

INSTRUCTIONS FOR INSTALLING AN EVAPORATOR ASSEMBLY KIT IN A NATIONAL VENDORS[®], CROWN SEVENTY TWO[®], COLD DRINK MERCHANDISER EQUIPPED WITH A REYNOLDS PRODUCTS INC. ICEMAKER

These instructions cover the replacement procedures for the Evaporator Assembly replacement in any Crown Seventy Two Cold Drink Merchandiser equipped with a Reynolds Products Inc. IceMaker.

Read the instructions carefully and thoroughly before proceeding with the actual removal and replacement procedures. Retain the instructions for part number and replacement information. The Kit 312-4118 includes the following parts:

Part Number	Description	Quantity
312-4117	Evaporator Assembly	1
311-4121	Suction Line Tube Assembly	1
310-8338	Suction Line Tube Assembly	1
310-4100	Liquid Line Tube Assembly	1
312-4174	Packaged Parts Assembly	1
	consisting of:	
301-4077	Hopper "O" Ring	1
301-4125	Water Inlet "O" Ring	1
312-4060	3/8 Flare Gasket	1
311-4116	Icemaker Insulation	1
312-4083	Bulb Valve Insulation	1
311-4114	Wire Tie	3
310-4068	Icemaker Cleaning Record Label	1
310-4153	Water Level Label	1
311-4039	Water Level Label	1
312-4090	Water Level and Icemaker Removal Label	1
311-4090	Installation Instructions	1
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TO INSTALL THE KIT

NOTE

- For personal physical protection and safety, heed all of the SAFETY WARNINGS given in these Instructions and the WARNING given on the Label on the Icemaker Assembly.
- For Merchandiser protection heed the CAUTIONS given in these Instructions.
- The installation of the replacement Evaporator Assembly will require the discharging and recharging of the Refrigeration System. These operations should be performed ONLY by a qualified refrigeration serviceman.
- Use the proper size flare nut wrenches when tightening fittings. Any Tubing which vibrates will harden near the flare ends of the Tube and will become brittle and break.

- None of the original parts replaced when the replacement parts in this Kit are installed, nor any of the unused parts in this Kit are returnable for credit. National Vendors suggests that all unused servicable parts be placed in inventory for replacement use in other National Vendors, Cold Drink Merchandisers.
- Be sure the appropriate steps of the procedures of this Instructions are followed in the order given and that the replacement Evaporator Assembly is properly installed according to the appropriate procedures given in this Instruction.
- If a step of this Instruction indicates the use of an attaching part that is included in the Kit, DO NOT substitute the original equipment attaching part - use ONLY the attaching part included in the Kit, as specified.
- Only certain parts of this Kit can be used on a CDM-312 Merchandiser including the Evaporator Assembly. Therefore the Kit should be used on a CDM-312 only in emergencies. To keep the Kit complete, those parts used should be replaced and added to the Kit. Specific instructions for the CDM-312 will not be given since the Evaporator Assembly included in the kit is a direct replacement of the defective Evaporator Assembly.
- Figure 1 illustrates and gives the part number of the parts included in the Kit, Check the contents of the Kit with Figure I-1 to be sure all the parts are included in the Kit before starting to replace the defective Evaporator Assembly.

A. REMOVAL OF THE EVAPORATOR

NOTE

For CDM-312 Merchandisers, follow the Icemaker easy removal procedure in the Set-Up Instruction then proceed to remove the Evaporator Assembly from the Icemaker.

- Open the Merchandiser Cabinet Door.
- Place the Main Switch in the OFF Position.
- Remove the Cup Delivery Compartment and Chute Assembly. See Figure 2.
- Disconnect the Icemaker Harness from the Merchandiser Harness; and disconnect the electrical harness connecting the Motor to the Disposal Mechanism Assembly.

