

DVK905-1B  
**TABLE OF CONTENTS**

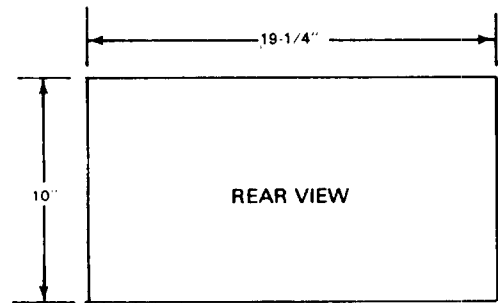
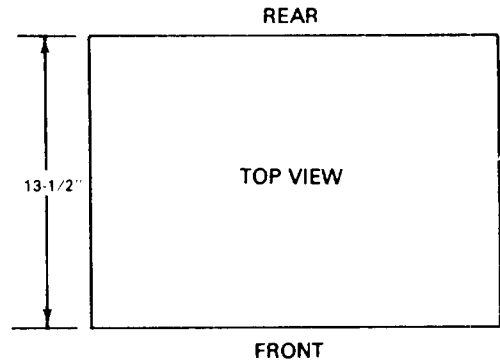
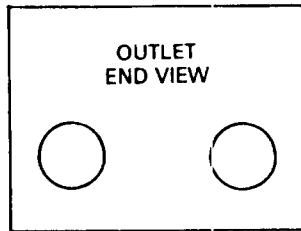
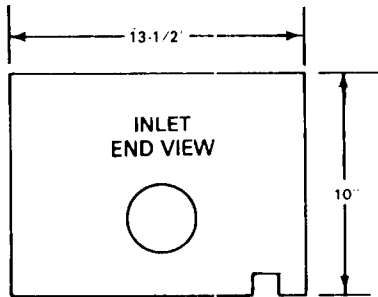
	Table of Contents .....	1
	List of Illustrations .....	1
	Specifications.....	2
<b>SECTION I -</b>	<b>GENERAL INFORMATION &amp; INSTALLATION .....</b>	<b>3</b>
I.	Introduction .....	3
II.	Unpacking and Inspection .....	3
III.	Location and Leveling .....	3
IV.	Tubing Connections .....	4
V.	Bin Thermo Bracket Installation .....	5
VI.	Electrical Connections .....	6-8
VII.	Final Check List.....	8
<b>SECTION II -</b>	<b>OPERATING INSTRUCTIONS .....</b>	<b>9</b>
I.	Start Up.....	9
<b>SECTION III -</b>	<b>PRINCIPLES OF OPERATION .....</b>	<b>10</b>
I.	General .....	10
<b>SECTION IV -</b>	<b>ADJUSTMENT AND REMOVAL AND REPLACEMENT PROCEDURES .....</b>	<b>11</b>
I.	Adjustment for the Diverter Rotor .....	11
II.	Adjustment of the Diverter Rotor Rotation Alignment .....	11
III.	Adjustment of the Transport Tube Safety Switch .....	12
IV.	Removal and Replacement of the Diverter Body .....	12
V.	Removal and Replacement of the Gearmotor and Diverter Rotor .....	12
<b>SECTION V -</b>	<b>MAINTENANCE &amp; CLEANING INSTRUCTIONS .....</b>	<b>13</b>
I.	General .....	13
II.	Cleaning .....	13
III.	Sanitizing .....	13-14
<b>SECTION VI -</b>	<b>SERVICE DIAGNOSIS .....</b>	<b>15</b>
I.	Extruded Cube Ice Diverter .....	15
<b>SECTION VII -</b>	<b>WIRING DIAGRAMS .....</b>	<b>16</b>
<b>SECTION VIII -</b>	<b>THE PARTS ILLUSTRATIONS AND PARTS LIST .....</b>	<b>17</b>
I.	General .....	17
II.	How to Use the Illustrations and Parts List.....	17
III.	How to Order Parts of Assemblies.....	17

**LIST OF ILLUSTRATIONS**

	Specifications.....	2
Figure 1-1.	Installing Tube and Clamps .....	4
Figure 1-2.	Installation Layout - Examples .....	7
Figure 7-1.	Wiring Diagram - DVK905-1B.....	16
Figure 8-1.	DVK905-1B - Major Assemblies.....	18
Figure 8-00	How to Use the Illustrated Parts List.....	22

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# SPECIFICATIONS



MODEL NO.	
SERIAL NO.	
QUEEN PRODUCTS DIVISION KING-SEELEY <b>KST</b> THERMOS CO. ALBERT LEA, MINNESOTA U. S. A.	

**MODEL DVK905-1B**

Electrical: 115/60/1  
24-volt control circuit

Est. Ship. Wt.: 33 lbs.

**TOP & SIDE SERVICE ACCESS**

SEE NAMEPLATE, shown at left, for electrical specifications. NAMEPLATE located on one of the enclosure sides. The NAMEPLATE also has the Model/Serial numbers.

We reserve the right to make product improvements at any time. Specifications and design are subject to change without notice.

**SECTION I****GENERAL INFORMATION & INSTALLATION****I. INTRODUCTION**

These instructions provide the specifications and the step-by-step procedures for the installation, start up and operation for the SCOTSMAN Model DVK905-1B Extruded Cube Ice Diverter.

The Model DVK905-1B Extruded Cube Ice Diverters are quality designed, engineered and constructed, and thoroughly tested ice diverting systems, providing the unique capability of alternately supplying ice to two separate locations.

One of the outstanding features of these diverters is the special priority circuit, so the user can switch the priority of ice delivery from one location to the other location. The priority is controlled by a manually operated slide switch on the outlet end of the diverter. When that need is filled, the bin thermostat will signal the diverter rotor to operate and divert the supply of ice to the other location.

**DESCRIPTION**

The relatively small box-like enclosure, with compact dimensions, allows the Ice Diverter Assembly to easily be installed on the top panel of the EC900, or in a space of small requirements.

