 12 Air-cooled Model

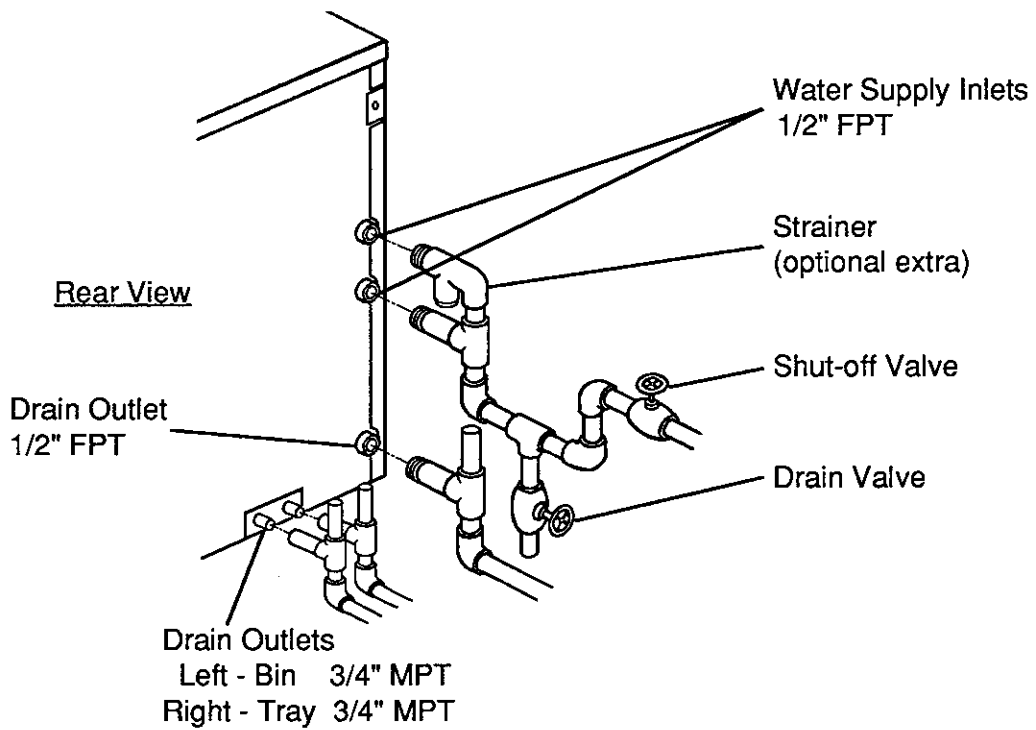


Fig. 13 Water-cooled Model

8. FINAL CHECK LIST

- 1) Is the ice dispenser level?
- 2) Is the ice dispenser in a site where the ambient temperature is within +45°F to +100°F all year around?
- 3) Is there at least 6" clearance around the ice dispenser for maintenance or service?
- 4) Have all shipping carton, tape(s) and packing been removed from the ice dispenser?
- 5) If the ice dispenser is on a cabinet stand, has it been secured to the cabinet stand with four bolts?
- 6) Have all electrical and piping connections been made?
- 7) Has the power supply voltage been checked or tested against the nameplate rating? And has a proper ground been installed in the ice dispenser?
- 8) Are the Water Supply Line Shut-off Valve and Drain Valve installed? Has the water supply pressure been checked to ensure a minimum of 7 PSIG and a maximum of 113 PSIG?
- 9) Have the compressor hold-down bolts and refrigerant lines been checked against vibration and possible failure?
- 10) Has the Bin Control Switch been checked for correct operation? Move the Activator located on the inside of the Bin Top Panel. The Compressor should stop 90 sec. later, and the Gear Motor 150 sec. later.
- 11) Has the end user been given the instruction manual, and instructed on how to operate the ice dispenser and the importance of the recommended periodic maintenance?
- 12) Has the end user been given the name and telephone number of an authorized service agent?
- 13) Has the warranty tag been filled out and forwarded to the factory for warranty registration?

9. START UP - See Fig. 14

WARNING

1. All parts are factory-adjusted. Improper adjustments may result in failure.
2. If the unit is turned off, wait for at least three minutes before restarting the ice dispenser to prevent damage to the Compressor.

- 1) Clean the Storage Bin. (See "IV. 2. MAINTENANCE.")
- 2) Open the Water Supply Line Shut-off Valve.
- 3) Turn on the power supply.
- 4) Remove the Front Panel.
- 5) Turn on the Power Switch on the Control Box.
- 6) Place the Front Panel in position.

Note: This ice dispenser is provided with a Door Switch and will not operate without the Front Panel.

CAUTION

Be sure that the Ice Making Switch, located at the bottom of the Middle Front Panel, is moved to the "ON" position.

- 7) Check that water flows into the Water Supply and Freezer Assembly.
 - * Water flows into the Reservoir through the Water Valve.
 - * Water flows into the Freezer bottom through the Feeder Tubing.
 - * The Float Switch trips to shut off or close the Water Valve.
- 8) Check the water supply and drain connections for water leaks.
- 9) After the Water Valve closed, the Gear Motor starts first, then the Compressor, and an automatic and continuous icemaking process starts.
- 10) In a few minutes, cubelet ice is extruded into the Storage Bin.
- 11) Check if there is any abnormal noise from the Compressor, Fan Motor or Gear Motor(s)

after 30 minutes' running.

- 12) Move the Change Switch, located at the bottom of the Middle Front Panel, to the "PORTION" or "CONTINUOUS" position.
- 13) Press the Push Lever or Push Button to dispense ice, and the dispensing mechanism will operate.
- 14) Press the Push Lever or Push Button to dispense water, and the Water Valve will open.

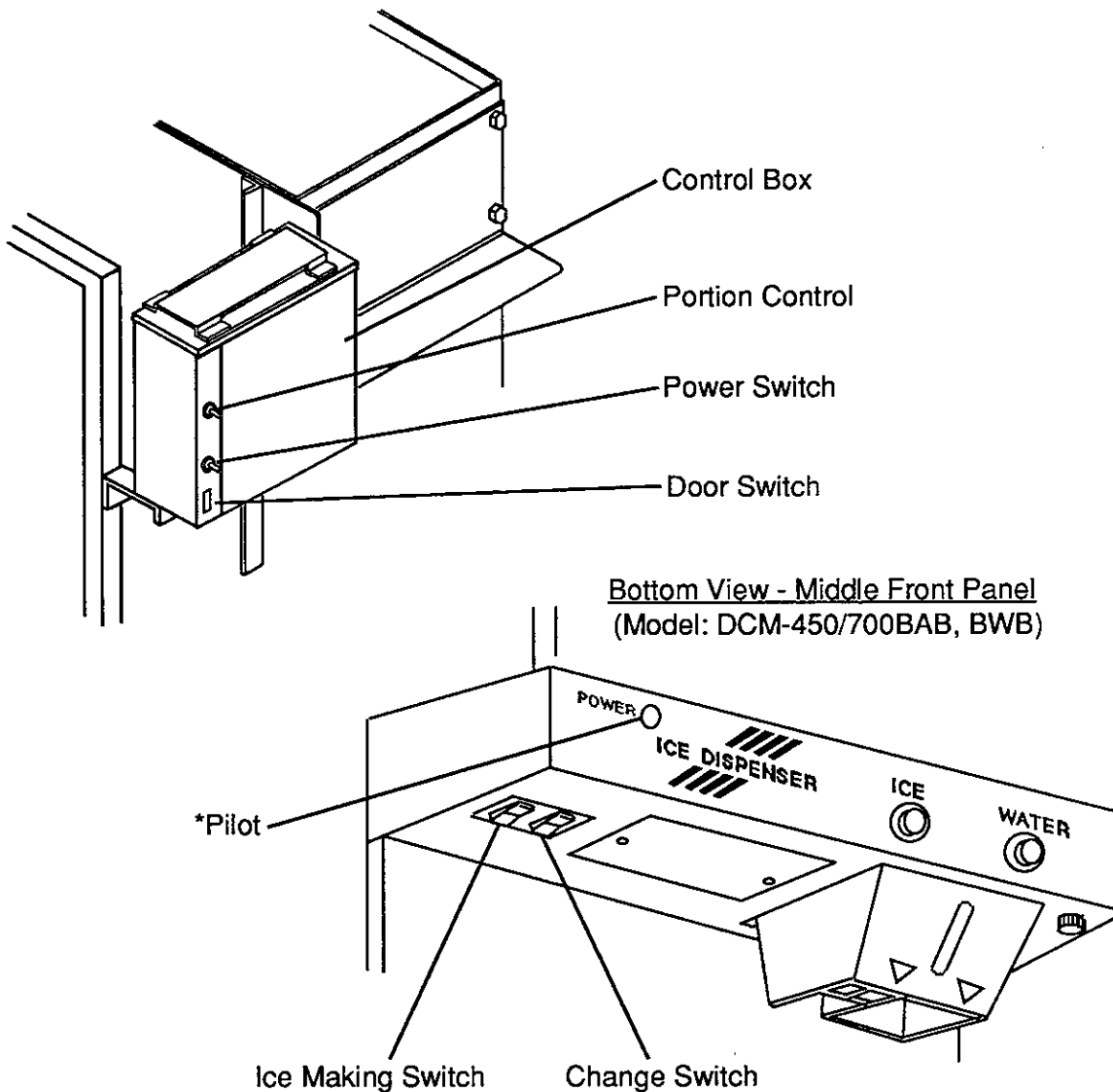


Fig. 14

Note: * The Pilot Lamp (POWER) does not light up when the Front Panel is removed, because an Interlock device is provided.

IMPORTANT

Leaving ice in long storage may result in making ice block or bridge due to wet ice. Use the Ice Making Switch in order to produce new ice at any time, using the following instructions.

1. Turn off the Ice Making Switch in advance so that the stored ice can be used up when your serving is over.
2. Turn on the Ice Making Switch a few hours before you need, because the Storage Bin takes time to be filled with ice.

10. CONTROLS AND ADJUSTMENT - Portion Control

The Portion Control which controls the amount of ice to dispense is located on the Control Box.

The figures on the label indicate dispensing time (sec.).

Model	DCM-450	DCM-700
Approximate amount of ice (oz/sec)	1.2 - 1.3	1.4 - 1.5

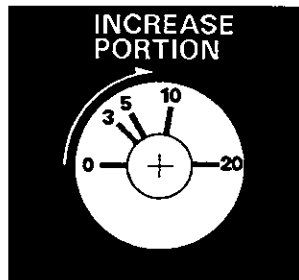


Fig. 15

Note: When shipped, the Portion Control is set at the minimum dispensing time [0.6 sec.].

Model DCM-450 about 0.72 oz
 DCM-700about 0.84 oz

11. PREPARING THE ICE DISPENSER FOR LONG STORAGE

- See Fig. 16, 17

WARNING

When shutting off the ice dispenser for an extended time, drain out all water from the water line and remove the ice from the Storage Bin. The Storage Bin should be cleaned and dried. Drain the ice dispenser to prevent damage to the water supply line at sub-freezing temperatures, using air or carbonic acid gas. Shut off the ice dispenser until the proper ambient temperature is resumed.

- 1) Close the Water Supply Line Shut-off Valve.
- 2) Move the Change Switch, on the bottom of the Middle Front Panel, to the "CONTINUOUS" position.
- 3) Press the Push Lever or Push Button to dispense ice, and remove all ice from the Storage Bin.
- 4) Open the Drain Valve at the bottom of the Middle Front Panel.
- 5) Remove the Upper Front Panel.
- 6) Turn off the Power Switch.
- 7) Place the Upper Front Panel in position, and close the Drain Valve at the bottom of the Middle Front Panel.

(Model: DCM-450/700BAB, BWB)

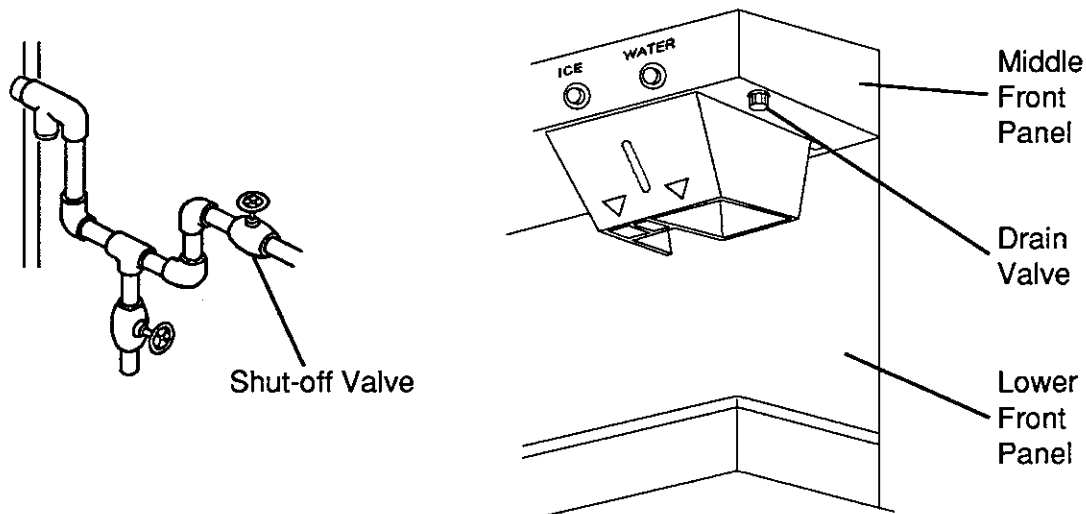


Fig. 16

IMPORTANT

Before operating the dispenser next time, check that the Drain Valve at the bottom of the Middle Front Panel and the Water Supply Line Drain Valve are closed, and open the Water Supply Line Shut-off Valve.