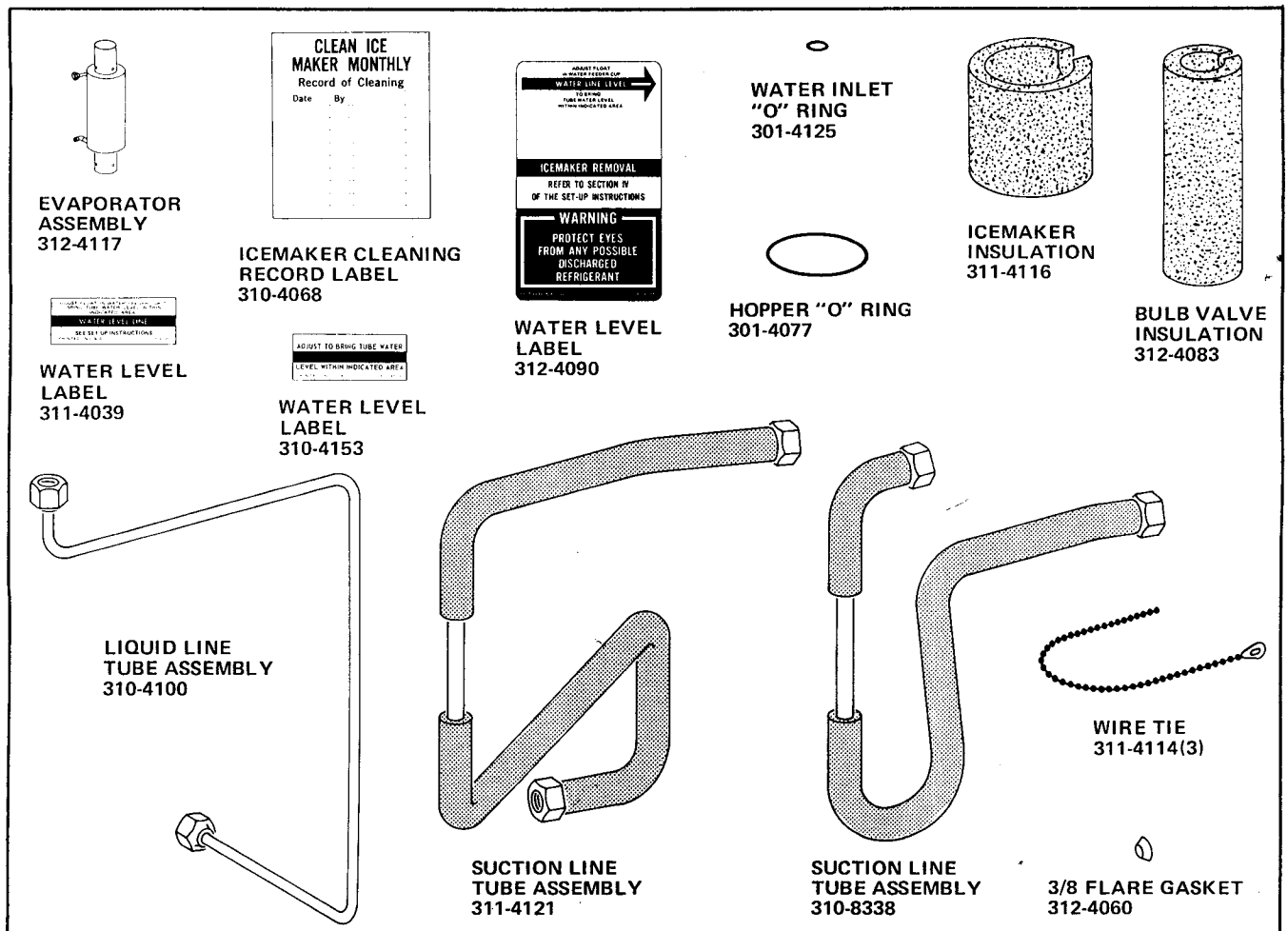


FIGURE 1

5. Remove the Thumb Screw which attaches the Ice Chute Mounting Angle to the small flange on the Ice Chute Assembly; and remove the Wing Nut which attaches the Ice Chute Assembly to the Hopper. Lift away the Ice Chute Assembly. See Figure 2.
6. Remove the Screw which attaches the Ice Chute Mounting Angle to the Transmission Box and remove the Angle. Put the Screw back in the hole, but don't tighten.

CAUTION

1. **DO NOT** allow moisture and air to enter the Refrigeration System. Moisture can freeze and block the opening in the Liquid Line Valve and corrode the metal parts in the system.
2. Always use two proper size wrenches when tighten the fittings. Any tubing allowed to vibrate will harden near the flare section and become brittle and break.

NOTE

1. Seal all lines and components and replace all Valve Caps to prevent moisture and air from entering the Refrigeration System.
2. Keep all refrigerant lines dry, clean, and free from kinks.
3. If the Merchandiser is a CDM-72 and had the Expansion Valve toward the bottom of the Evaporator or had the Reverse Flow Kit, Part Number 310-4091, installed, perform steps 7 and 8.
4. If Merchandiser is a CDM-72 or CDM-72A and had the Expansion Valve toward the top of the Evaporator but not equipped with the Reverse Flow Kit, Part Number 310-4091, perform Step 7 and omit Step 8.
7. Remove the Tube Assembly that was connected between the Icemaker and the Solenoid Valve.
8. Remove the Tube Assembly that was connected between the Icemaker and Sight Glass Tee.