**II. UNPACKING AND INSPECTION**

1. Call your authorized SCOTSMAN Distributor or Dealer for proper installation. He's listed under ICE MAKING EQUIPMENT & MACHINERY in the yellow pages of the telephone book.
2. Visually inspect the exterior of the shipping container and any severe damage noted should be reported to the delivering carrier; and a concealed damage claim filed subject to internal inspection, with carrier representative present.
3. Remove screws and shipping tape and the top and side panels and inspect for any concealed damage. Notify carrier of any concealed damage claims, as stated in Step 2 above.
4. Remove all internal support packing, tape, etc. from within the enclosure.
5. Check that all attaching hardware is snug tight and has not become loosened during shipment.
6. Check the contents of the carton shipped inside the enclosure, which should contain:

- a. Temperature Control Cover with Temperature Control attached inside, two screws, one Grommet and one Bushing.
  - b. One Thermo Bracket Assembly.
  - c. Two Hose Clamp Assemblies
  - d. One Hose Clamp
  - e. Six Screws.
  - f. Two Grommets.
7. SEE NAMEPLATE ON Diverter Box left side, and check that the local source voltage corresponds with the voltage specified on the nameplate.

**CAUTION**

**Improper voltage supplied to the Ice Diverter Assembly will void your parts replacement program.**

8. Remove the Manufacturer's Registration Card from the front of the Manual and fill in all spaces including Model Number and Serial Number taken from the nameplate. Forward the completed, self-addressed registration card to the SCOTSMAN factory.

**III. LOCATION AND LEVELING****WARNING**

**This Diverter Assembly is NOT designed for outdoor installations where air temperatures are below 50 degrees F., or above 100 degrees F. Extended periods of operation at temperatures exceeding these limitations will constitute misuse, under the terms of the SCOTSMAN Manufacturer's Limited warranty, resulting in LOSS of warranty coverage.**

1. Remove four angle mounting brackets shipped inside diverter cabinet and attach one to each corner of the cabinet using existing screws.

**NOTE**

1. *Minimum room temperature 50-degrees F., and maximum room temperature 100-degrees F.*
2. *Location within six feet of EC900.*
3. *Allows comfortable curves without low areas.*

DVK905-1B  
SECTION I GENERAL INFORMATION AND INSTALLATION

2. Position the Diverter in the selected permanent location and level the diverter in both left-to-right and front-to-rear directions adding metal shims as required. Using suitable bolts attach the diverter to its permanent location.

#### IV. TUBING CONNECTIONS

1. Route the 110 inch length one-inch I.D. Nylobrade tubing from the spout of the EC900 Icemaker to the inlet end of the Diverter, using open curves, no kinking, and use only an efficient, yet ample length of the tubing.

#### WARNING

Be sure the routing and positioning of the transport tube eliminates undesirable inclines, U-shape bends, and flat horizontal lengths where there would be the chance of an accumulation of backed up ice and non-moving sections of meltage water. Poor layout in routing transport tube can cause delay in ice delivery to dispenser or bin, as well as excess meltage; and worse, an ice back up situation severe enough to force the transport tube loose from the diverter or extruder breaker and possible damage to the equipment. See the illustrations showing examples of typical layouts and installation in Figures 1-1 and 1-2.