Note: When shutting off the ice dispenser at sub-freezing temperatures, run the ice dispenser, with the Water Supply Line Shut-off Valve closed, and blow out the water inlet line, by using air pressure. See Fig.17.

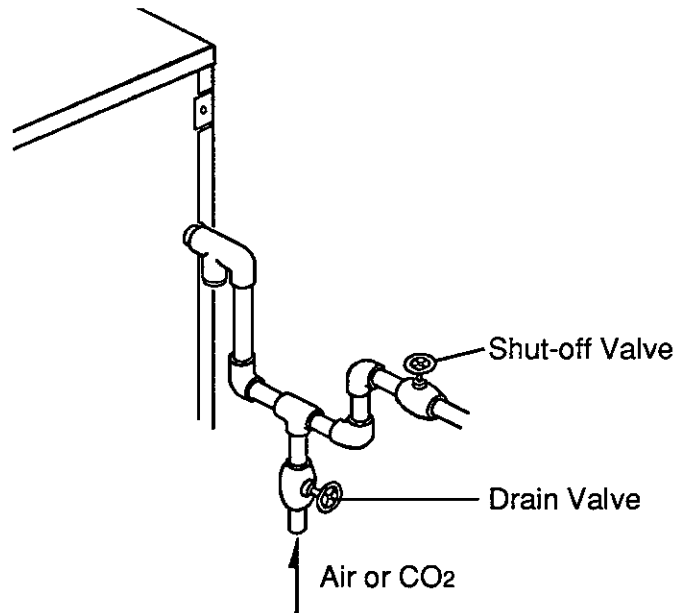


Fig. 17

IV. MAINTENANCE AND CLEANING INSTRUCTIONS

1. CLEANING INSTRUCTIONS

[a] WATER SYSTEM

WARNING

1. Clean and sanitize the ice dispenser Water System at least twice a year, by using a recommended cleaner and sanitizer.
2. Do not use any ammonia type cleaners to prevent injury to individuals.
3. Always wear liquid-proof gloves for safe handling of the cleaning and sanitizing solution, to prevent irritation in case of contact with skin.

- 1) Close the Water Supply Line Shut-off Valve.
- 2) Dilute approximately 9.6 fl oz. of recommended cleaner, "LIME-A-WAY" manufactured by Economics Laboratory, Inc., with 1.6 gal of water.
- 3) Move the Change Switch, located at the left bottom of the Middle Front Panel, to the "CONTINUOUS" position.
- 4) Press the Push Lever or Push Button to dispense ice, and remove all ice from the Storage Bin.
- 5) Remove the Front Panel and the Top Panel, and turn off the Power Switch.
- 6) Open the Drain Valve, located at the bottom of the Middle Front Panel on the right side, to drain the water system.
- 7) Shut off the Drain Valve.
- 8) Remove the Water Valve above the Reservoir, and pour the cleaning solution by using a funnel. Be careful not to overflow.
- 9) Wait for 10 minutes before starting icemaking process. Then turn on the Power Switch. Run the ice dispenser until it stops automatically.

Note: This ice dispenser will not run without the Front Panel. Place the Top Panel and the Front Panel.

- 10) Turn off the Power Switch and drain the water system. See 6) and 7).
- 11) Pour water into the Reservoir to rinse the cleaning solution, and drain the water system.

See 6) and 7).

- 12) Dilute approximately 0.82 fl oz. of a 5.25 % Sodium Hypochlorite Solution with 1.6 gal of water.
- 13) Pour the sanitizing solution into the Reservoir. Be careful not to overflow.
- 14) Wait for 10 minutes before starting icemaking process, and turn on the Power Switch. Run the ice dispenser until it stops automatically.
- 15) Turn off the Power Switch and drain the water system. See 6) and 7).
- 16) Rinse out the sanitizing solution. See 11).
- 17) Place the Water Valve, the Top Panel and the Front Panel in position.

Note: Be sure to place the Water Valve Packing.

- 18) Open the Water Supply Line Shut-off Valve, turn on the Power Switch, and run the ice dispenser for about 30 minutes.

CAUTION

Do not use ice produced from the cleaning and sanitizing solution. Be sure none remains in the Storage Bin.

[b] STORAGE BIN - Following Cleaning Procedures for Water System

- 1) Remove the Front Cover of the Storage Bin.
- 2) Remove the thumbscrews, and move the Agitating Motor(s) and the Dispensing Motor toward you. Then remove the Agitator(s) and the Dispensing Auger. See Fig. 18.

Note: Model DCM-700 is provided with two Agitators, and model DCM-450 with one Agitator.

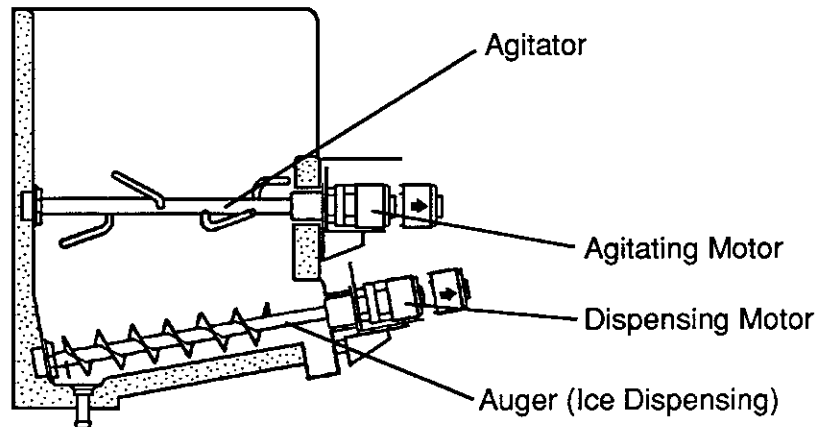


Fig. 18

- 3) Remove the Bin Control Bracket Assembly. See Fig. 19.
- 4) Remove the Snap Pin, the Shaft and the Activator.
- 5) Remove the thumbscrews, the Spout and the Packing. See Fig. 20.

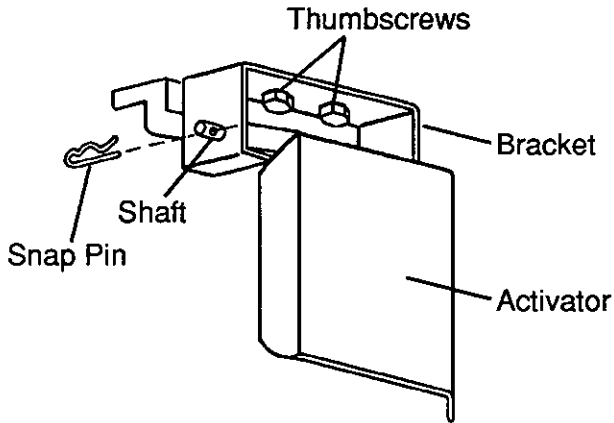


Fig. 19

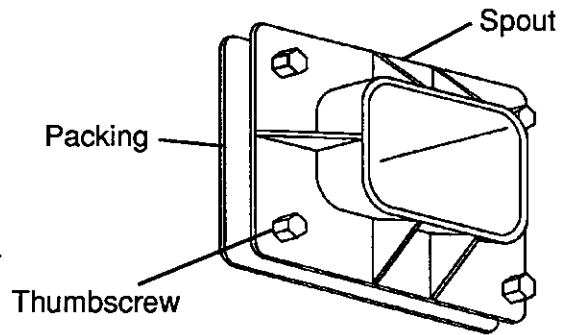


Fig. 20

- 6) Remove the Spout Cover (DCM-450/700BAB, BWB only), the black Ice Dispensing Spout and the Water Dispensing Nozzle. See Fig. 21. Model DCM-700 has an Ice Guide and a Drain Pipe in the Storage Bin. Remove and clean them.

(Model: DCM-450/700BAB, BWB)

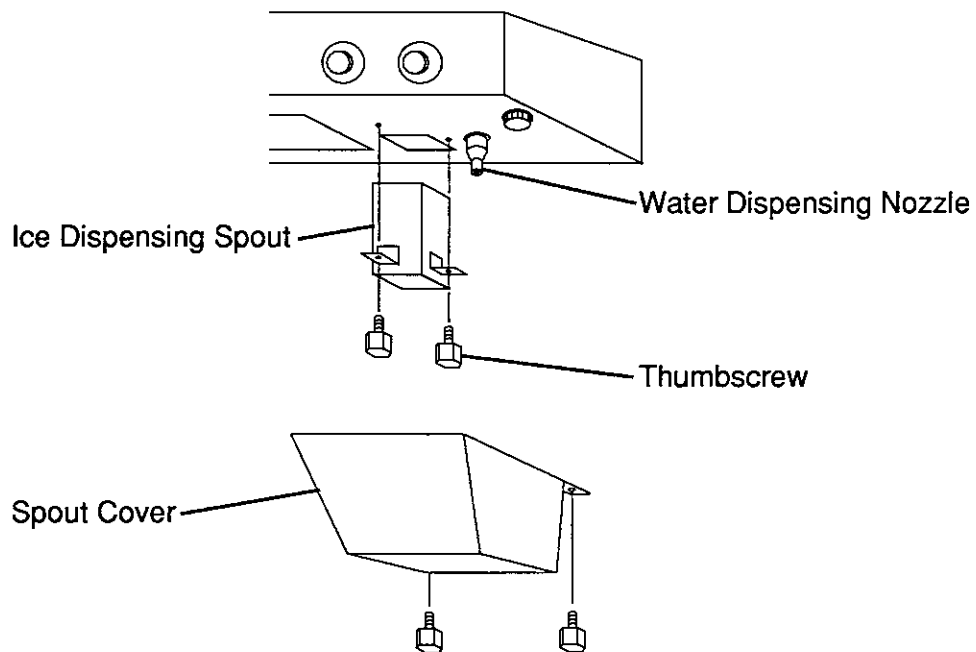


Fig. 21

- 7) Immerse the Agitator, Dispensing Auger, Bin Control Bracket Assembly, Spout, Packing, Spout Cover, black Ice Dispensing Spout and Water Dispensing Nozzle in the cleaning and sanitizing solution for about 15 minutes respectively.
- 8) Rinse these parts thoroughly with clean water.
- 9) Wipe thoroughly the Shutter located above the Ice Dispensing Spout.
- 10) Reassemble the Bin Control Bracket Assembly.
- 11) Place the Dispensing Auger, Agitator, Bin Control Bracket Assembly, Spout, Packing, black Ice Dispensing Spout, Water Dispensing Nozzle and Spout Cover (on model DCM-700, also the Ice Guide and the Drain Pipe) back in position.
- 12) Pour warm water into the Storage Bin to melt the ice produced from the cleaning and sanitizing solution.
- 13) Clean the Storage Bin liner, and rinse thoroughly.
- 14) Place the Front Cover of the Storage Bin, the Top Panel and the Front Panel back in position.

[c] WATER VALVE - See Fig. 22

IMPORTANT

If the Filter in the Water Valve becomes clogged with sediment or dirt, the water supply will be stopped and ice cannot be made. Disassemble the Water Valve and clean out the filter once every two months.

- 1) Turn off the power supply.
- 2) Close the Water Supply Line Shut-off Valve.
- 3) Remove the panels.
- 4) Remove the Fitting Nut from the Water Valve. Do not lose the Packing.
- 5) Remove the Filter from the Water Valve, remove sediment or dirt, and rinse it with water.
- 6) Place the Filter on the Water Valve.
- 7) Place the Packing and secure it carefully with the Fitting Nut to prevent leakage.
- 8) Open the Water Supply Line Shut-off Valve.
- 9) Turn on the power supply.
- 10) Check for water leaks.
- 11) Place the panels in position.

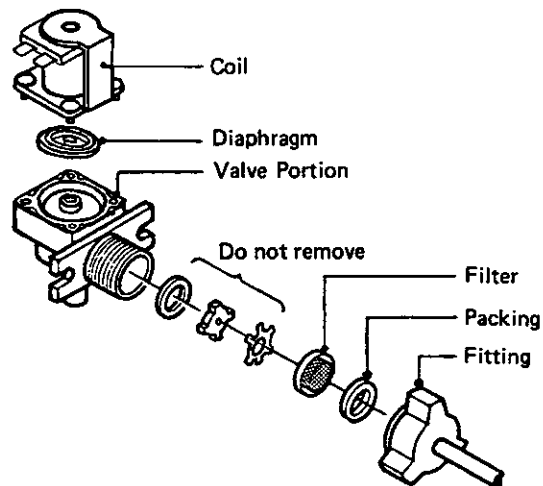


Fig. 22

[h] PRESSURE SWITCH

IMPORTANT

Always install a new Drier every time the sealed refrigeration system is opened. Do not replace the Drier until after all other repairs or replacement have been made.

- 1) Turn off the power supply.
- 2) Remove the panels.
- 3) Recover the refrigerant and store it in an approved container.
- 4) Remove the Control Box Cover, and disconnect the terminals.
- 5) Remove the Pressure Switch using brazing equipment.
- 6) Braze the new Pressure Switch with nitrogen gas flowing at the pressure 3 - 4 PSIG.
- 7) Install a new Drier.
- 8) Check for leaks using nitrogen gas (140 PSIG) and soap bubble.
- 9) Evacuate the system, and charge it with refrigerant. See the Nameplate for required refrigerant charge.
- 10) Place the terminals and the Control Box Cover in position.
- 11) Place the panels in position.
- 12) Turn on the power supply.

- (1) Turn off the power supply.
- (2) Close the Water Supply Line Shut-off Valve.
- (3) Open the Drain Valve and drain the water from the water supply line.
- (4) Close the Drain Valve.
- (5) Unscrew the Strainer Cap and remove the Filter inside.
- (6) Use a nylon brush to clean the Filter of all grime, scale, and so on. Then rinse them thoroughly.
- (7) Put the Filter back into the Strainer and secure it carefully with the Packing and the Strainer Cap.
- (8) Open the Water Supply Line Shut-off Valve.
- (9) Check for possible water leakage from the Strainer and Cap connections.
- (10) Turn on the power supply.