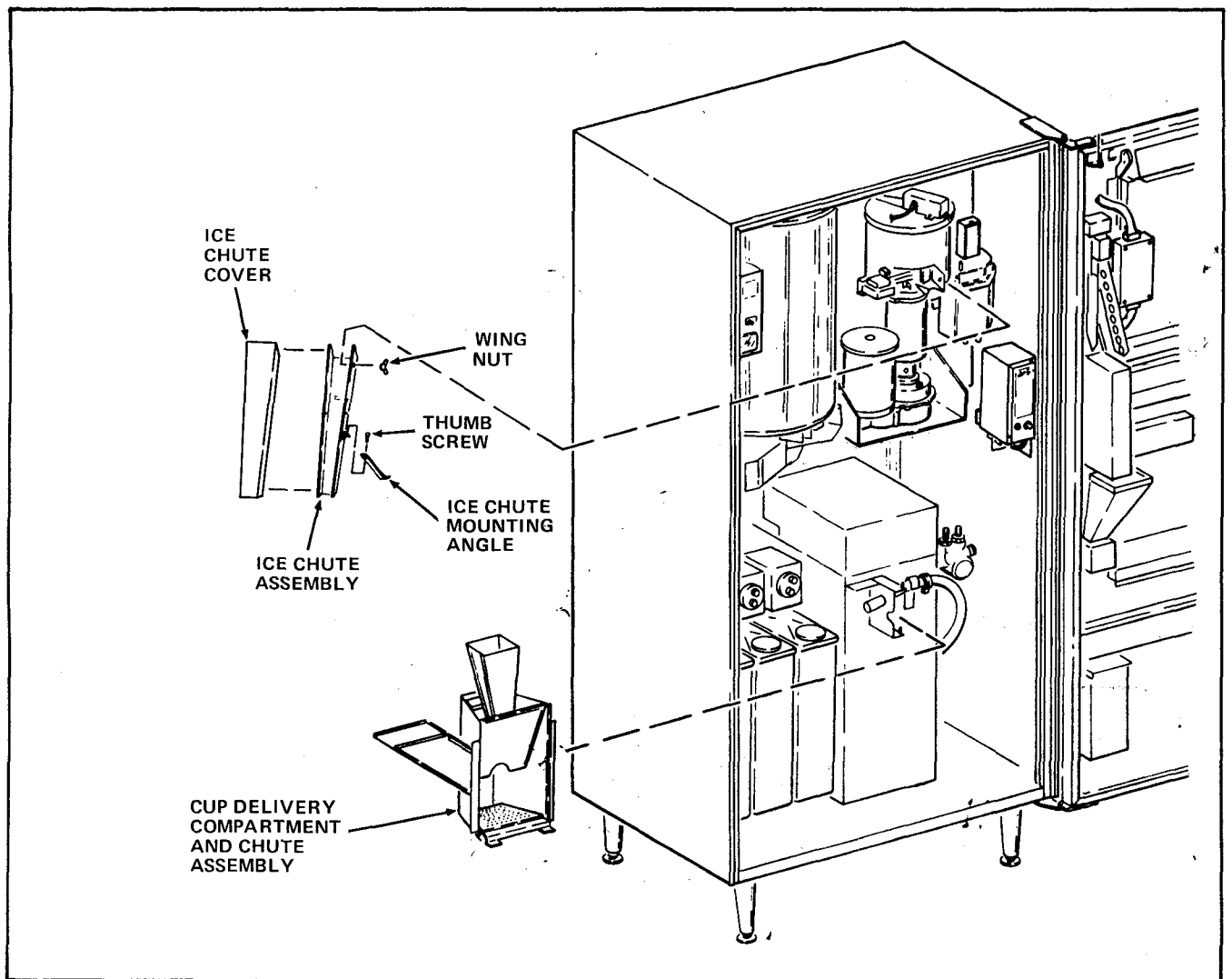


FIGURE 2

9. Disconnect the plastic Drain Tube at the Hopper and disconnect the Inlet Tube at the Water Feeder Cup. See Figure 3.

10. Remove the three Bearing Housing Bolts which attach the Lower Bearing Housing to the Evaporator.

CAUTION

Be prepared to lift the Evaporator and Hopper Assembly up and out of the Merchandiser to the work bench after completion of next step.

11. Remove the two No.10-32 x 1/2 BHS Stainless Steel Screws which attach the Bracket Strap, around the Evaporator, to the Merchandiser wall bracket. Retain the Strap and Screws for the replacement procedures.

12. Lift the Evaporator and Hopper Assembly off the Lower Bearing Housing and transport to workbench for final disassembly.

13. Remove the Water Inlet and Band Assembly with plastic Inlet Tube by removing the attaching Screw and Nut.

14. Remove the two No.8-32 x 1-1/2" Thumb Screws which attach the Cover Assembly to the Hopper Assembly.

15. Lift the Cover Assembly off and lay aside, then unscrew (counterclockwise) the Agitator Assembly and remove from inside the Hopper.

16. Lift out the Drip Ring.

NOTE

Removing the Drip Ring may require the use of an aid, such as a bent piece of wire or a paper clip, inserted through one of the small holes and then lifting the Ring up until it can be lifted out by hand.