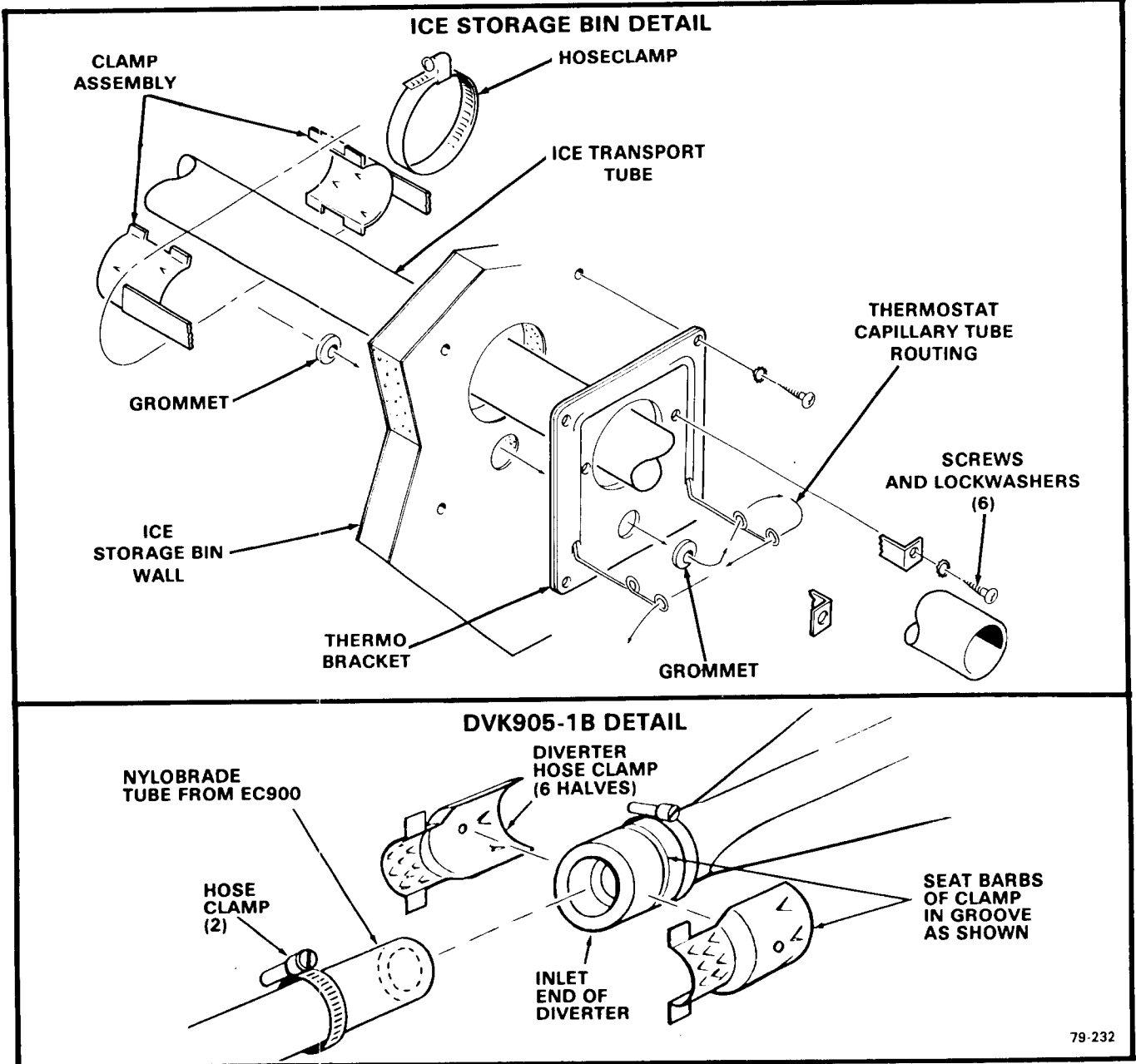


Figure 1-1. Installing Tube and Clamps.

DVK905-1B  
SECTION I GENERAL INFORMATION AND INSTALLATION

2. Loosen and slide two hose clamps over the free end of the Nylobrade tubing. See Figure 1-1. DVK905-1B detail.
3. Cut the measured new end of the Nylobrade tubing *square and even* and *insert the tubing to the bottom shoulder*, inside the INLET end of the Diverter.
4. Install the two-part metal clamp device on INLET end of the Diverter, with the barbs on the inner surface of the large end positioned within the ring depression on the diverter body and the opposite end of the clamp parts on the Nylobrade tubing.
5. Slide one hose clamp into position over the large end of the two-part clamp, and the other hose clamp over the smaller end of the two-part clamp.
6. Position the hose clamp at the smaller end in the clamp parts: Tighten both clamps to a snug tightness. DO NOT over-tighten.
9. Install tubing insulation of one and one-half inch I.D. Armoflex, or equivalent, around the lengths of routed Nylobrade tubing. (Half-inch wall thickness insulation.)
10. Install drain line on the drain fitting provided on the Diverter Assembly drain pan.
11. Cut the Nylobrade tubing to the required length at the associated ice storage bin and dispenser, and secure in place with clamps provided.

**NOTE**

*The two-part metal clamp is designed so the barbs on the inner surface of the smaller end will just dig in the Nylobrade tubing enough to securely hold the tubing, and also the design prevents over-tightening.*

7. Similarly cut the end of a length of the same size Nylobrade tubing and repeat steps 4, 5 and 6 on each of the OUTLET ends of the Diverter.
8. Route each Nylobrade tube to the associated bin or dispenser, avoiding undue heated areas and support tubing to prevent trapping water in horizontal areas of tubing.

**CAUTION**

**HEED THE FOLLOWING PRECAUTIONS WHEN INSTALLING NYLOBRADE ICE TRANSPORT TUBING:**

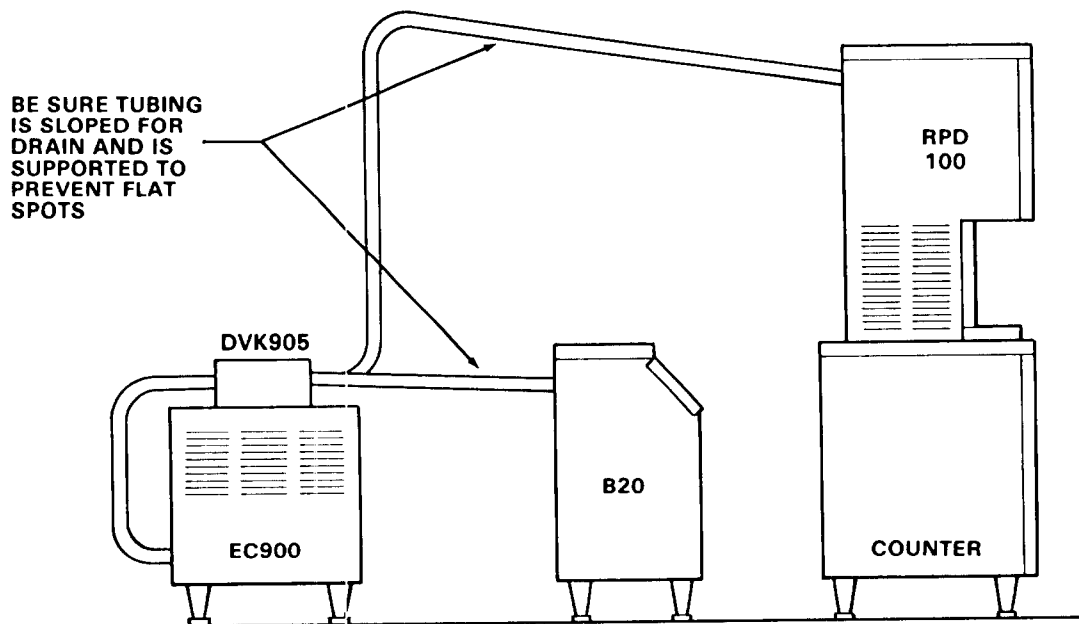
1. Use only one-inch I.D. Nylobrade tubing.
2. Use only one continuous length of Nylobrade tubing for each point-to-point tubing run. DO NOT install spliced tubing. This can cause ice jamming problems.
3. Cut ends of Nylobrade tubing square and even and remove all shavings.
4. Support all Nylobrade tubing to prevent low spots and trapping water.
5. DO NOT use any substitute tubing.
6. Install tubing so all meltage water will drain to one end of the tubing or to the other end.
7. DO NOT install tubing in areas where ambient temperatures are below 40 degrees F. or above 100 degrees F.