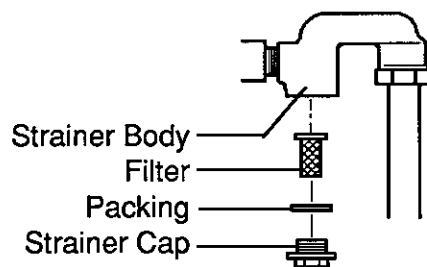


Fig. 24

2. MAINTENANCE

IMPORTANT

This ice dispenser must be maintained individually, referring to the instruction manual and labels provided with the ice dispenser.

1) Stainless Steel Exterior

To prevent corrosion, wipe the exterior occasionally with a clean and soft cloth. Use a damp cloth containing a neutral cleaner to wipe off oil or dirt build up.

2) Storage Bin

- * The Storage Bin is for ice use only. Do not store anything else in the bin.
- * Clean the bin liner using a neutral cleaner. Rinse thoroughly after cleaning.

3) Air Filter (Air-cooled model only) - See Fig. 25

A plastic mesh air filter removes dirt or dust from the air, and keeps the Condenser from getting clogged. As the filter gets clogged, the ice dispenser's performance will be reduced. Check the filter at least twice a month. When clogged, use warm water and a neutral cleaner to wash the filter.

4) Condenser (Air-cooled model only)

Check the Condenser once a year, and clean if required by using a brush or vacuum cleaner. More frequent cleaning may be required depending on the location of the ice dispenser.

5) Water System

Drain out all water from the Water System at least once a week.

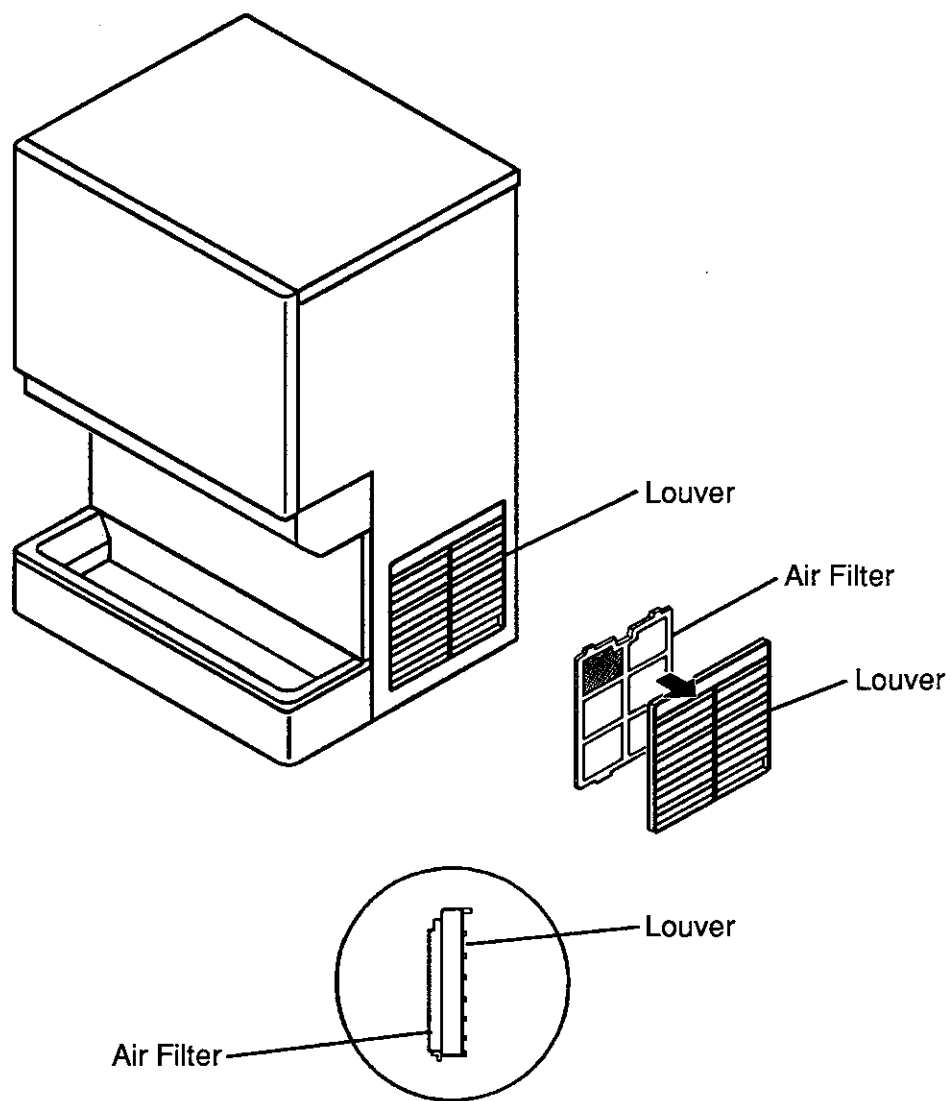


Fig. 25

V. TECHNICAL INFORMATION

1. WATER CIRCUIT AND REFRIGERANT CIRCUIT

[a] DCM-450BAA, DCM-700BAA
DCM-450BAB, DCM-700BAB (Air-cooled)

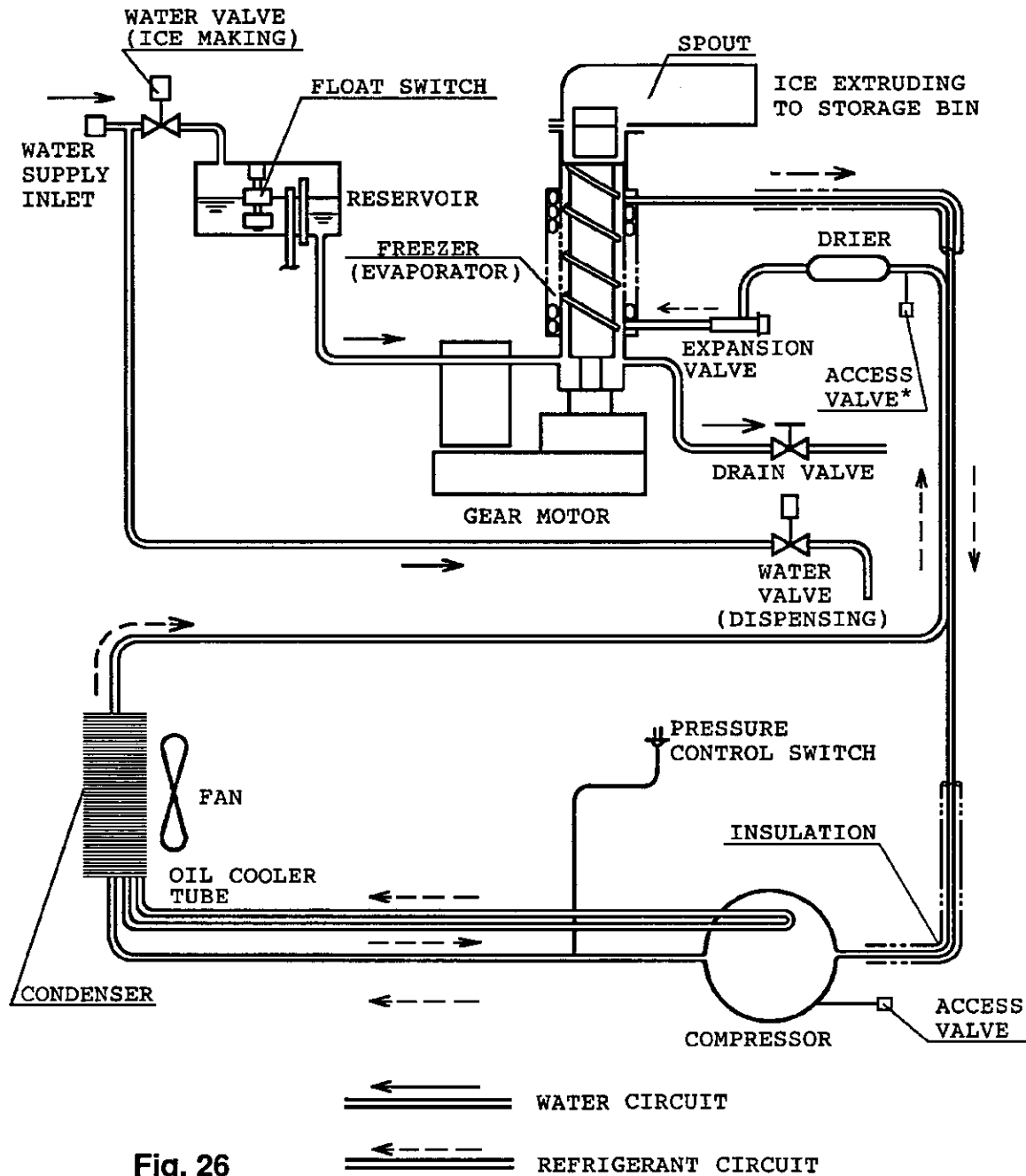


Fig. 26

Note: The Access Valve - High Side is installed in the models DCM-450/700BAB of production in and after July, 1992.

[b] DCM-450BWA, DCM-700BWA
DCM-450BWB, DCM-700BWB (Water-cooled)

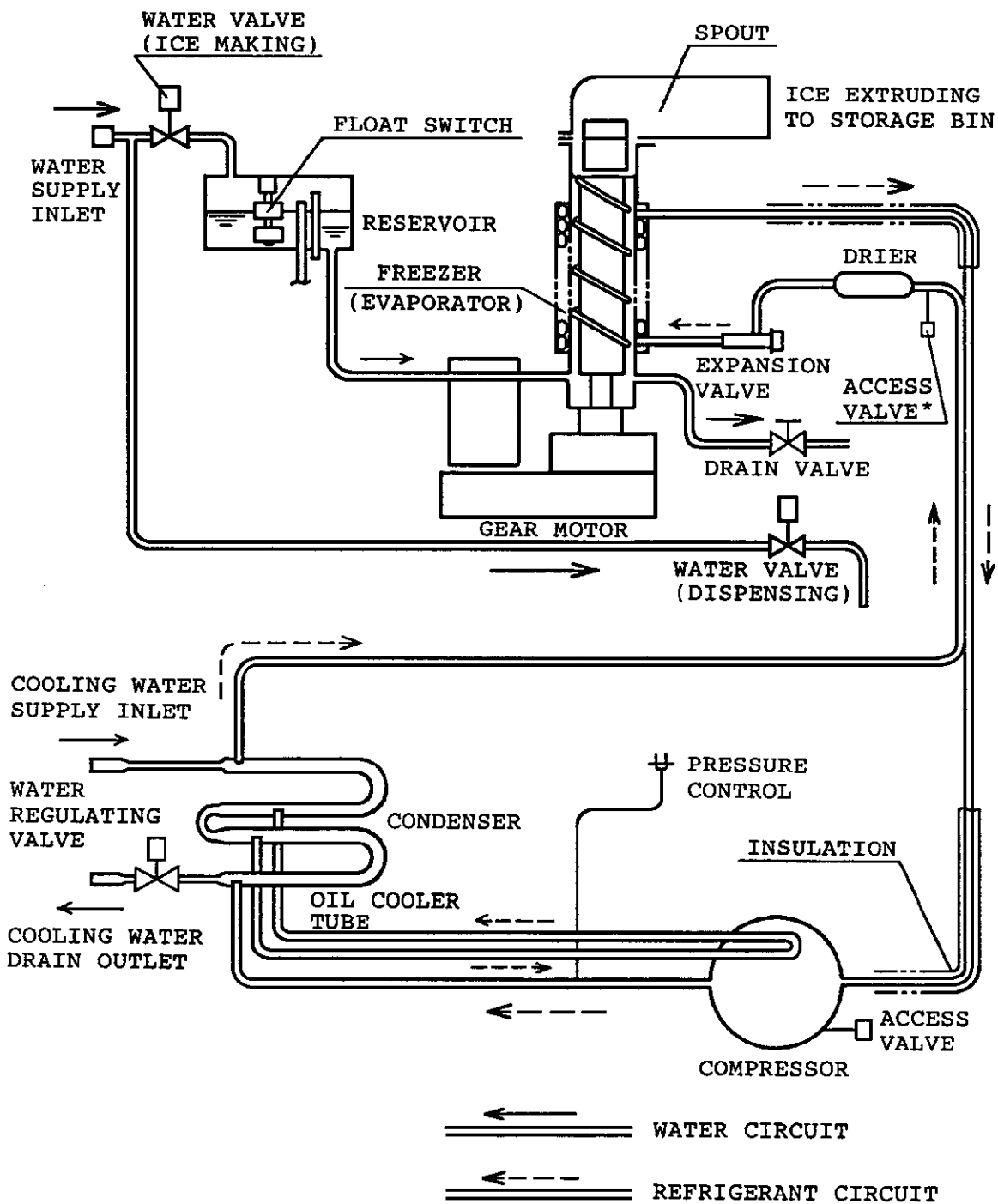


Fig. 27

Note: The Access Valve - High Side is installed in the models DCM-450/700BWB of production in and after July, 1992.