17. Peel back the tape and remove the Hopper Collar located under the Hopper Assembly.

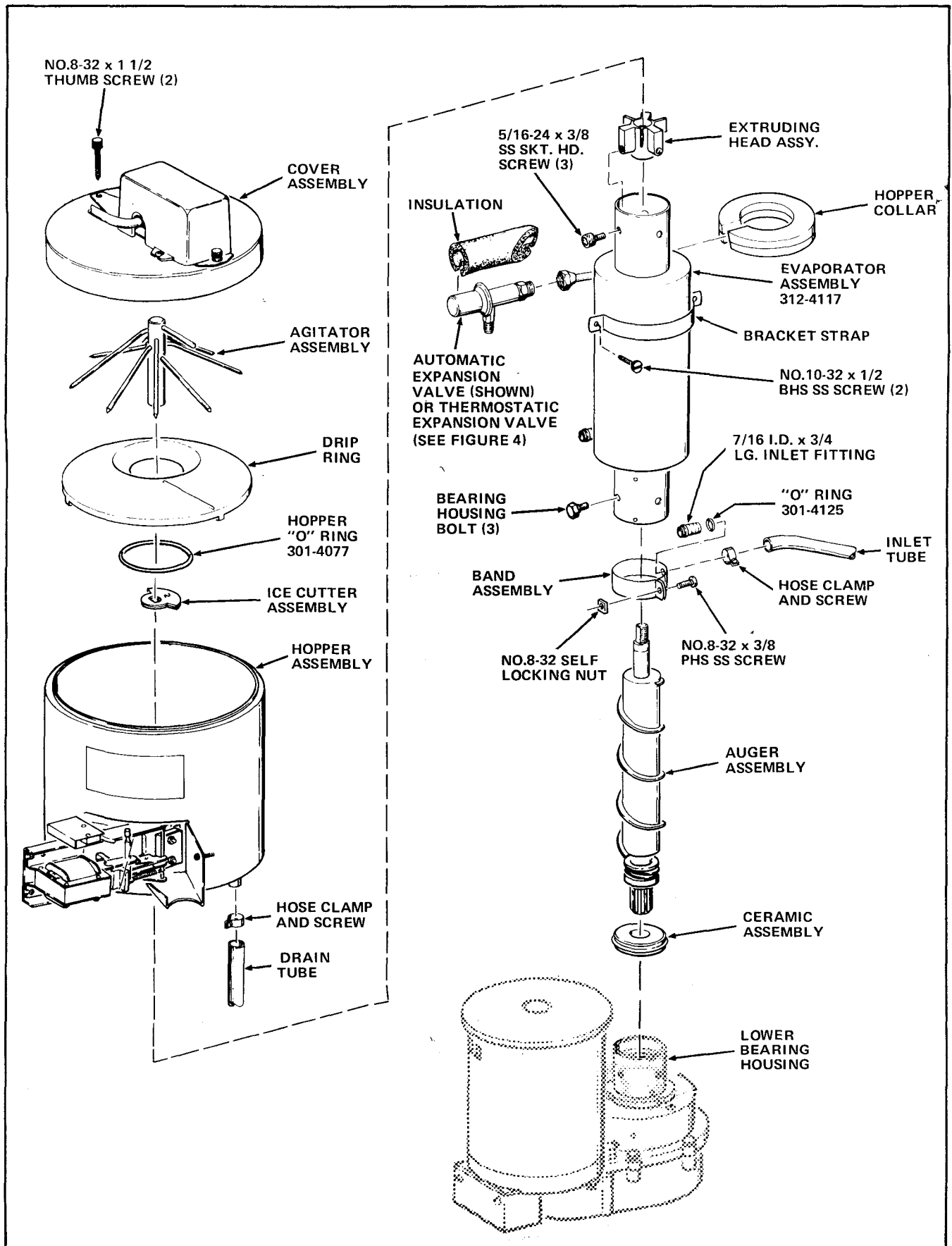


FIGURE 3

18. Using an Allen Wrench, remove and retain the three 5/16-24 x 3/8" Stainless Steel Socket Head Screws, which attach the Hopper Assembly to the Evaporator.
19. Slowly move the Hopper Assembly, turning right and left and gently lifting to break loose the Hopper O-Ring, and lift the Hopper off of the Evaporator Assembly.

CAUTION

Four parts remain for disassembly and care must be exercised so the Ceramic Assembly seal is not broken. The Ice Cutter Assembly and the Extruding Head Assembly can be removed from the top end of the Evaporator, or left in place and removed through the lower end along with the Ceramic Assembly and the Auger.

20. Firmly tap the top end of the Auger Assembly until the Ceramic Assembly is forced out the lower end of the Evaporator.
21. Remove and retain the Auger Assembly, Extruding Head Assembly, and Ice Cutter Assembly from the Evaporator Assembly.
22. Remove and retain the Expansion Valve Insulation and the Expansion Valve from the Evaporator Assembly.

B. TO INSTALL THE EVAPORATOR ASSEMBLY KIT

1. Install the Expansion Valve, retained during the Removal Procedures, on the replacement Evaporator Assembly, Part Number 312-4117, included in the Kit. See Figure 3.

NOTE

Assembly of the Ceramic Assembly, Auger Assembly, and Extruding Head Assembly within the Evaporator Assembly is complete when the three holes in the top end of the Evaporator align with the three holes in the Extruding Head Assembly and when the Ceramic Assembly seal is seated against the lower end of the Auger inside the Evaporator, and there is no end-play. Position of the seal inside is about one and five-sixteenths from the end of the Evaporator when the holes line up on the opposite end. Pushing with fingers is sufficient to move all parts at either end of the Evaporator Assembly, there should be no binding.

2. Install the Extruding Head Assembly over the threaded end of the Auger Assembly, and insert the Auger into the Evaporator.
3. Install the Ceramic Assembly seal in the lower end of the Evaporator by sliding the seal over the splined-end of the Auger and apply uniform

pressure on the seal until it is seated, and holes are aligned as described in the NOTE above.