**V. BIN THERMO BRACKET**

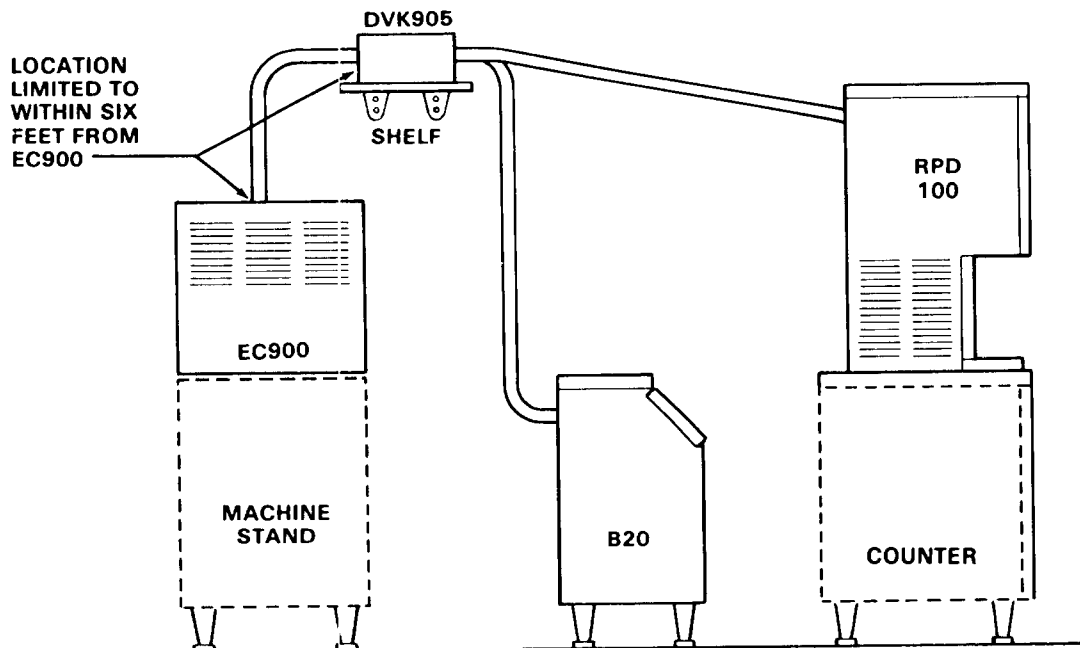
A. To install Bin Thermo Bracket: Refer to Figure 1-1 Installing Tubes and Clamps.

1. Using the bin thermo bracket as a template drill or cut a 1-7/16 inch diameter hole through the left end wall of the Bin, centered 2-1/2 inches below the top center of the wall.
2. Inside the Bin, align the hole in the Thermostat Bracket with the hole prepared in above step, and attach the Bracket to the inner wall, using four screws.
3. Insert the two-piece Hose Clamp Assembly through the hole in the Thermostat Bracket and Bin, so the clamping parts are outside of the Bin; then, attach the Clamp parts inside the Bin, using two screws.
4. Position the Bin Control Assembly housing immediately below the hole prepared in step 1 above, on the outside of the Bin, securing with two screws.
5. Carefully route the capillary tube through the open hole in the Bin wall and thread the tube through the two loops in the wire Bulb Holder, nearest to the wall; then, bend a U-turn in the tube and thread it through the second set of loops, extending the end of the tube at least an inch beyond the last loop of the Bulb Holder
6. Dress the tube neatly, to take up excess slack back to the Bin Control Thermostat housing and carefully coil the excess tubing out of the way.
7. Slide a hose clamp over the end of the Nylobrade transport tube and insert the end of the tube through the hole in the Bin wall, loosely fitting the hose clamp around the two-piece Hose Clamp Assembly holding the tube.
8. Adjust the end of the Nylobrade transport tube, inside the Bin, to extend away from the inner wall just beyond the end of the Bulb Holder; then, tighten the hose clamp

DVK905-1B  
SECTION I GENERAL INFORMATION AND INSTALLATION



DIVERTER ASSEMBLY INSTALLED ON TOP OF EC900



DIVERTER ASSEMBLY INSTALLED IN REMOTE LOCATION

Figure 1-2. Installation Layout - Examples.

## SECTION I GENERAL INFORMATION AND INSTALLATION

1. Drill or cut a 1-7/16 inch diameter hole through the RPD100 left side panel, or rear panel, six inches below the top of the panel and three inches from the edge of the panel next to the left rear corner post.

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**CAUTION**


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Strictly observe the following instructions in the use and handling of SCOTSMAN approved nylon reinforced ice transport tubing, see Figure 1-2:

1. Use only SCOTSMAN approved nylon reinforced one inch I.D. transport tubing available in 25, 50 and 100 foot lengths, from your authorized SCOTSMAN dealer.
  2. DO NOT splice tubing.
  3. DO NOT route tubing from above the Dispenser down to the base and back up to the ice storage bin level. This U-shape in tubing forms a trap, or low section in the tubing that will fill with water which cannot be drained.
  4. Route all transport tubing to allow meltage water to drain either to the RPD100, the EC900, or in both directions.
- 

2. Insert the end of the Nylobrade transport tubing through the hole prepared in Step 1 above; then, guide the end of the tubing under the Saddle, through the two U-clamps, with the end of the tubing extending about one inch beyond the last U-clamp. Excess tubing should be cut off, square and even.

3. RPD100 (Up to S/N 532982-09S ONLY)

Remove the two thumbscrews from the Bin Control Thermostat and the two wingnuts from the Bulb Holder Assembly; then lift the two parts from the Saddle and carefully unwind the capillary tube for removal. Do not kink the tube or use excess pulling or bending.

- RPD100 (S/N 532983-09S and above ONLY)

Remove the two wingnuts and the Bulb Holder Assembly from the saddle.