2. WIRING DIAGRAM

[a] DCM-450BAA

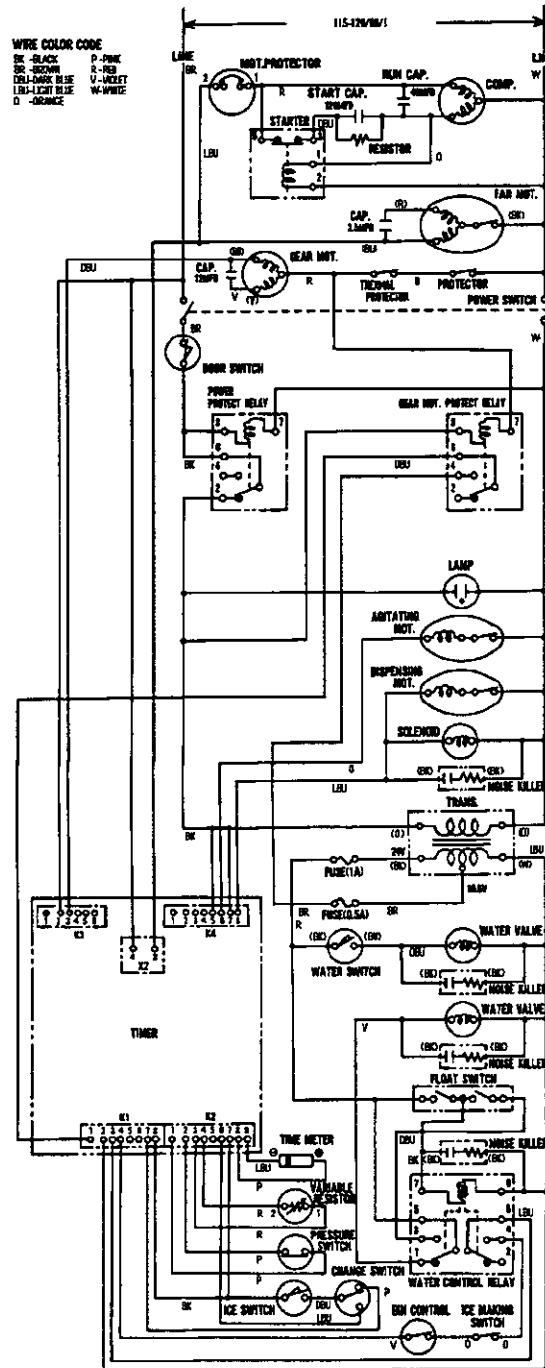


Fig. 28

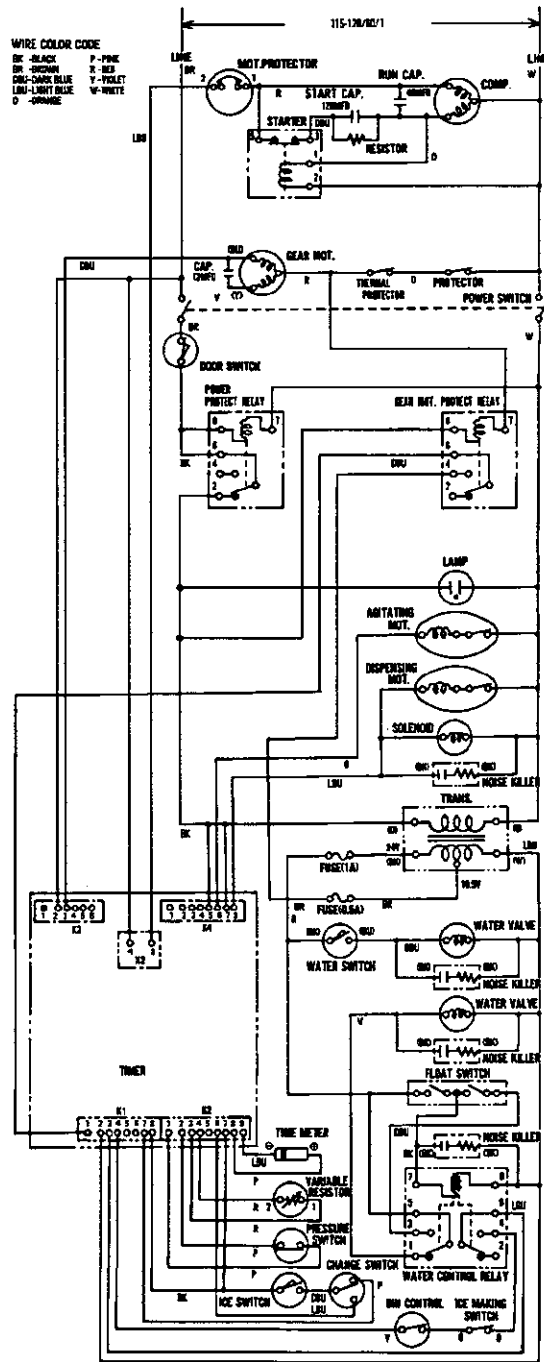


Fig. 29

[c] DCM-700BAA

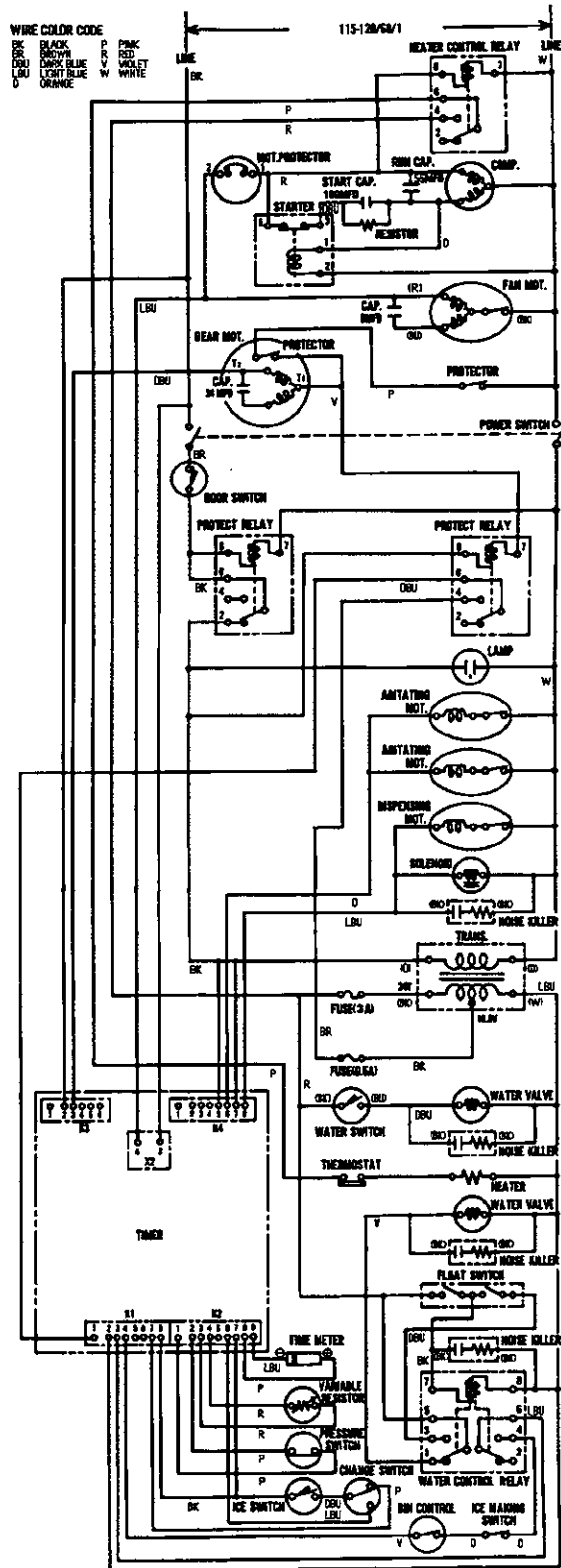


Fig. 30

[d] DCM-700BWA

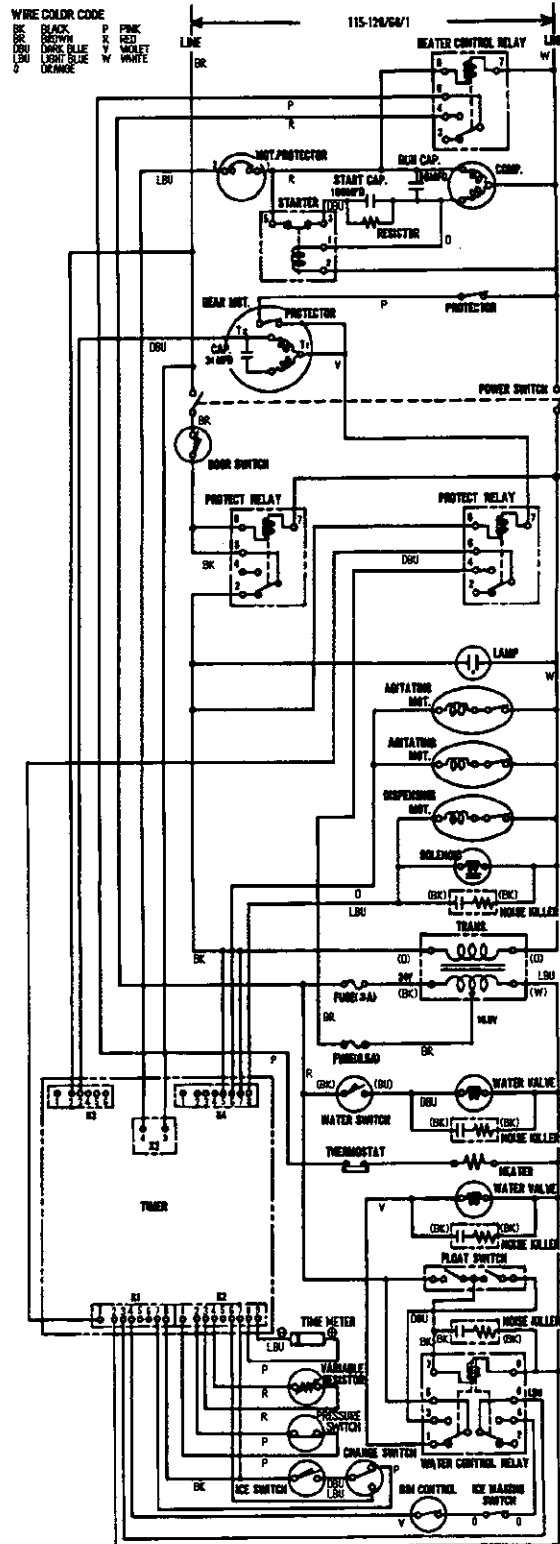


Fig. 31

[e] DCM-450BAB, DCM-450BWB

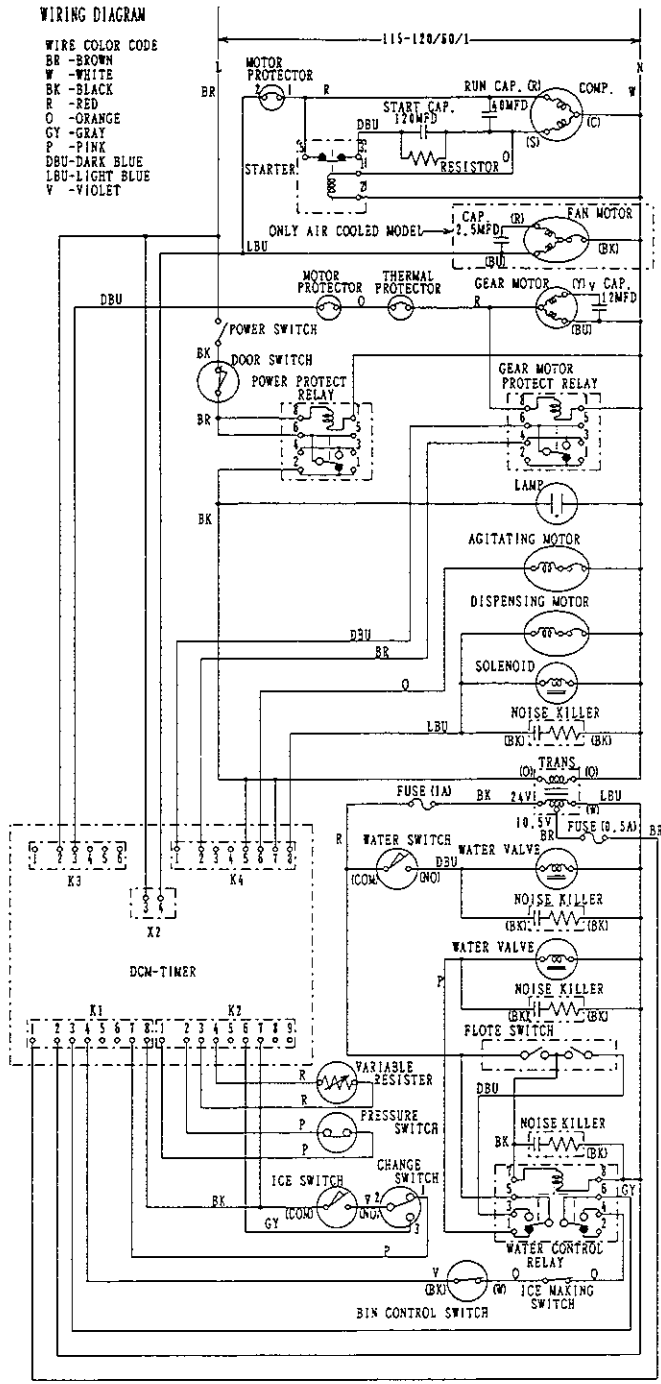


Fig. 32

[7] DCM-700BAB, DCM-700BW

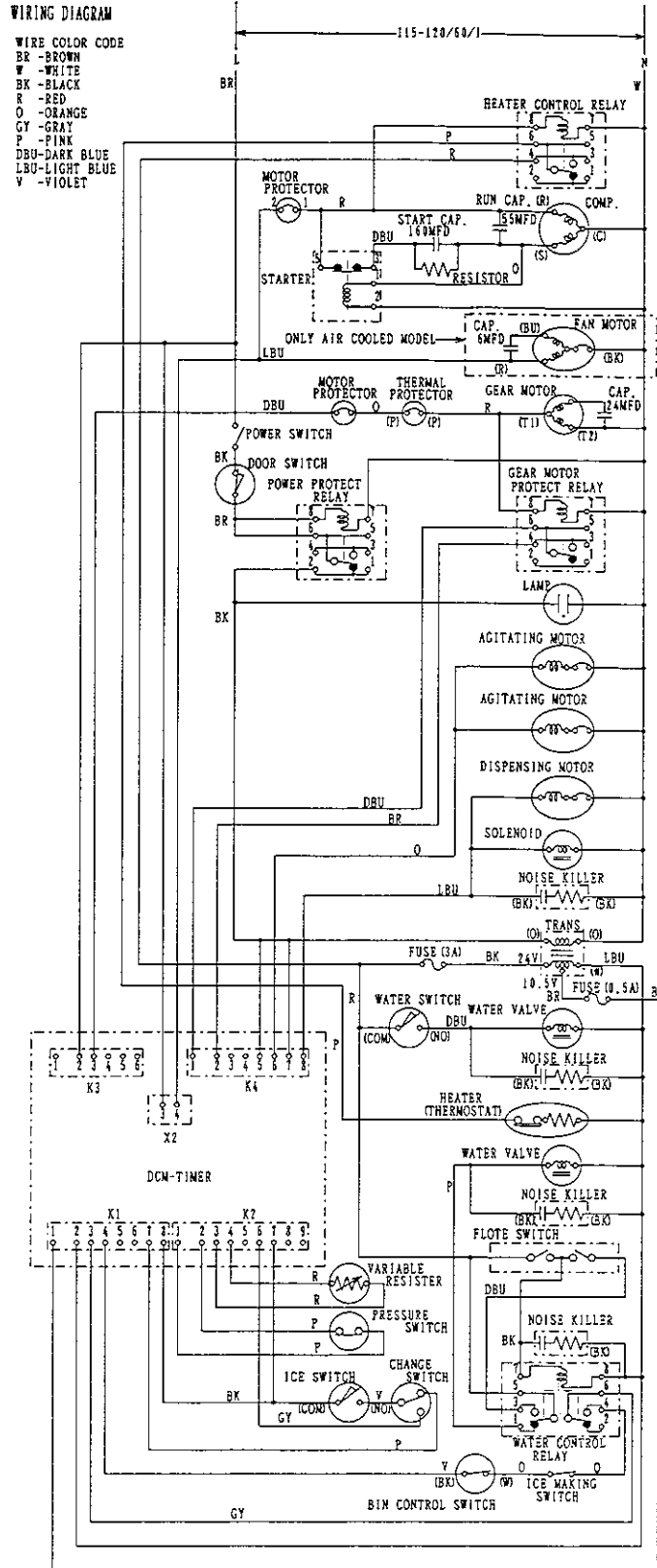
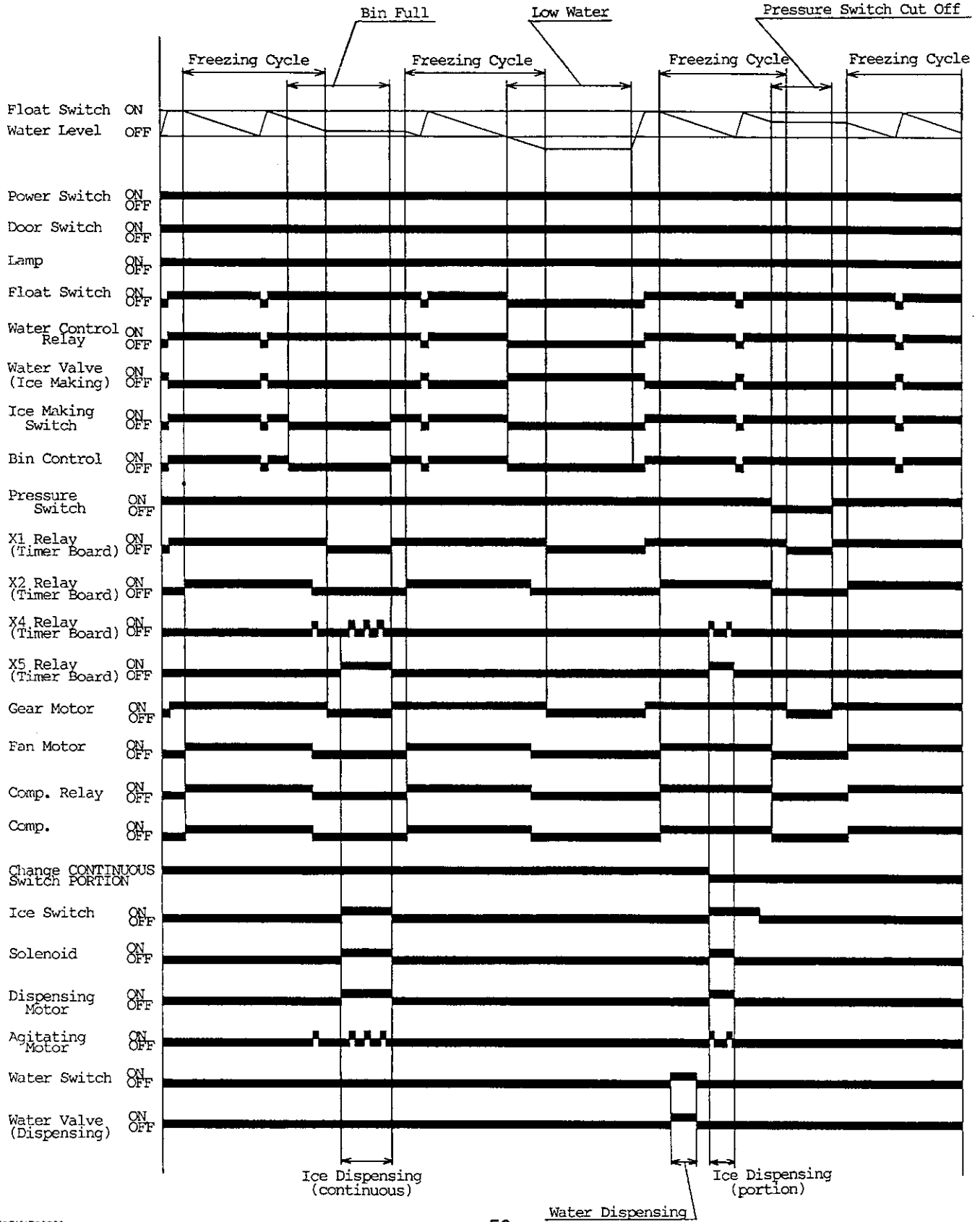


Fig. 33

3. TIMING CHART



4. PERFORMANCE DATA

[a] DCM-450BAA, DCM-450BAB

APPROXIMATE ICE PRODUCTION PER 24 HR. (MAX. CUBE SIZE)	Ambient	Water Temp. (° F)		
	Temp. (° F)	50	70	90
lbs./day (kg/day)	70	*425(193)	374(170)	349(158)
	80	400(181)	358(162)	330(149)
	90	365(166)	*334(152)	304(138)
	100	308(140)	281(127)	260(118)
APPROXIMATE ELECTRIC CONSUMPTION	70	* 900	-	-
	80	-	-	-
	90	-	* 890	-
	100	-	-	-
APPROXIMATE WATER CONSUMPTION PER 24 HR.	70	51.0(193)	44.9(170)	41.7(158)
	80	47.8(181)	42.8(162)	39.4(149)
	90	43.9(166)	40.2(152)	36.5(138)
	100	37.0(140)	33.6(127)	31.2(118)
EVAPORATOR OUTLET TEMP.	70	3.2~19.4 (-16~-7)	3.2~14.0 (-16~-10)	5.0~19.4 (-15~-7)
	80	24.8~28.4 (-4~-2)	21.2~23.0 (-6~-5)	24.8~28.4 (-4~-2)
	90	30.2~32.0 (-1~0)	28.4~32.0 (-2~0)	28.4~32.0 (-2~0)
	100	33.8~35.0 (1~2)	33.8~35.6 (1~2)	33.8~37.4 (1~3)
HEAD PRESSURE	70	107(7.5)	107(7.5)	107(7.5)
	80	124(8.7)	124(8.7)	125(8.8)
	90	139(9.8)	139(9.8)	141(9.9)
	100	164(11.5)	164(11.5)	165(11.6)
TOTAL HEAT OF REJECTION		5680 BTU/h (AT 90° /WT 70° F)		

Note: The data without *marks should be used for reference.

[b] DCM-450BWA, DCM-450BWB

APPROXIMATE ICE PRODUCTION PER 24 HR. (MAX. CUBE SIZE)	Ambient	Water Temp. (° F)		
	Temp. (° F)	50	70	90
lbs./day (kg/day)	70	* 437(198)	401(182)	366(166)
	80	423(192)	392(178)	355(161)
	90	417(189)	* 375(170)	340(154)
	100	412(187)	373(169)	335(152)
APPROXIMATE ELECTRIC CONSUMPTION	70	* 840	837	837
	80	837	825	837
	90	837	* 837	837
	100	837	825	825
APPROXIMATE WATER CONSUMPTION PER 24 HR.	70	433(1638)	573(2169)	1147(4342)
	80	462(1747)	580(2194)	1229(4653)