4. Install the Hopper Assembly over the top end of the Evaporator Assembly, aligning the three holes in the Hopper and the Evaporator with holes in the Extruding Head and attach using the three 5/16-24 x 3/8 Socket Head Stainless Steel Screws.
5. Install the Hopper O-Ring, Part Number 301-4077, included in the Kit, over the end of the Evaporator Assembly inside the Hopper and press it into the grooved space between the inside bottom of the Hopper and the Evaporator. Use the blade of a small screwdriver to seat the O-Ring in the bottom of the groove.
6. Install the Ice Cutter Assembly over the end of the Auger inside the Hopper Assembly. Make sure the number "2" stamped on one side of the Cutter is facing UP.
7. Install the Drip Ring, by inserting one side of the Ring under the Baffle and the seating the Ring in the bottom of the Hopper.
8. Install the Agitator Assembly, by screwing the threaded end over the end of the Auger inside of the Hopper.
9. Install the Cover Assembly by placing it on the top of the Hopper Assembly and aligning the holes and attaching with the two No.8-32 x 1-1/2" Thumb Screws.
10. Install the Evaporator and Hopper Assembly over the Lower Bearing Housing, align the three holes and attach using three Bearing Housing Bolts.

NOTE

In this step the splined-end of the Auger should mesh with the splined coupling inside the Lower Bearing Housing and the weight of the assembly will fully seat the Ceramic Assembly. If the splines do not mesh, remove the Cover Assembly on the Hopper and slowly rotate the Agitator Assembly until the splines mesh and the assembly seats within the Lower Bearing Housing.

11. Install the Bracket Strap around the Evaporator and attach to the Merchandiser wall bracket using two No.10-32 x 1/2 BHS SS Screws.
12. Loosely install the Hose Clamp and Screw Assembly over the end of the plastic Drain Tube, and fit the Drain Tube firmly over the drain on the bottom of the Hopper.
13. Position the Hose Clamp and Screw Assembly and secure by tightening the attaching screw.

14. Assemble and install the Water Inlet and Band Assembly, on the lower end of the Evaporator, using the replacement O-Ring, Part Number 301-4125, included in the Kit;
 - a. Insert the long end of the 7/16 I.D. x 3/4 Lg. Inlet Fitting, through the large hole in the Band,
 - b. Install the replacement O-Ring, Part Number 301-4125, included in the Kit, over the short end of the Fitting and next to the circular rib.
 - c. Install the Band around the lower end of the Evaporator and seat the Fitting into the Water Inlet hole, attach with the No.8-32 x 3/8 PHS Stainless Steel Screw, and No.8-32 Self Locking Nut,
 - d. Install the plastic Inlet Tube over the Fitting and attach using the Hose Clamp and Screw Assembly.
 - e. Connect the other end of the Inlet Tube to the Water Feeder Cup.
15. If the Icemaker in the Merchandiser is equipped with a National Vendors, Cool-San, manually actuated automatic Icemaker cleaning system, cut the lower plastic Tube on the Icemaker to a length of 4-3/4". Use a sharp knife and make a square cut.

CAUTION

1. **DO NOT allow moisture and air to enter the Refrigeration System. Moisture can freeze and block the openings in the Liquid Line Valve and corrode the metal parts in the system.**
 2. **Always use two proper size wrenches when tightening the fittings. Any tubing allowed to vibrate will harden near the flare section and become brittle and break.**
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NOTE

Step 16 applies only if Step 8 was performed.

16. Install the replacement Icemaker Liquid Line Tube Assembly, Part Number 310-4100, included in the Kit, between the Expansion Valve and the Sight Glass. See Figure 4.

NOTE

Before attaching the Suction Line Tube Assembly on a CDM-312 Merchandiser install the 3/8 Flare Gasket, Part Number 312-4060, included in the Kit, in the Shut Off Plug.

17. Install the replacement Icemaker Suction Line Tube Assembly, Part Number 310-8338 (CDM-72 Merchandisers), or Part Number 311-4121 (CDM-72A Merchandisers) included in the Kit, in the Merchandiser by connecting one end of the Icemaker Suction Line Tube Assembly to the Solenoid Valve and the other end to the Icemaker Assembly. See Figure 4.

NOTE

Steps 18 and 19 applies only to Merchandisers equipped with a Thermostatic Expansion Valve.

18. Attach the sensor (or bulb) on the Icemaker Thermostatic Valve at the break in Insulation on the Icemaker Suction Line Tube Assembly with two Clamps, See Figure 4.

NOTE

It is very important that the sensor (bulb) makes good contact with the Icemaker Suction Line Tube Assembly and that the Insulation is properly installed to assure that the sensor is sensing the temperature of the R-12 refrigerant in the Tube and not the atmospheric temperature.

19. Wrap the Insulation, Part Number 312-4083, included in the Kit, around the sensor on the Icemaker Thermostatic Valve and the Icemaker Suction Line Tube Assembly and secure with two Wire Ties, Part Number 311-4114, included in the Kit. See Figure 4.

NOTE

Step 20 applies only to Merchandisers not equipped with a Thermostatic Expansion Valve.