4. Carefully uncoil the capillary tube of the Bin Control Thermostat to be installed; then, position about two and one-half to four inches of the end of the capillary tube along the rear of the bottom, notched crosspiece of the Bulb Holder, from the right end.
5. Diagonally wind the capillary tube, from right to left, over to the left vertical part of the assembly. If it appears the capillary tube will be too short, skip a notch or two when winding the tube.
6. Position and install both parts, the Bulb Holder and the Bin Control Thermostat in place on the Saddle and secure with the thumbscrews and wingnuts removed earlier.

---

**CAUTION**


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Dress the capillary tube neatly against the Bulb Holder, to be sure no part of the capillary tube extends below the bottom crosspiece of the Bulb Holder, and that the end of the capillary tube, or any part, sticks out behind the Bulb Holder, which could cause ice to be held against the tube and give a false indication of a filled bin.

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7. Route the three wires, Yellow, Orange, Blue, from the right-hand side of the OUTLET end of the Diverter box, along the Nylobrade Transport tube, on the same side, to the RPD100, wired as Bin-1, and connect to Bin Control Thermostat terminals as follows:

Yellow to Terminal - 2

Orange to Terminal - 1

Blue to Terminal - 3.

8. Route the three wire leads, Brown, Red, White-Violet, from the left-hand side of the OUTLET end of the Diverter box, along the Nylobrade transport tube, on the same side to the RPD100, wired as Bin -2, and connect to Bin Control Thermostat terminals as follows:

Brown to Terminal -2

Red to Terminal -3

White-Violet to Terminal -1.

**VII. FINAL CHECK LIST**

1. Is the Ice Diverter Assembly level? (IMPORTANT)
2. Have all electrical and tubing connections been made, including proper grounding wire?
3. Has the voltage been tested and checked against the wiring diagram?
4. Has all attaching hardware been checked to be sure all connections are snug and properly secured?
5. Has the owner/user been given the installation and operating instructions on how to operate the Ice Diverter Assembly?
6. Is the Ice Diverter Assembly in a room or space where ambient temperatures are a minimum of 50 degrees F. all year around?
7. Has all Nylobrade transport tubing been checked for proper support to prevent low water-trapping spots, kinking, proper incline for drain, and that tubing insulation is properly installed?
8. Has the owner been given the name and telephone number of the authorized SCOTSMAN Distributor, or Service Agency serving him?



## SECTION II

# OPERATING INSTRUCTIONS

### I. START UP

1. Move the slide switch, on the OUTLET end of the Diverter housing toward the Nylobrade transport tube supplying the Bin with the priority.
2. Move both manual ON-OFF toggle switches on the EC900 to the ON position, to start the automatic icemaking operation.
3. Within two or three minutes of operation, flaked ice will begin dropping into the extruder feeder hose from the ice spout at the upper end of the freezer assembly.
4. Within the next two minutes or so, squared broken cubed ice should be emerging from the breaker end of the extruder assembly and into the Nylobrade ice transport tube connected to the INLET end of the Ice Diverter Assembly.

#### NOTE

*During the next phase, the time required will vary from installation to installation, and from individual bin location to bin location. This time period is the length of time required to transport ice from the outlet of the extruder breaker to the Ice Diverter Assembly and from there to the bin.*

5. Observe the time required for ice to be transported from the extruder breaker to the

dispenser for your future reference. That is, how long in minutes it takes for the first ice to be deposited in the dispenser.

6. Let the icemaking process continue without interruption until the Priority bin is filled up to the bin thermostat.
7. Check that after ice contacts the priority bin thermostat the diverter assembly is activated and directs ice flow to alternate bin.
8. Remove an amount of ice from the priority bin thermostat to warm the sensing bulb, this action will signal the diverter to direct ice flow from the alternate bin back to the priority bin and filling will continue until priority bin is full.
9. Observe that after priority bin is full diverter is activated directing ice flow to alternate bin.
10. Ice flow will continue to be supplied to the alternate location until ice contacts the alternate bin thermostat and stops the automatic icemaking process. Both bins are full.
11. Moving the slide switch located on the discharge end of the DVK905-1B will reverse priority to alternate location.
12. If priority switching does not operate as outlined refer to: Service Diagnosis Section.

DVK905-1B  
SECTION III

PRINCIPLES OF OPERATION  
How It Works

I. GENERAL

The following text describes the sequential series of events as they occur within the priority circuit and the effects on the ice supply to two separate locations, designated as Bin-1 and Bin-2.

A. PRIORITY IS BIN-1.

The Priority Switch is positioned toward Bin-1, reference Wiring Diagram, which indicates the priority of ice supply is transported to Bin-1. The contacts 2-3 of Bin-1, Bin Control thermostat are CLOSED and Relay C is activated which CLOSES contacts 5-7 of that Relay completing the circuit to the Bin Control Contactor Coil in the EC900. The EC900 Extruded Cuber continues to supply and transport ice to the DVK905-1B Diverter, with the rotor positioned to Bin-1, until Bin-1 is filled with ice; which OPENS contacts 2-3 and CLOSES contacts 2-1 of the Bin Control Thermostat. Relay C is deactivated which OPENS contacts 5-7 of that relay and Relay B is activated which CLOSES contacts 5-7 of that relay which continues to supply power to the Bin Control Contactor Coil in the EC900.

With contacts 2-3 of Bin 2 Bin Control Thermostat CLOSED, Bin-2 is signalling for ice and the circuit is made thru the NO contacts of Cam Switch 2 to the Relay A Coil, CLOSING contacts 5-7 of that Relay, which activates the Rotor to rotate one-half revolution. This rotation of the Rotor diverts the supply of ice from Bin-1 to Bin-2, this action also OPENS Cam Switch 2 NO contact and CLOSES the NC contact deactivating Relay A Coil which OPENS that contacts 5-7 STOPPING the Diverter Motor.