	90	461(1744)	577(2186)	1227(4646)
	100	468(1771)	615(2329)	1317(4986)
EVAPORATOR OUTLET TEMP.	70	23.0 ~ 20.3 (-5 ~ -6.5)	23.0 ~ 20.3 (-5 ~ -6.5)	27.5 ~ 24.8 (-2.5 ~ -4)
	80	24.8 ~ 21.2 (-4 ~ -6)	26.6 ~ 23.0 (-3 ~ -5)	28.4 ~ 26.6 (-2 ~ -3)
	90	24.8 ~ 22.1 (-4 ~ -5.5)	26.6 ~ 23.0 (-3 ~ -5)	29.3 ~ 28.4 (-1.5 ~ -2)
	100	24.8 ~ 19.4 (-4 ~ -7)	26.6 ~ 23.0 (-3 ~ -5)	30.2 ~ 28.4 (-1 ~ -2)
HEAD PRESSURE	70	121(8.5)	118(8.3)	124(8.7)
	80	121(8.5)	121(8.5)	124(8.7)
	90	119(8.4)	121(8.5)	125(8.8)
	100	119(8.4)	121(8.5)	124(8.7)
HEAT OF REJECTION FROM CONDENSER		5160 BTU/h (AT 90° /WT 70° F)		
HEAT OF REJECTION FROM COMPRESSOR		960 BTU/h (AT 90° /WT 70° F)		
WATER FLOW FOR CONDENSER		53 gal./h (AT 100° /WT 90° F)		
PRESSURE DROP OF COOLING WATER LINE		less than 7 PSIG		

Note: The data without *marks should be used for reference.

Note: DCM-450BWA

HEAT OF REJECTION FROM CONDENSER 6620 BTU/h
 HEAT OF REJECTION FROM COMPRESSOR 1110 BTU/h

[c] DCM-700BAA, DCM-700BAB

APPROXIMATE ICE PRODUCTION PER 24 HR. (MAX. CUBE SIZE)	Ambient	Water Temp. (° F)		
	Temp. (° F)	50	70	90
lbs./day (kg/day)	70	*660(299)	608(276)	548(249)
	80	625(284)	568(258)	515(234)
	90	583(264)	*531(241)	483(219)
	100	507(230)	470(213)	449(204)
APPROXIMATE ELECTRIC CONSUMPTION	70	*1430	-	-
watts	80	-	-	-
	90	-	*1410	-
	100	-	-	-
APPROXIMATE WATER CONSUMPTION PER 24 HR.	70	79.0(299)	72.9(276)	65.8(249)
gal./day (ℓ/day)	80	75.0(284)	68.2(258)	61.8(234)
	90	69.7(264)	63.7(241)	57.9(219)
	100	60.8(230)	56.3(213)	53.9(204)
EVAPORATOR OUTLET TEMP.	70	24.8~32.0 (-4~0)	21.2~24.8 (-6~-4)	23.0~32.0 (-5~0)
	80	23.0~32.0 (-5~0)	24.8~28.4 (-4~-2)	28.4~32.0 (-2~0)
	90	32.0~35.6 (0~2)	32.0~35.6 (0~2)	30.2~35.6 (-1~2)
° F (° C)	100	35.6~37.4 (2~3)	35.6~39.2 (2~4)	35.6~37.4 (2~3)
HEAD PRESSURE	70	168(11.8)	168(11.8)	168(11.8)
PSIG (kg/cm ² G)	80	193(13.6)	192(13.5)	192(13.5)
	90	220(15.5)	235(16.5)	222(15.6)
	100	250(17.6)	262(18.4)	262(18.4)
TOTAL HEAT OF REJECTION	8440 BTU/h (AT 90° /WT 70° F)			

Note: The data without *marks should be used for reference.