20. Wrap the Insulation, Part Number 312-4083, included in the Kit, around the Icemaker Suction Line at the break in Insulation and secure with two Wire Ties, Part Number 311-4114, included in the Kit.
21. Install the Hopper Collar, around the three stainless steel screw which were installed on the top end of the Evaporator in step B4.
22. Install the Expansion Valve Insulation over the Expansion Valve installed in step B1.
23. Attach the appropriate Water Level Label to the replacement Icemaker Assembly Evaporator. See Figure 5.

- a. If the Merchandiser is equipped with a stainless-steel Water Feeder Cup, use Water Level Label (part number 310-4153).

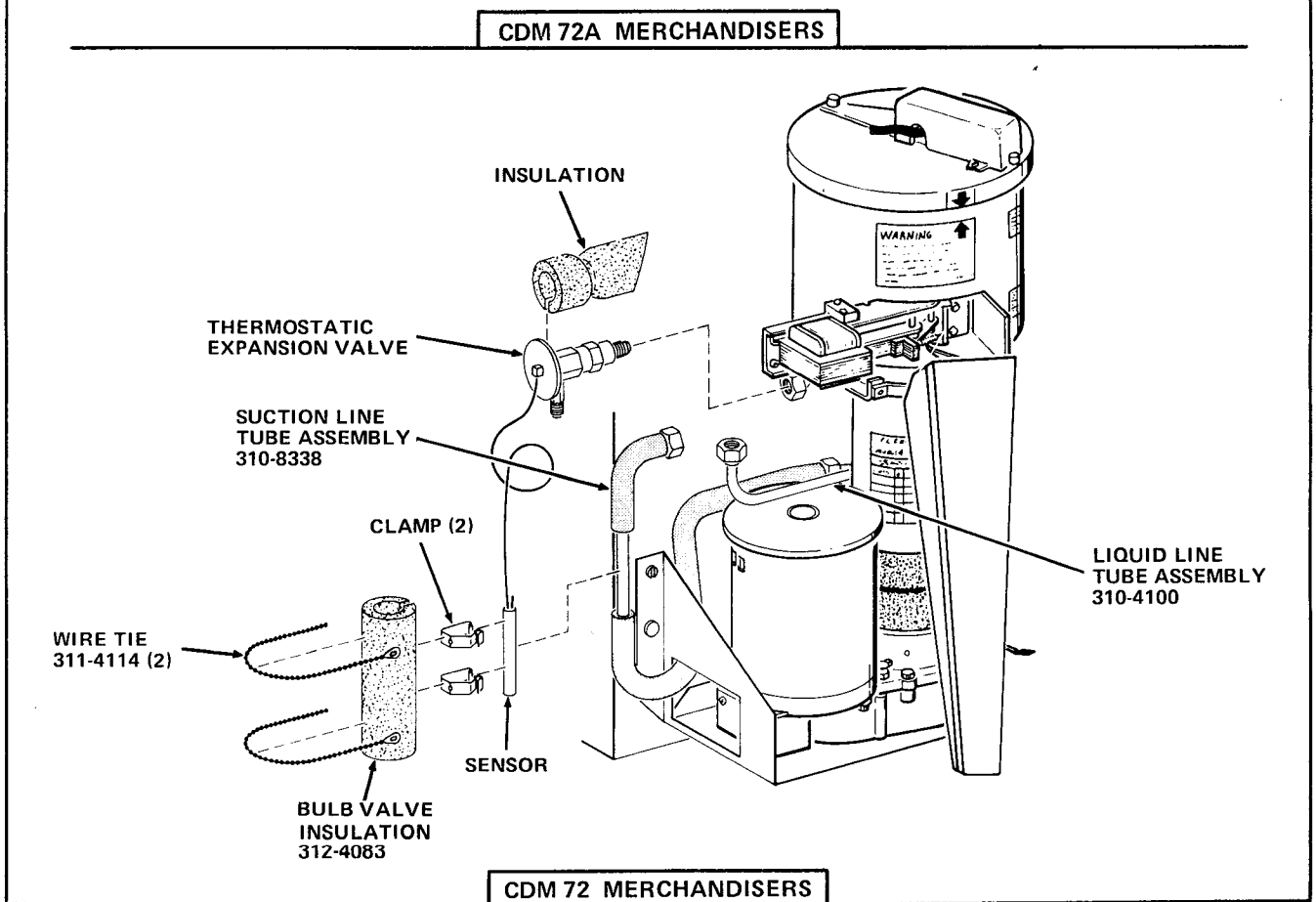
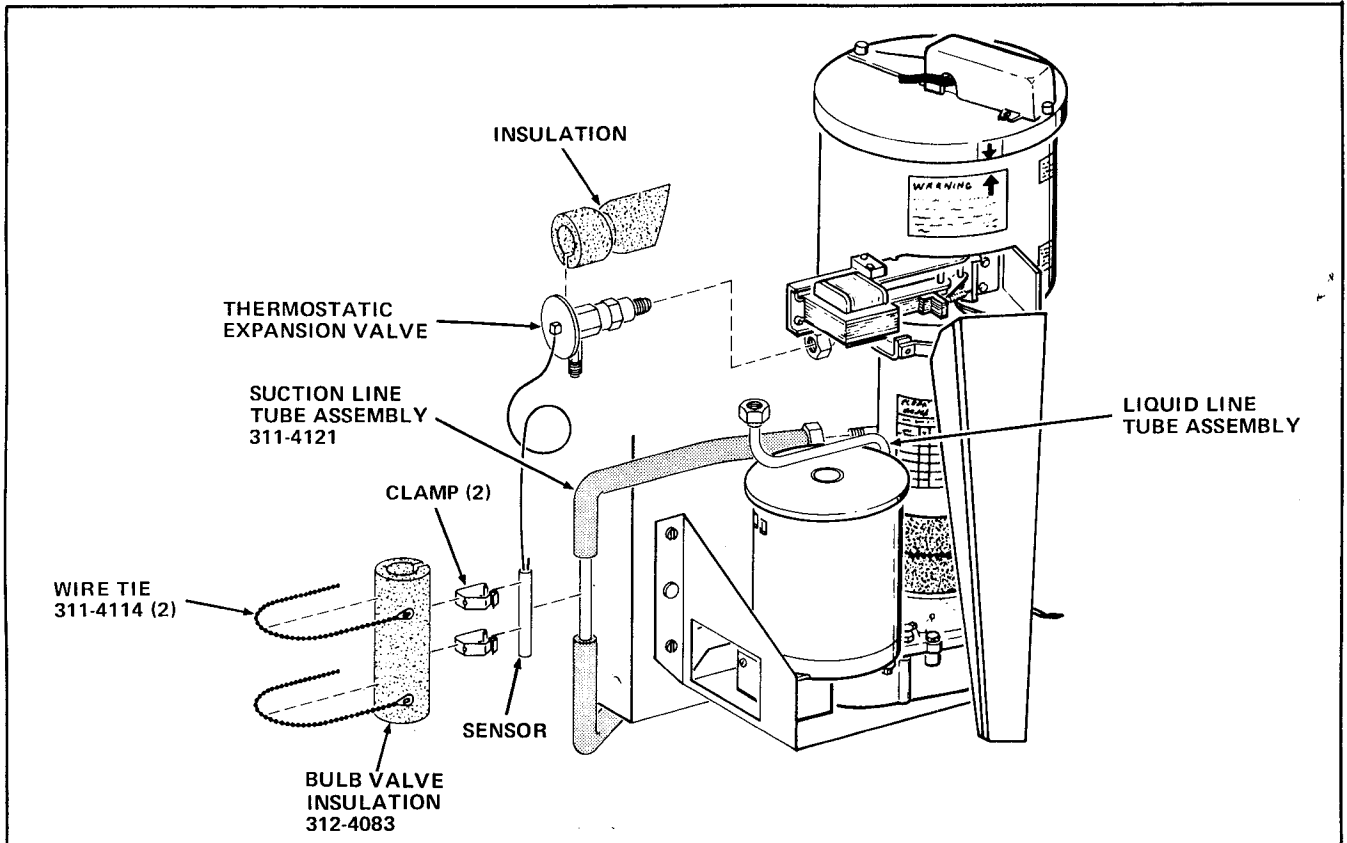