When Bin-2 is filled with ice, contacts 2-3 OPEN and contacts 2-1 of Bin-2 Bin Control Thermostat CLOSE, which signals the Rotor to rotate one-half revolution and divert ice to the priority Bin-1; or, if both bins are filled with ice, both Bin Control Thermostats have contacts 2-1 CLOSED; this condition deactivates Relay B and Relay C which

OPENS contacts 5-7 in each removing power to the Bin Control Contactor Coil in the EC900 which will SHUT OFF the EC900 icemaking process, and the Rotor will not rotate.

B. PRIORITY IS BIN-2.

The Priority Switch is positioned toward Bin-2, reference Wiring Diagram, which indicates the priority of ice supply is to Bin-2. The contacts 2-3 of Bin-2, Bin Control Thermostat are CLOSED and Relay B is activated which CLOSES contacts 5-7 of that Relay completing the circuit to the Bin Control Contactor Coil in the EC900. The EC900 Extruded Cuber continues to supply and transport ice to the DVK905-1B Diverter, with the rotor positioned to Bin-2, until Bin-2 is filled with ice; which OPENS contacts 2-3 and CLOSES contacts 2-1 of the Bin Control Thermostat. Relay B is deactivated which OPENS contacts 5-7 of the relay and Relay C is activated which CLOSES contacts 5-7 of that relay which continues to supply power to the bin Control Contactor Coil in the EC900 unless Bin is full and contacts 2-3 OPEN.

With contacts 2-3, of Bin-1 Bin Control Thermostat CLOSED, Bin-1 is signalling for ice and circuit is made to the relay coil CLOSING contacts 5-7 of that relay, which activates the rotor to rotate one-half revolution. This rotation of the rotor diverts the supply of ice from Bin-2 to Bin-1 thru the NC contacts of Cam Switch 2.

When Bin-1 is filled with ice, contacts 2-3 OPEN and contact 2-1 of Bin-1 Bin Control Thermostat CLOSE, which signals the rotor to rotate one-half revolution and divert ice to the Bin-2; or, if both bins are filled with ice, both Bin Control Thermostats have contacts 2-1 CLOSED, the condition deactivates Relay B and Relay C which OPENS contacts 5-7 in each removing power to the Bin Control Contactor Coil in the EC900 which will SHUT OFF the EC900 icemaking process and the Rotor will not rotate.

## SECTION IV

### ADJUSTMENT AND REMOVAL AND REPLACEMENT

The procedures provided in this Section are arranged in alphabetical order, to make specific Adjustment and Removal and Replacement information easy to locate.

Read the instructions thoroughly before performing any Adjustment or Removal and Replacement Procedures.

#### WARNING

Be sure the electrical power supply is OFF, before starting any of the following REMOVAL AND REPLACEMENT procedures, as a precaution to prevent possible personal injury or damage to equipment.

#### I. ADJUSTMENT FOR THE DIVERTER ROTOR

##### NOTE

*When the Diverter Rotor is removed and the same Diverter Rotor is reinstalled, normally no adjusting is required. The following procedure should be performed when a replacement Diverter Rotor is being installed; or when the setscrews on the Adjusting Pad have somehow become changed from the original settings.*

1. With the replacement Diverter Rotor installed and all parts reassembled, as detailed in procedure IV-V, measure the space between the two Delrin bushings. The acceptable space is SEVEN to TEN thousandths of an inch.
2. TO INCREASE SPACE: When the space is LESS than SEVEN thousandths of an inch, rotate each of the three adjusting setscrews on the Adjusting Pad, OUT or COUNTERCLOCKWISE, one-fourth of a turn.
3. TO DECREASE SPACE: When the space is MORE than TEN thousandths of an inch, rotate each of the three adjusting setscrews on the Adjusting Pad, IN or CLOCKWISE one-fourth of a turn.
4. Repeat steps 2 and 3, as necessary to result in the acceptable SEVEN to TEN thousandths inch clearance.

#### II. ADJUSTMENT OF THE DIVERTER ROTOR ROTATION ALIGNMENT

##### NOTE

*Normally, this adjustment is not required, as it is performed at the factory. When a replacement rotor*

*is installed and the rotor alignment checked visually, by looking into the INLET end of the Diverter Body, if there is an over-rotation or under-rotation, of about 1/16-inch or so observed, adjustment is necessary to prevent the possibility of ice backing up, jamming and forcing the Nylobrade tube off of the INLET end of the Diverter Body.*

1. Remove screws and the OUTLET end Panel.
2. Remove INLET tube and clear all ice from the Diverter.
3. Loosen both screws on the Cam Switch Bracket.

##### NOTE

*Moving the Cam Switch Bracket UP, in its slot, will cause the microswitch to rotate the Diverter Rotor slightly in the CLOCKWISE direction. Moving the bracket DOWN, results in COUNTERCLOCKWISE direction rotation of the Diverter Rotor, as viewed from the OUTLET, or motor end, of the Diverter Body.*

4. Scribe or mark a reference line at the center of the slot in the bracket; then, rotate the bracket about 1/16-inch in the direction required to correct the alignment error. Tighten screws.

##### NOTE

*Moving the Cam Switch Bracket causes a converse movement of the actuator arm on the microswitch, which must be adjusted in the OPPOSITE direction the bracket was rotated. The actuator arm requires travel space equal to about half the distance between the space from the inner surface to the outer surface of the Cam.*

5. Loosen the screw on the microswitch, nearest the roller, and rotate the switch in the OPPOSITE direction the bracket was rotated, about 1/16-inch, or less.
6. Depress the actuator arm and let loose, observing amount and location of travel in relation to its position to the cam. Also, listen for the audible clicks as switch OPENS AND CLOSES. When the clicks occur about midway between the actuator arm travel, caused by the cam, tighten screws.
7. Repeat steps 3 through 5 to achieve the correct rotation alignment of the rotor and the associated adjustment to the actuator arm of the microswitch.