[d] DCM-700BWA, DCM-700BWB

APPROXIMATE ICE PRODUCTION PER 24 HR. (MAX. CUBE SIZE)	Ambient	Water Temp. (° F)		
	Temp. (° F)	50	70	90
lbs./day (kg/day)	70	*638(289)	540(245)	472(214)
	80	624(283)	537(244)	460(209)
	90	615(279)	*530(240)	446(202)
	100	603(274)	521(236)	427(194)
APPROXIMATE ELECTRIC CONSUMPTION	70	*1285	-	-
watts	80	-	-	-
	90	-	*1250	-
	100	-	-	-
APPROXIMATE WATER CONSUMPTION PER 24 HR.	70	589(2.23)	893(3.38)	1614(6.11)
gal./day (m ³ /day)	80	610(2.31)	888(3.36)	1588(6.01)
	90	624(2.36)	956(3.62)	1609(6.09)
	100	645(2.44)	951(3.60)	1585(6.00)
EVAPORATOR OUTLET TEMP.	70	6.8~8.6 (-14~-13)	15.8~23.0 (-9~-5)	21.2~26.6 (-6~-3)
	80	6.8~8.6 (-14~-13)	12.2~17.6 (-11~-8)	23.0~26.6 (-5~-3)
	90	6.8~8.6 (-14~-13)	15.8~19.4 (-9~-7)	23.0~26.6 (-5~-3)
	100	6.8~10.4 (-14~-12)	17.6~21.2 (-8~-6)	23.0~26.6 (-5~-3)
° F (° C)				
HEAD PRESSURE	70	222(15.6)	222(15.6)	252(17.7)
	80	222(15.6)	228(16.0)	255(17.9)
	90	225(15.8)	229(16.1)	259(18.2)
	100	228(16.0)	232(16.3)	256(18.0)
HEAT OF REJECTION FROM CONDENSER	6690 BTU/h (AT 90° /WT 70° F)			
HEAT OF REJECTION FROM COMPRESSOR	1280 BTU/h (AT 90° /WT 70° F)			
WATER FLOW FOR CONDENSER	64 gal./h (AT 100° /WT 90° F)			
PRESSURE DROP OF COOLING WATER LINE	less than 7 PSIG			

Note: The data without *marks should be used for reference.

Note: DCM-700BWA

HEAT OF REJECTION FROM CONDENSER	6260 BTU/h
HEAT OF REJECTION FROM COMPRESSOR	1270 BTU/h

VI. ADJUSTMENT

1. CONSTANT PRESSURE EXPANSION VALVE

Since the Constant Pressure Expansion Valve is factory-adjusted to the ideal setting, no adjustment is required. Should an adjustment be required for some reason, perform the adjustment carefully in compliance with the following procedures.

[a] HOW TO ADJUST

- * The Adjust Screw is visible when the Cap on the end has been removed.
- * To increase the refrigerant flow, turn the Adjust Screw clockwise.
- * To decrease the refrigerant flow, turn the Adjust Screw counterclockwise.

IMPORTANT

1. Do not turn the Adjust Screw more than 90 degrees.
2. Wait for 2 or 3 minutes from an adjustment to another in order to stabilize the system.

- * Adjust carefully in terms of overall ice quality, ice production capacity, ice dispenser friction sound and Compressor heating conditions.

[b] SUCTION TEMPERATURE - HOSHIZAKI's recommendation

- 1) Locate the Thermometer on the Evaporator Outlet Pipe at a point 2 - 4" away from the Evaporator Foam Insulation, and check the Suction Pipe temperature.
- 2) Adjust the Constant Pressure Expansion Valve so that the Thermometer can show the values indicated in Fig. 34 - 37. A frost line should be in front of the Compressor Inlet Pipe. Note that this target is a center of temperature fluctuation.

[c] SUCTION PRESSURE

- 1) Attach a pressure gauge to the Refrigerant Access Valve.
- 2) Adjust the Constant Pressure Expansion Valve so that the pressure gauge shows the following value. A frost line should be in front of the Compressor Inlet Pipe.

DCM-450	Refrigerant 12	9 - 11 PSIG
DCM-700	Refrigerant 502	33 - 38 PSIG

Note: A 90° rotation of the Adjust Screw makes a 1.4 - 1.7 PSIG increase or decrease, depending on directions.

CW - increase the low-side pressure
CCW - decrease the low-side pressure

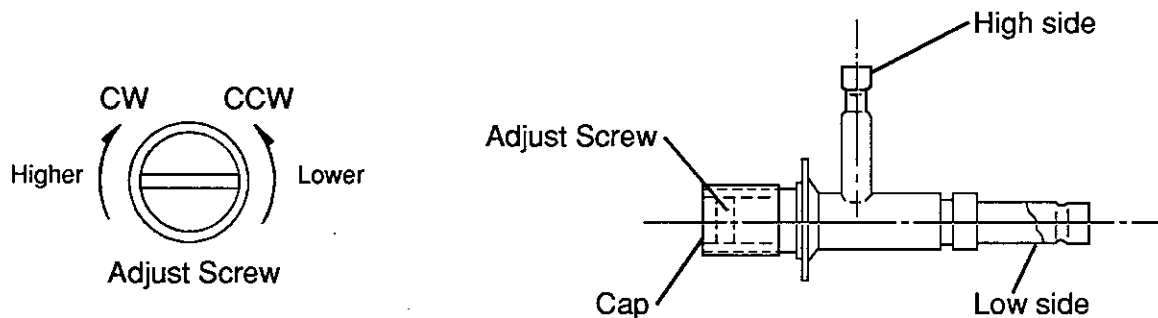


Fig. 34

2. WATER REGULATING VALVE - WATER-COOLED MODEL ONLY

Since the Water Regulating Valve is factory-adjusted to the ideal setting, no adjustment is required.

Standard Condensing Pressure

DCM-450	Refrigerant 12	121 PSIG
DCM-700	Refrigerant 502	228 PSIG

The condensing pressure becomes higher than the standard condensing pressure as the water temperature rises and/or freezing cycle starts. The drain water temperature from the Condenser is approximately 104°F during the normal operation. If the drain water temperature exceeds the limits of 100 - 108°F, adjust it in compliance with the following procedure.

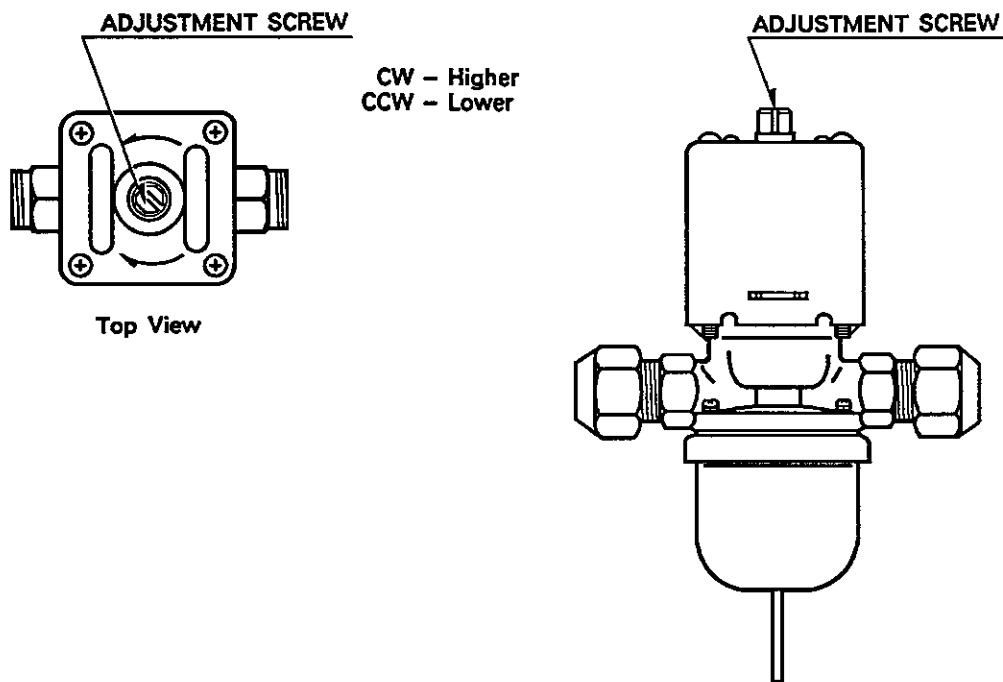


Fig. 35

- * Turn the Adjust Screw clockwise and decrease the flow of cooling water if the drain water temperature is below 100°F.
- * Turn the Adjust Screw counterclockwise and increase the flow of cooling water if the drain water temperature is above 108°F.

VII. SERVICE DIAGNOSIS

PROBLEM	POSSIBLE CAUSE	REMEDY	
[1] The ice dispenser will not start.	a) Power Supply	1. OFF position.	1. Move to ON position.
		2. Loose connections.	2. Tighten.
		3. Bad contacts.	3. Check for continuity and replace.
		4. Blown fuse.	4. Replace.
	b) Power Switch (Control Box)	1. OFF position.	1. Move to ON position.
		2. Bad contacts.	2. Check for continuity and replace.
	c) Fuse (Control Box)	1. Blown out.	1. Check for short-circuit and replace.
	d) Door Switch (Control Box)	1. Not activated.	1. Replace Upper Front Panel.
2. Bad contacts.		2. Check for continuity and replace.	
[2] Ice dispensing operates, but no ice is produced.	a) Water Control Relay	1. Bad contacts.	1. Check for continuity and replace.
		2. Coil winding opened.	2. Replace.
		3. Loose connections.	3. Tighten.
	b) Pressure Switch	1. Bad contacts.	1. Check for continuity and replace.
		2. Loose connections.	2. Tighten.
	c) Compressor	1. Does not start.	1. See "[4] Compressor will not start, or operates intermittently."
[3] Water Valve operates but no ice is produced.	a) Shut-off Valve	1. Closed.	1. Open.
		2. Water failure.	2. Wait till water is supplied.
	b) Water Valve	1. Clogged.	1. Clean. See "IV. 1. [c] WATER VALVE."
	c) Bin Control	1. Tripped with bin filled with ice.	1. Remove ice.
		2. Out of position.	2. Place in position.
		3. Bad contacts.	3. Check for continuity and replace.
		4. Activator removed.	4. Place in position.
	d) Pressure Switch	1. Bad contacts.	1. Check for continuity and replace.
		2. Loose connections.	2. Tighten.
	e) ice Making Switch	1. Bad contacts.	1. Check for continuity and replace.
		2. Loose connections.	2. Tighten.
	f) Compressor	1. Will not start.	1. See "[4] Compressor will not start, or operates intermittently."
	[4] Compressor will not start, or operates intermittently.	a) Pressure Switch	1. Dirty Air Filter or Condenser.
2. Ambient or condenser water temperature too warm.			2. Get cooler.

PROBLEM	POSSIBLE CAUSE		REMEDY	
		3. Refrigerant overcharged.	3. Recharge.	
		4. Condenser water pressure too low or off.	4. Check and get recommended pressure.	
		5. Fan not operating.	5. See "[7] Fan Motor will not start, or is not operating."	
		6. Refrigerant line or components plugged.	6. Clean and replace drier.	
		7. Bad contacts.	7. Check for continuity and replace.	
		8. Loose connections.	8. Tighten.	
		b) Overload Protector	1. Bad contacts.	1. Check for continuity and replace.
			2. Voltage too low.	2. Get higher.
		3. Refrigerant overcharged.	3. Recharge.	
	c) Starter	1. Bad contacts.	1. Check for continuity and replace.	
		2. Coil winding opened.	2. Replace.	
		3. Loose connections.	3. Tighten.	
	d) Start Capacitor or Run Capacitor	1. Defective.	1. Replace.	
	e) X2 Relay on Timer Board	1. Bad contacts.	1. Check for continuity and replace Timer Board.	
		2. Coil winding opened.	2. Replace Timer Board.	
f) Compressor	1. Loose connections.	1. Tighten.		
	2. Motor winding opened or grounded.	2. Replace.		
g) Fan Motor	1. Fan not rotating.	1. See "[7] Fan Motor will not start, or is not operating."		
h) Water Regulating Valve	1. Set too high.	1. Adjust lower. See "VI. 2. WATER REGULATING VALVE."		
	2. Defective.	2. Replace.		
[5] Poor ice production capacity.	a) Condenser	1. Dirty Air Filter or Condenser.	1. See [4]-a).	
		2. Bad ventilation.	2. Remove anything blocking vents.	
	b) Constant Pressure Expansion Valve	1. Low-side pressure or temperature exceeding the limit.	1. Check and adjust. See "VI. 1. CONSTANT PRESSURE EXPANSION VALVE."	

PROBLEM	POSSIBLE CAUSE		REMEDY
	c) Refrigerant Lines	1. Gas leaks.	1. Check for leaks with a leak detector. Reweld leak, replace drier and charge with refrigerant. The amount of refrigerant is marked on Nameplate.
	d) Installation Condition	1. Ambient temperature too high.	1. Check ventilation and location, and change as needed.
		2. Less than 6" clearance at rear and sides.	2. Allow proper clearance for ventilation.
	e) Inside Wall of Evaporator	1. Scale on inside wall of Freezing Cylinder.	1. Remove Auger. Use "LIME-A-WAY" solution to clean periodically. If water is found to be hard by testing, install a softener.
	f) Water Supply	1. Water supply interrupted or pressure too low.	1. Check water supply.
[6] Dispenser will not stop even if Bin is filled with ice.	a) Bin Control	1. Activator does not move freely.	1. Check and replace.
		2. Contacts fused.	2. Replace.
[7] Fan motor will not start, or is not operating.	a) Fan Motor	1. Motor winding opened.	1. Replace.
		2. Bearing worn out.	2. Replace.
		3. Wiring to Fan Motor.	3. Check for loose connection or open, and replace.
		4. Defective Capacitor	4. Replace.
		5. Fan blade bound	5. Check and replace.
	b) X2 Relay on Timer Board	1. Bad contacts.	1. Check for continuity and replace Timer Board.
		2. Coil winding opened.	2. Replace Timer Board.
[8] Gear Motor (Ice Making) is not operating.	a) Gear Motor	1. Motor winding opened.	1. Replace.
	b) X1 Relay on Timer Board	1. Bad contacts.	1. Check for continuity and replace Timer Board.
		2. Coil winding opened.	2. Replace Timer Board.
c) Gear Motor Capacitor	1. Defective.	1. Replace.	
[9] Auger Shaft wear.	a) Water	1. Too much impurity.	1. If wear is excessive, replace.
[10] Abnormal noise	a) Fan Motor	1. Bearings worn out.	1. Replace.
		2. Fan blade deformed.	2. Replace fan blade.
		3. Fan blade does not move freely.	3. Replace.