FIGURE 4

- b. If the Merchandiser is equipped with a plastic Water Feeder Cup, use Water Level Label (part number 311-4039).
 - c. Use Water Level Label (part number 312-4090) on CDM-312 Merchandisers.
24. Attach the Icemaker Cleanig Record Label (part number 310-4068) to the replacement Icemaker Assembly Evaporator. See Figure 5.

NOTE

The Cleaning Record Label may be placed on the Merchandiser wall behind the Icemaker Assembly.

25. Install the Icemaker Insulation (part number 311-4116) around the Lower Bearing Housing of the Icemaker Assembly. Attach the Insulation with one of the Wire Ties (part number 311-4114). See Figure 5.
26. Install Ice Chute Assembly on the Hopper Assembly, by attaching with the No.10-32 Self Locking Wing Nut. See Figure 2.
27. Install the Ice Chute Mounting Angle, by attaching the end with a hole to the small flange on the Ice Chute Assemby using the No.10-32 x 3/8 Thumb Screw, and attach the other end of the Angle to the Trnasmision Box using the No.1/4-20 x 3/8 FHS Screw W/Lockwasher. See Figure 2.
28. Install the Ice Chute Cover, on the Ice Chute Assembly. See Figure 2.

29. Connect the wires from the Motor electrical harness to the Disposal Mechansim Assembly, and connect the Icemaker Harness to the Merchandiser Harness.
30. Install the Cup Delivery Compartment and Chute Assembly. See Figure 2.

C. CHECKING THE INSTALLATION OF THE ICEMAKER ASSEMBLY IN THE MERCHANDISER

- 1. Be sure all tubing is properly connected.

NOTE

National Vendors recommends that the Dryer, Part Number 310-4038, be replaced in the Cabinet Refrigeration System before charging the Refrigeration System.

- 2. Connect the Merchandisers electrical Service Cord to a properly polarized wall receptacle.
- 3. Charge the Refrigeration System with R-12 refrigerant as specified on Merchandiser. Observe the Warning and Caution given at the beginning of this Instructions.
- 4. Check the Refrigeration System.