## SECTION IV ADJUSTMENT AND REMOVAL AND REPLACEMENT

## III. ADJUSTMENT OF THE TRANSPORT TUBE SAFETY SWITCH

## NOTE

*The three Safety Switches, one located at the INLET end and two located at the OUTLET end of the Diverter Body, must be checked and adjusted every time the Transport Tube is installed at any of the three openings in the Diverter Body. The Safety Switch is installed with the actuator arm fully depressing the microswitch, to keep the circuit CLOSED; so, if there is an ice backup in the tube and it forces the tube OFF of the Diverter Body, the actuator arm is released, the circuit then OPENS, shutting OFF the EC900 icemaking process.*

1. Remove screws and the top panel.
2. Bend the metal actuator arm of the microswitch so the arm keeps the microswitch FULLY depressed, while the tip of the actuator arm presses against the Nylobrade Transport Tube.
3. Make sure the tube clamps will not prevent the switch from opening, when the Nylobrade Tube is pushed off the end of the Diverter Body.

## IV. REMOVAL AND REPLACEMENT OF THE DIVERTER BODY

A. To remove the Diverter Body:

1. Remove screws and the Diverter Box Top and End panels.
2. Loosen screws on the two hose clamps on each of the three, two-part Diverter Hose Clamps, securing Nylobrade tubing to the ends of the Diverter Body; then, slide the hose clamps off onto the Nylobrade tubing.
3. Separate and remove the two-part Diverter Hose Clamps from the Diverter Body, and remove the ends of the Nylobrade tubing from the three tube insert openings of the Diverter Body.
4. Disconnect electrical leads and remove screws and nuts from each of three Switches attached to flanges on the Diverter Body and remove the three Switches and Switch Brackets.
5. Remove four screws, lockwashers and nuts attaching the Motor Mounting Bracket to the end of the Diverter Body; disconnect electrical leads from the Gearmotor at the Terminal Board, two places, and electrical leads from the two switches on the bottom of the Cam Switch Bracket; then, slide the Gearmotor, Motor Mounting Bracket and attached Diverter Rotor out and remove the whole assembly from the Diverter Body.

6. Remove the Diverter Body from the three vertical brackets on the Base Pan Assembly.

B. To replace the Diverter Body, reverse the removal procedures.

## V. REMOVAL AND REPLACEMENT OF THE GEARMOTOR AND DIVERTER ROTOR

A. To remove the Gearmotor and Diverter Rotor:

1. Remove screws and the Diverter Box Top and End panels.
2. Disconnect electrical leads from the Gearmotor at the Terminal Board, two places, and electrical leads from the two switches on the bottom of the Cam Switch Bracket.
3. Remove four screws, lockwashers and nuts attaching the Motor Mounting Bracket to the end of the Diverter Body; then, slide the Gearmotor, Motor Mounting Bracket and attached Diverter Rotor out and remove the whole assembly from the Diverter Body.

## NOTE

*The Diverter Rotor will usually remain INSIDE the Diverter Body, but can easily be removed. If it is removed along with the Gearmotor shaft, proceed with step 4.*

4. Carefully pull and work loose the Diverter Rotor from the roll pin and shaft of the Gearmotor; then, remove Roll Pin from the shaft.

## CAUTION

**DO NOT disturb the three adjusting screws on the Adjusting Pad during removal in the next step or during the replacement procedures. The adjusting screws are factory adjusted and the settings should not be altered.**

5. Slide off the Adjusting Pad and the two Delrin Bushings.
  6. Loosen the setscrew and remove the Cam from the end shaft of the Gearmotor, opposite of the Roll Pin end.
  7. Remove two screws and separate the Cam Switch Bracket, with two attached Switches, from the Gearmotor.
- B. To replace the Gearmotor and Diverter Rotor, reverse the removal procedures. Refer to procedure IV-I, for adjustments when installing a replacement Diverter Rotor.

## SECTION V

# MAINTENANCE & CLEANING INSTRUCTIONS

### I. GENERAL

The periods and procedures for maintenance and cleaning are given as guides and are not to be construed as absolute or invariable. Cleaning especially will vary, depending upon local water conditions and the ice volume produced; and, each Icemaker must be maintained individually, in accordance with its own particular location requirements.

The DVK905-1B in its function is only in contact with ice, unlike icemakers, such as the associated EC900, which has local inlet water entering the system for purposes of icemaking and for acting as a heat removal medium in the water-cooled models. The DVK905-1B then, is not exposed to the general and normal degree of maintenance and cleaning required by icemakers. At the end of the first year of service, or before, when schedules appear better, the Diverter Rotor should be removed and the Rotor as well as the internal surfaces of the Diverter Body inspected. At that time both parts should be cleaned using a solution of SCOTSMAN Ice Machine Cleaner. Refer to procedure V-II, CLEANING.

### II. CLEANING

#### NOTE

*Following the first cleaning of the Diverter Rotor and the Diverter Body, inspection of the parts before and after cleaning will assist in determining how often cleaning may be necessary. Cleaning requirements vary according to local water conditions and individual user operation.*

1. Refer to procedure IV-IV to remove the parts and procedure IV-V-A-4 for removing the Diverter Rotor from the shaft of the Gearmotor.

#### WARNING

**SCOTSMAN Ice Machine Cleaner contains Phosphoric and Hydroxyacetic acids. These compounds are corrosive and may cause burns if swallowed. DO NOT induce vomiting. Give large amount of water or milk. Call Physician immediately. In case of external contact flush with water. KEEP OUT OF THE REACH OF CHILDREN.**

2. Prepare cleaning solution: Mix six ounces of SCOTSMAN Ice Machine Cleaner with one and one-half quarts of hot water.
3. Immerse the parts in the cleaning solution

and scrub the parts with a brush, using a bottle brush for internal parts. Do not use a wire brush.

4. Wash the parts off in clean hot water and allow to drain.
5. Pour the cleaning solution into the Base Pan and check that the drain and drain hose properly drain the solution and are clean and clear of obstruction. Wash the Base Pan with hot water to rinse away the cleaning solution.
6. Refer to procedure V-III for sanitizing procedures.
7. Replace the cleaned and sanitized Diverter Rotor and Diverter Body in the reverse order of removal.