PROBLEM	POSSIBLE CAUSE		REMEDY
	b) Compressor	1. Bearings worn out, or cylinder valve broken.	1. Replace.
		2. Mounting pad out of position.	2. Reinstall.
	c) Refrigerant Lines	1. Rub or touch lines or other surfaces.	1. Replace.
	d) Gear Motor (Ice Making)	1. Bearing or Gear wear/damage	1. Replace.
	e) Evaporator	1. Low-side pressure too low.	1. Adjust Expansion Valve. Turn Adjust Screw CW. See "VI. 1. CONSTANT PRESSURE EXPANSION VALVE."
		2. Scale on inside wall of Freezing Cylinder.	2. See [5]-e).
	f) Agitator Motor(s) Dispensing Motor	1. Bearing or Gear wear/damage	1. Replace.
	g) Solenoid (Shutter)	1. Wear.	1. Replace.
2. Foreign matter on Plunger surface.		2. Clean.	
h) Water Valve	1. Foreign matter on Plunger.	1. Clean.	
[11] Water does not stop.	a) Water Supply	1. Water pressure too high.	1. If pressure is consistently too high, install a pressure reducing valve.
	b) Water Valve	1. Diaphragm does not close.	1. Check for water leaks with icemaker OFF. See "IV. 1. [c] WATER VALVE."
	c) Float Switch	1. Bad contacts.	1. Check for continuity and replace.
	d) Water Control Relay	1. Contacts fused.	1. Replace.
2. Coil winding opened.		2. Replace.	
[12] No water or poor flow.	a) Water Supply	1. Water failure or pressure too low.	1. Wait till water is supplied, or adjust the pressure range within 7 - 113 PSIG.
		2. Shut-off Valve closed or restricted.	2. Open.
	b) Water Valve	1. Clogged filter.	1. See [3]-b).
		2. Coil winding opened.	2. Replace.
	c) Float Switch	1. Contacts fused.	1. Replace.
2. Clogged.		2. Clean.	
d) Water Control Relay	1. Bad contacts.	1. Check for continuity and replace.	
[13] Much water drains from Evaporator's bottom.	a) Mechanical Seal (normally less than 0.017 fl.oz./h)	1. Dirt stuck on seal.	1. Clean.
		2. Seal wear.	2. Replace.

PROBLEM	POSSIBLE CAUSE		REMEDY
[14] No ice is dispensed when Push Lever or Push Button pressed.	b) O-ring	1. Scratched.	1. Replace.
	a) Ice Switch	1. Bad contacts.	1. Check for continuity and replace.
		2. Screws loosened.	2. Fasten.
	b) Solenoid (Shutter)	1. Coil winding opened.	1. Replace.
		2. Wear.	2. Replace.
		3. Something blocks Shutter plate.	3. Remove.
	c) Change Switch	1. Bad contacts.	1. Check for continuity and replace.
		2. Loose connections.	2. Tighten.
d) Dispensing Lever (DCM-450/700BAA, BWA only)	1. Does not touch Ice Switch.	1. Unscrew and adjust Stopper to make Dispensing Lever touch Ice Switch.	
[15] Ice in storage bin often melts.	a) Bin Drain	1. Plugged.	1. Clean.

VIII. REMOVAL AND REPLACEMENT OF COMPONENTS

1. REFRIGERATION CIRCUIT

[a] REFRIGERANT RECOVERY

The ice dispenser is provided with two Refrigerant Access Valves on the low-side and high-side lines. Recover the refrigerant from these two Access Valves and store it in an approved container. Do not discharge the refrigerant into the atmosphere.

[b] EVACUATION AND RECHARGE

- 1) Attach Charging Hoses, a Service Manifold and a Vacuum Pump to the system.
- 2) Turn on the Vacuum Pump.
- 3) Allow the Vacuum Pump to pull down to a 29.9" Hg vacuum. Evacuating period depends on pump capacity.
- 4) Close the Low-side Valve on the Service Manifold.
- 5) Disconnect the Vacuum Pump, and attach a Refrigerant Service Cylinder. Remember to loosen the connection, and purge the air from the Hose. See the Nameplate for refrigerant charge. Hoshizaki recommends only virgin refrigerant or reclaimed refrigerant which meets ARI Standard No. 700-88 be used.
- 6) Open the Low-side Valve. Do not invert the Service Cylinder. A liquid charge will damage the Compressor.
- 7) Turn on the ice dispenser when charging speed gets slow. Turn off the ice dispenser when the Low-side Gauge shows approximately 0 PSIG. Do not run the ice dispenser at negative pressures. Close the Low-side Valve when the Service Cylinder gets empty.
- 8) Repeat the above steps 4) through 7), if necessary, until a required amount of refrigerant has entered the system.
- 9) Close the Refrigerant Access Valve, and disconnect the Hoses, Service Manifold, and so on.
- 10) Cap the Access Valve to prevent possible leak.

[c] BRAZING

DANGER

1. Refrigerant R12 or R502 itself is not flammable, explosive and poisonous. However, when exposed to an open flame, R12 or R502 creates Phosgene gas, hazardous in large amounts.
2. Always recover the refrigerant and store it in an approved container. Do not discharge the refrigerant into the atmosphere.
3. Do not use silver alloy or copper alloy containing Arsenic.
4. In its liquid state, the refrigerant can cause frostbite because of the low temperature.

[d] COMPRESSOR

IMPORTANT

Always install a new Drier every time the sealed refrigeration system is opened. Do not replace the Drier until after all other repairs or replacement have been made.

- 1) Turn off the power supply.
- 2) Remove the panels.
- 3) Remove the Terminal Cover on the Compressor, and disconnect the Compressor Wiring.
- 4) Recover the refrigerant and store it in an approved container.
- 5) Unsolder and disconnect the Discharge and Suction Pipe and Oil Cooler Tube from the Compressor.

WARNING

When repairing a refrigerant system, be careful not to let the burner flame contact the lead wires or insulation.

- 6) Remove the Hold-down Bolts, Washers and Rubber Grommets.

- 7) Slide and remove the Compressor. Unpack a new Compressor package. Install a new Compressor.
- 8) Attach the Rubber Grommets of the prior Compressor.
- 9) Sandpaper the Suction, Discharge and Process Pipes.
- 10) Place the Compressor in position, and secure it using the Bolts and Washers.
- 11) Remove plugs from the Suction, Discharge and Process Pipes.
- 12) Braze the Process, Suction, Discharge and Oil Cooler Pipes (Do not change this order), with nitrogen gas flowing at the pressure 3 - 4 PSIG.

WARNING

Always protect the Access Valve using a damp cloth to prevent the Access Valve from overheat. Do not braze with the Access Valve exceeding 250°F.

- 13) Replace the Drier.
- 14) Check for leaks using nitrogen gas (140 PSIG) and soap bubble.
- 15) Connect the Compressor Wiring to the Compressor, and replace the Terminal Cover.
- 16) Evacuate the system, and charge it with refrigerant. See the Nameplate for required refrigerant charge.
- 17) Place the panels in position.
- 18) Turn on the power supply.

[e] DRIER

IMPORTANT

Do not replace the Drier until after all other repairs or replacement have been made.

- 1) Turn off the power supply.
- 2) Remove the panels.
- 3) Remove the Clamp securing the Drier.
- 3) Recover the refrigerant and store it in an approved container.
- 4) Install a new Drier.
- 5) Check for leaks using nitrogen gas (140 PSIG) and soap bubble.
- 6) Evacuate the system, and charge it with refrigerant. See the Nameplate for required refrigerant charge.
- 7) Secure the Drier with the Clamp.
- 8) Place the panels in position.
- 9) Turn on the power supply.

[†] CONSTANT PRESSURE EXPANSION VALVE

IMPORTANT

Always install a new Drier every time the sealed refrigeration system is opened. Do not replace the Drier until after all other repairs or replacement have been made.

- 1) Turn off the power supply.
- 2) Remove the panels.
- 3) Recover the refrigerant and store it in an approved container.
- 4) Remove the Expansion Valve Covers, and disconnect the Expansion Valve using brazing equipment.
- 5) Braze the new Expansion Valve with nitrogen gas flowing at the pressure 3 - 4 PSIG.

WARNING

Always protect the Expansion Valve using a damp cloth to prevent the Expansion Valve from overheat. Do not braze with the Expansion Valve exceeding 250°F.

- 6) Install a new Drier.
- 7) Check for leaks using nitrogen gas (140 PSIG) and soap bubble.
- 8) Evacuate the system, and charge it with refrigerant. See the Nameplate for required refrigerant charge.
- 9) Check to be sure the Expansion Valve setting is correct, and adjust as required. See "VI. ADJUSTMENT."
- 10) Place a new set of Expansion Valve Covers in position.
- 11) Place the panels in position.
- 12) Turn on the power supply.

[g] EVAPORATOR

IMPORTANT

Always install a new Drier every time the sealed refrigeration system is opened. Do not replace the Drier until after all other repairs or replacement have been made.

- 1) Turn off the power supply.
- 2) Close the Water Supply Line Shut-off Valve.
- 3) Remove the panels.
- 4) Recover the refrigerant and store it in an approved container.
- 5) Remove the four Thumbscrews securing the Spout, and remove the Spout and the Packing inside the Storage Bin.
- 6) Remove the three Thumbscrews securing the Chute Head to the top of the Evaporator, lift off the Chute Head and remove the Cylinder Packing.
- 7) Remove the Cutter.
- 8) Remove the three or four Socket Head Cap Screws securing the Extruding Head, and lift off the Head.
- 9) Open the Drain Valve by rotating the knob, and after draining water, close the Drain Valve.
- 10) Disconnect the Hoses.
- 11) Lift and remove the Auger.
- 12) Disconnect the Expansion Valve. (See “[f] CONSTANT PRESSURE EXPANSION VALVE.”)

WARNING

Always protect the Expansion Valve using a damp cloth to prevent the Expansion Valve from overheat. Do not braze with the Expansion Valve exceeding 250°F.

- 13) Unsolder the Evaporator.

CAUTION

Remove any coating (paint) found on the welds by using a sandpaper before heating them with the welder.

- 14) Remove the four Socket Head Cap Screws on the bottom of the Evaporator, and lift off the Ice Making Cylinder.
- 15) Install a new Evaporator.

CAUTION

1. Before assembling, be sure to check the Auger and its bearings, the Extruding Head, and the Bearing (Lower). If they are worn, replace them with new parts. Wash the scale adhered on the parts. (See "IV. 1. [a] WATER SYSTEM.") Be sure to replace the O-ring with a new one. To replace the Evaporator, reverse the Evaporator removal procedure.
2. Install the mechanical seal in accordance with "VIII. 2. [d] MECHANICAL SEAL." When installing the Auger in the Evaporator, rotate the Auger so that the spline portion on its end can fit into the slots of the spline.

- 16) Braze the new Evaporator with nitrogen gas flowing at the pressure 3 - 4 PSIG.
- 17) Install a new Drier.
- 18) Check for leaks using nitrogen gas (140 PSIG) and soap bubble.
- 19) Evacuate the system, and charge it with refrigerant. See the Nameplate for required refrigerant charge.
- 20) Place the panels in position.
- 21) Open the Water Supply Line Shut-off Valve.
- 22) Turn on the power supply, and after 30 minutes check the ice production capacity, low side pressure, frost line, water leakage and any other abnormality. (See "VI. ADJUSTMENT, 1. CONSTANT PRESSURE EXPANSION VALVE" and readjust.)

[h] PRESSURE SWITCH

IMPORTANT

Always install a new Drier every time the sealed refrigeration system is opened. Do not replace the Drier until after all other repairs or replacement have been made.

- 1) Turn off the power supply.
- 2) Remove the panels.
- 3) Recover the refrigerant and store it in an approved container.
- 4) Remove the Control Box Cover, and disconnect the terminals.
- 5) Remove the Pressure Switch using brazing equipment.
- 6) Braze the new Pressure Switch with nitrogen gas flowing at the pressure 3 - 4 PSIG.
- 7) Install a new Drier.
- 8) Check for leaks using nitrogen gas (140 PSIG) and soap bubble.
- 9) Evacuate the system, and charge it with refrigerant. See the Nameplate for required refrigerant charge.
- 10) Place the terminals and the Control Box Cover in position.
- 11) Place the panels in position.
- 12) Turn on the power supply.

[i] WATER REGULATING VALVE

IMPORTANT

Always install a new Drier every time the sealed refrigeration system is opened. Do not replace the Drier until after all other repairs or replacement have been made.

- 1) Turn off the power supply.
- 2) Close the Water Supply Line Shut-off Valve.
- 3) Remove the panels.
- 4) Recover the refrigerant and store it in an approved container.
- 5) Disconnect the Capillary Tube at the Condenser inlet using brazing equipment.
- 6) Disconnect the Flare-connections of the valve.
- 7) Remove the screws and the valve from the Bracket.
- 8) Install a new valve, and braze the Capillary Tube.
- 9) Install a new Drier.
- 10) Check for leaks using nitrogen gas (140 PSIG) and soap bubble.
- 11) Evacuate the system, and charge it with refrigerant. See the Nameplate for required refrigerant charge.
- 12) Connect the Flare-connections.
- 13) Open the Water Supply Line Shut-off Valve.
- 14) Check for water leaks.
- 15) See "VI. 2. WATER REGULATING VALVE." If necessary, adjust the valve.
- 16) Place the panels in position.
- 17) Turn on the power supply.

2. ICE MAKING MECHANISM AND WATER SYSTEM

[a] GEAR MOTOR AND BEARING-LOWER

- 1) Turn off the power supply.
- 2) Close the Water Supply Line Shut-off Valve.
- 3) Remove the panels.
- 4) Open the Drain Valve by rotating the knob, and after draining water, close the Drain Valve.
- 5) Remove the Auger. (See "1. [g] EVAPORATOR.")

CAUTION

Be sure to drain out the water in the water line before removing the Auger.