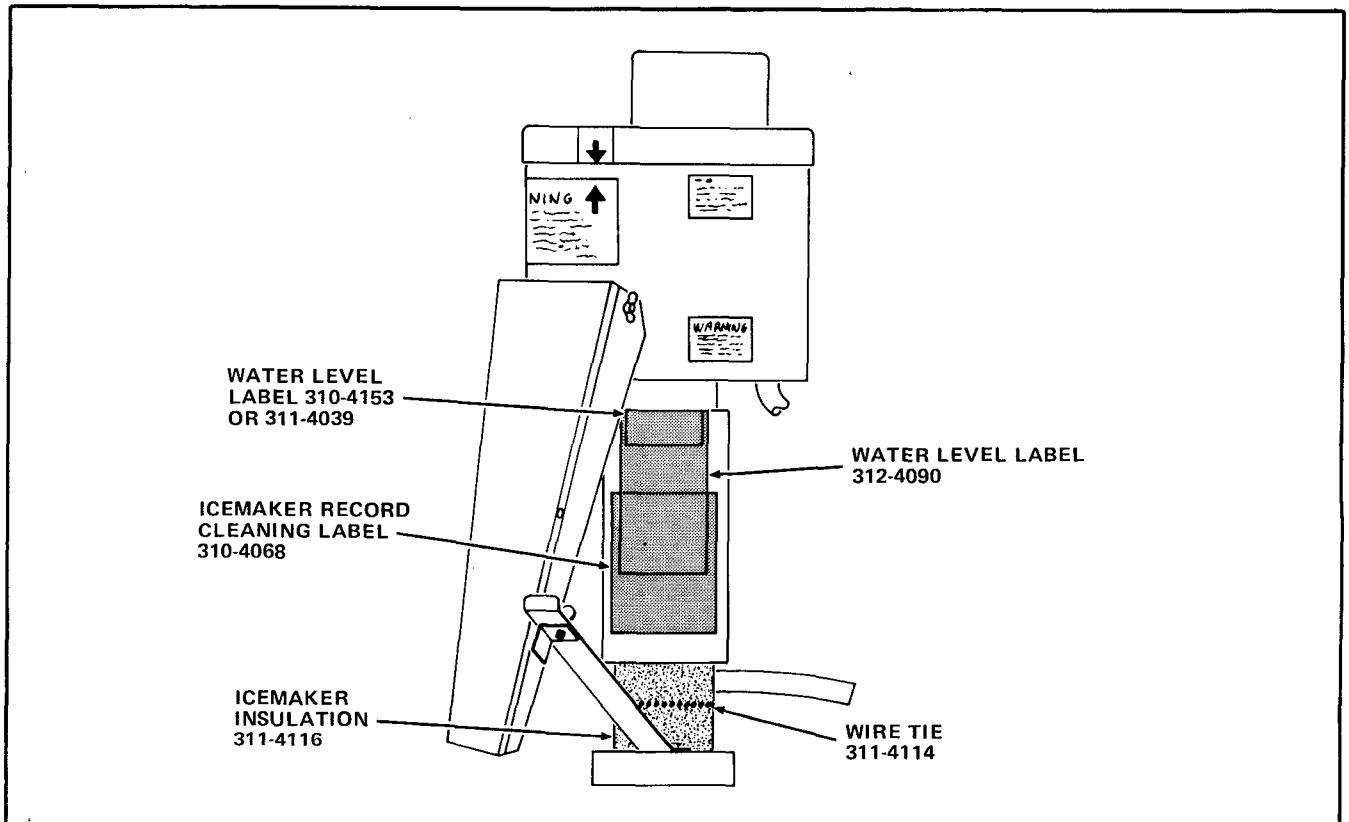


FIGURE 5

NOTE

Icemaker Pressure Readings:

- Low Side - approximately 10 psi on the low side pressure gauge*
- High Side - 125 psi @75° Ambient temperature*
- 135 psi @85° Ambient temperature*
- 150 psi @95° Ambient temperature*

Water Bath Pressure Readings:

- Low Side - approximately 10 psi at the Compressor just before cut-out*
- High Side - 130 psi @75° Ambient temperature*
- 140 psi @85° Ambient temperature*
- 155 psi @95° Ambient temperature*

The head pressure reading may vary as much as \pm , 10 psi, and the system still be operating properly. When refrigeration system is operating properly there should be a minimum of one inch of frost on the outlet side Tube on the Icemaker Evaporator.

5. Place the Main Switch in the ON Position.
6. Allow the Icemaker to operate for a minimum of five minutes.
7. Remove the Icemaker Cover Assembly and turn it up-side-down. This will actuate the Ice Level Switch in the same way a Hopper full of ice will. The Icemaker should stop operating.
8. Replace the Icemaker Cover Assembly. The Icemaker should start operating.
9. Wait a minimum of one minute and repeat steps C-7 and C-8.
10. Wait a minimum of one more minute and repeat steps C-7 and C-8 again. If the Icemaker starts and stops operating as described, the Merchandiser is ready to be put into service.
11. Close the Cabinet Door.
12. Test vend the Merchandiser.