Note: The Gear Motor can be removed without removing any refrigerant piping.

- 6) Remove the four or six hexagon bolts securing the Bearing-Lower on the Gear Motor.
- 7) Cut the Gear Motor leads at the wire connectors.
- 8) Remove the three hexagon bolts securing the Gear Motor on the Main Frame, lift the Evaporator slightly, and pull out the Gear Motor toward you.
- 9) Remove the four Socket Head Cap Screws securing the Bearing-Lower to the Evaporator, and pull out the Bearing-Lower.

Note: If the clearance between the Bearing-Lower and the Auger Shaft exceeds 0.02", replace the Bearing with a new one.

CAUTION

1. When assembling the Gear Motor and the Bearing-Lower, be careful not to damage the Bearing-Lower and Extruding Head.
2. Be sure to replace the O-ring with a new one.

Note: Install the Mechanical Seal in accordance with the procedure below. (See "[d] MECHANICAL SEAL.")

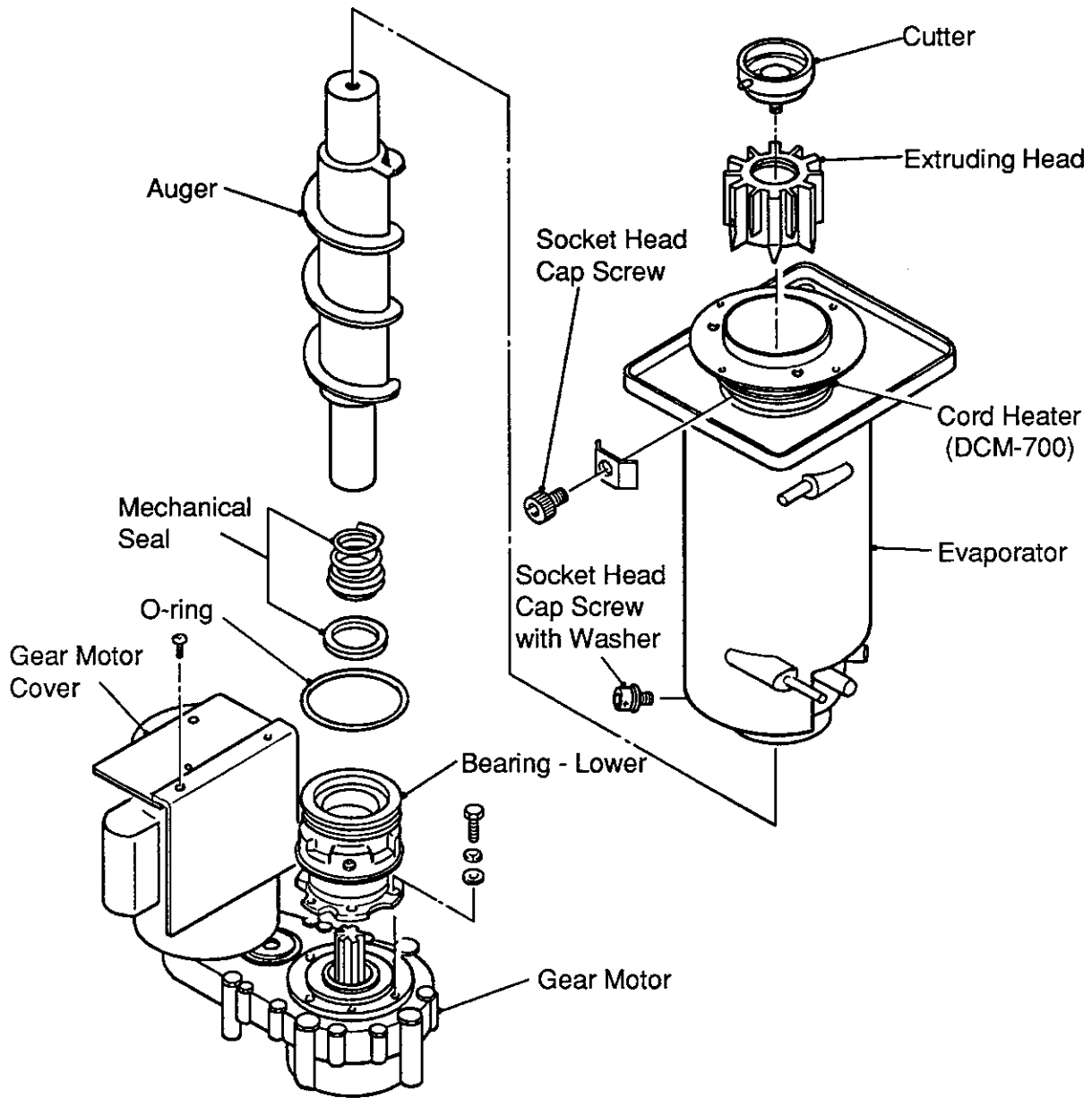


Fig. 36

- 10) Install a new Gear Motor. Insert the liner under the Gear Motor, and secure it with the three hexagon bolts.
- 11) Assemble the removed parts in the reverse order of the above procedure.
- 12) Open the Water Supply Line Shut-off Valve.
- 13) Turn on the power supply.
- 14) Check for water leaks.

[b] EXTRUDING HEAD

WARNING

The Extruding Head has a interference-fitted resin bearing that may be worn for years. Inspect it every one or two years, depending on the water quality. Replace the bearing whenever the clearance between the bearing and the Auger Shaft exceeds 0.02".

- 1) Turn off the power supply.
- 2) Close the Water Supply Line Shut-off Valve.
- 3) Remove the panels.
- 4) Remove the four Thumbscrews securing the Spout, and remove the Spout and the Packing inside the Storage Bin.
- 5) Remove the three Thumbscrews securing the Chute Head to the top of the Evaporator, and lift off the Chute Head.
- 6) Remove the Cylinder Packing.
- 7) Remove the Cutter.
- 8) Model DCM-700 is provided with a Heater. Untie the glass cloth, and remove the Heater. Remove the three or four Socket Head Cap Screws securing the Extruding Head, and lift off the Head.
- 9) Install a new Extruding Head, attach the Heater, and fasten it with the glass cloth.

CAUTION

1. Always install new Socket Head Cap Screws every time the Extruding Head is replaced.
2. The Heater is insulated with silicone rubber, which tears easily. Handle with care.

- 10) Place the Cutter, Cylinder Packing, Spouts, Packing and panels in position.
- 11) Open the Water Supply Line Shut-off Valve.
- 12) Turn on the power supply.
- 13) Check for water leaks.

WARNING

After assembling the Extruding Head, be sure to check that the Auger does not contact with the inner surface of the Evaporator and there is not any abnormal noise from the Bearing.

[c] AUGER

- 1) Turn off the power supply.
- 2) Close the Water Supply Line Shut-off Valve.
- 3) Remove the Extruding Head. (See “[b] EXTRUDING HEAD.”)
- 4) Open the Drain Valve by rotating the knob, and after draining water, close the Drain Valve.
- 5) Lift and remove the Auger.
- 6) Install a new Auger.
- 7) Assemble the removed parts in the reverse order of the above procedure.
- 8) Open the Water Supply Line Shut-off Valve.
- 9) Turn on the power supply.
- 10) Check for water leaks.

[d] MECHANICAL SEAL

- 1) Turn off the power supply.
- 2) Close the Water Supply Line Shut-off Valve.
- 3) Remove the Bearing-Lower. (See “[a] GEAR MOTOR AND BEARING-LOWER.”)

Note: The Bellows portion of the Mechanical Seal will be removed together with the Auger.

- 4) Remove the Floating Seat portion of the Mechanical Seal from the Bearing-Lower.
- 5) Install a new Mechanical Seal.

WARNING

1. When installing the Mechanical Seal (Bellows portion) onto the Auger, it should be perpendicular to the Auger. Be sure no dirt or foreign matter adheres to the contact surface of the Seal Ring.
2. When installing the Mechanical Seal (Floating Seat portion) in the Bearing-Lower, be sure there is no dirt or foreign matter clinging to the contact surface of the Floating Seat.

- 6) Assemble the removed parts in the reverse order of the above procedure.
- 7) Open the Water Supply Line Shut-off Valve.
- 8) Turn on the power supply.
- 9) Check for water leaks.

[e] WATER VALVE

- 1) Turn off the power supply.
- 2) Close the Water Supply Line Shut-off Valve.
- 3) Remove the panels.
- 4) Disconnect the terminals from the Water Valves.

Note: The Water Valves are located behind the Control Box and on the right side of the Middle Front Panel.

- 5) Loosen the Fitting Nuts on the Water Valve Inlets, and remove the Water Valves. Do not lose the Packings inside the Fitting Nuts.
- 6) Install new Water Valves.
- 7) Assemble the removed parts in the reverse order of the above procedure.
- 8) Open the Water Supply Line Shut-off Valve.
- 9) Turn on the power supply.
- 10) Check for water leaks.
- 11) Place the panels in position.

[f] FLOAT SWITCH

WARNING

1. Fragile, handle very carefully.
2. If the Float Switch works poorly because of scale or other foreign matter, install a filter or softener in the water supply line.

- 1) Turn off the power supply.
- 2) Close the Water Supply Line Shut-off Valve.
- 3) Remove the panels.
- 4) Open the Drain Valve by rotating the knob, and after draining water, close the Drain Valve.
- 5) Cut the Float Switch leads at the wire connectors.
- 6) Turn and unfasten the flanged top, and remove the Float Switch.
- 7) Install a new Float Switch.
- 8) Assemble the removed parts in the reverse order of the above procedure.
- 9) Open the Water Supply Line Shut-off Valve.
- 10) Turn on the power supply.

3. ELECTRICAL SYSTEM

[a] BIN CONTROL (PROXIMITY SWITCH)

- 1) Turn off the power supply.
- 2) Remove the Front Panel and Top Panel.

Note: The Proximity Switch is located on the outside of the Bin Top Panel.

- 3) Cut the leads at the wire connectors.
- 4) Remove the Switch Cover and the Proximity Switch.
- 5) Install a new Proximity Switch.
- 6) Place the Switch Cover in position.
- 7) Connect the leads of the Proximity Switch.
- 8) Turn on the power supply.
- 9) To check the Bin Control operation, move the paddle located on the inside of the Bin Top Panel. The Compressor should stop 90 sec. later, and the Gear Motor 150 sec. later.
- 10) Place the panels in position.

[b] STARTER

- 1) Turn off the power supply.
- 2) Remove the Front Panel.
- 3) Remove the Control Box Cover.
- 4) Disconnect the terminals from the Starter.
- 5) Remove the Starter.
- 6) Install a new Starter.

WARNING

The Starter is position-sensitive. Install it so that the arrow indication of the Starter can point upward. Failing to install it in this way will cause abnormal operation and adversely affect the Compressor operation as well.

- 7) Connect the terminals.
- 8) Assemble the removed parts in the reverse order of the above procedure.
- 9) Turn on the power supply.

[c] ELECTRICAL COMPONENTS

The following table shows the location of the electrical components. Be sure to turn off the power supply before replacing the components.

COMPONENT	LOCATION
Run Capacitor	Control Box
Start Capacitor	Control Box
Motor Protector (Compressor)	Terminal Box of Compressor
Starter	Control Box
Protector (Gear Motor)	Control Box
Capacitor (Gear Motor)	Control Box (DCM-450) Gear Motor (DCM-700)
Capacitor (Fan Motor)	Fan Motor
Power Switch	Control Box
Door Switch	Control Box
Relays	Control Box
Lamp	Left side of Middle Front Panel
Transformer	Control Box
Fuses	Control Box
Timer	Control Box
Water Switch	Behind Cup Guide (BAA, BWA) Right side of Middle Front Panel (BAB, BWB)
Ice Switch	Behind Cup Guide (BAA, BWA) Right side of Middle Front Panel (BAB, BWB)
Portion Control (Variable Resistor)	Control Box
Change Switch	Left side of Middle Front Panel
Ice Making Switch	Left side of Middle Front Panel

4. DISPENSING SYSTEM

[a] AGITATOR

- 1) Turn off the power supply.
- 2) Remove the Front Panel.
- 3) Remove the Bin Front Panel.
- 4) Remove the Thumbscrews and pull off the Gear Motor Bracket.

Note: Hold the Agitator not to drop it when pulling off the Gear Motor Bracket.

- 5) Replace the Agitator with a new one.
- 6) Assemble the removed parts in the reverse order of the above procedure.
- 7) Turn on the power supply.

[b] AGITATOR GEAR MOTOR

- 1) Turn off the power supply.
- 2) Remove the Front Panel.
- 3) Remove the Bin Front Panel.
- 4) Remove the Thumbscrews and pull off the Gear Motor Bracket.

Note: Hold the Agitator not to drop it when pulling off the Gear Motor Bracket.

- 5) Remove the Packing, three flat head screws and Plastic Guide.
- 6) Remove the four flat head screws and the Gear Motor.
- 7) Install a new Gear Motor.
- 8) Assemble the removed parts in the reverse order of the above procedure.
- 9) Turn on the power supply.

[c] DISPENSING AUGER

Same procedure as “[a] AGITATOR.”



HOSHIZAKI
HOSHIZAKI ELECTRIC CO., LTD.

TOYOAKE, AICHI, JAPAN
PHONE: 0562-97-2111
TELEX-NO: 04486-514 HOSHI J

Free Manuals Download Website

<http://myh66.com>

<http://usermanuals.us>

<http://www.somanuals.com>

<http://www.4manuals.cc>

<http://www.manual-lib.com>

<http://www.404manual.com>

<http://www.luxmanual.com>

<http://aubethermostatmanual.com>

Golf course search by state

<http://golfingnear.com>

Email search by domain

<http://emailbydomain.com>

Auto manuals search

<http://auto.somanuals.com>

TV manuals search

<http://tv.somanuals.com>