### III. SANITIZING

Sanitizing is an important phase of the icemaking and dispensing operation. The following sanitizing procedures should be performed after every repair or replacement of parts in the DVK905-1B in or through which ice is transported or water may be drained. Additional requirements for performing the sanitizing procedure should be followed in accordance with the requirements of local Health Authorities.

#### NOTE

*Contact your local Health Authorities and obtain their approval of the sanitizer you intend to use when sanitizing the DVK905-1B.*

*Prior to performing the sanitizing procedure, it is assumed the cleaning procedure has been performed up through step V-II-5.*

#### WARNING

**Read WARNING thoroughly BEFORE preparing sanitizing solution, in next step.**

#### 1. STERILAX 3-Q SANITIZING TABLETS

**DANGER: KEEP OUT OF REACH OF CHILDREN.** Tablets may be harmful or fatal if swallowed. May cause skin irritation or eye damage. Avoid prolonged skin contact. Do not get in eyes. In case of contact, flush with plenty of water. If irritation persists get medical attention. Avoid contamination of food.

**FIRST AID:** If tablets are swallowed drink promptly a large quantity of milk, egg whites or gelatin solution. Avoid alcohol.

DVK905-1B  
SECTION V MAINTENANCE AND CLEANING INSTRUCTIONS

**NOTE TO PHYSICIAN:** Probable mucosal damage may contraindicate the use of gastric lavage. Measures against circulator shock, respiratory depression and convulsion may be needed.

Rinse empty carton thoroughly with water and discard. Always follow your health department regulation.

**2. MIKRO-QUAT**

**DANGER:** Causes high damage and skin irritation. Do not get into eyes, or on skin, or on clothing. Protect eyes when handling concentrated product. Harmful if swallowed. Avoid contamination of food.

**FIRST AID:** In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes. For eyes, call a physician. Remove and wash contaminated clothing before reuse. If swallowed, drink promptly a large quantity of milk, egg whites or gelatin solution, or if these are not available, drink a large quantity of water. Call physician immediately.

1. Prepare one gallon of sanitizing solution composed of 450 PPM active quaternary ammonium germicide solution, using a quaternary ammonium sanitizing solution.

**NOTE**

Carefully follow directions and observe all precautions on the container of the compound.

*Three \*Sterilax 3-Q sanitizing tablets per gallon of water; or, 2/3-ounce of \*Mikro-Quat per gallon of water will yield a solution of about 450 PPM active quaternary.*

*EXCEPTION: Preparation of the sanitizing solution specifically for the DVK905-1B parts, would of course not be required on occasions when the cleaning and sanitizing of the EC900 is scheduled simultaneously. The sanitizing solution prepared for the EC900 is of a volume sufficient to also include proper sanitizing of the DVK905-1B parts.*

2. Immerse the parts in the sanitizing solution and wash the parts, flushing the solution thoroughly in, over and through all parts and surfaces of the DVK905-1B parts being sanitized.
3. Allow the parts to drain and air dry.
4. Replace the sanitized parts in the reverse order of removal.

*\*Sterilax 3-Q sanitizing tablets are distributed by Pittsburgh Chemical Laboratory, Inc., Pittsburg, PA 15222, and may be obtained through most restaurant supply houses.*

*\*Mikro-Quat is manufactured by Economics Laboratory, Inc., Osborn Building, St. Paul, MN 55102, and may be obtained from them through their Magnus Division, The Klenzade Division, or from restaurant supply houses.*

## SECTION VI

### SERVICE DIAGNOSIS

The Service Diagnosis Section is for use in aiding the serviceman in diagnosing a particular problem for pin-pointing the area in which the problem lies, thus an ever available reference for proper corrective action.

The following charts list corrective actions for the causes of known symptoms of certain problems that can occur in the Extruded Cube Ice Diverter.

#### I. EXTRUDED CUBE ICE DIVERTER

SYMPTOM	POSSIBLE CAUSE	CORRECTION
EC900 does not shut off when ice contacts Bin Thermostat bulb (Other bin EMPTY).	Ice being diverted to wrong bin: 1. Nylobrade tube connected to wrong OUTLET end of Diverter Body. 2. Improper wiring connections to terminals of Bin Thermostat. 3. Rotor installed 180-degrees out of correct position. 4. No power to Rotor Motor.  Defective brake on Rotor Motor.	1. Reverse Nylobrade tube connections at OUTLET end of Diverter Body. 2. Check Wiring Diagram, then rewire terminals. 3. Remove Rotor, reverse position, re-install. 4. Check power source to DVK905 and correct problem: not plugged in; need fuse replaced.  Replace garmotor.
Diverter Rotor Motor does not operate.	Faulty Relay B or C.	Replace Relay.
Diverter Rotor Motor operates continuously.	Faulty Relay B or C.	Replace Faulty Relay.
Both bins signal for ice, EC900 does not operate.	One or more hose safety switches not properly adjusted.  Ice backup pushed hose off of Diverter Body, or EC900 Extruder, caused by restriction, or kink or too sharp bend in tubing; or, EC900 Spout switch tripped; or improper adjustment on Cam switch of Diverter.  Defective Transformer in EC900.	Check all switches and bend switch arm to actuate switch. Check and remove restriction. Correct sharp bend or replace tubing. Check EC900 Spout switch position or replace defective switch. Check and adjust Cam switch on Diverter, be sure Rotor stops in correct unobstructed position for ice flow.  Replace Transformer.

DVK905-1B  
SECTION VII  
WIRING DIAGRAMS

This Section is provided as an aid in understanding the electrical circuitry of the DVK905-1B. The Wiring Diagrams in this section are: Figure 7-1. Wiring Diagram - DVK905-1B.

**WARNING**

When conducting a continuity check of the DVK905-1B:

1. Disconnect the main power source.
2. DO NOT use an incandescent lamp or jumper wire, conduct all tests with a volt-ohm-meter.

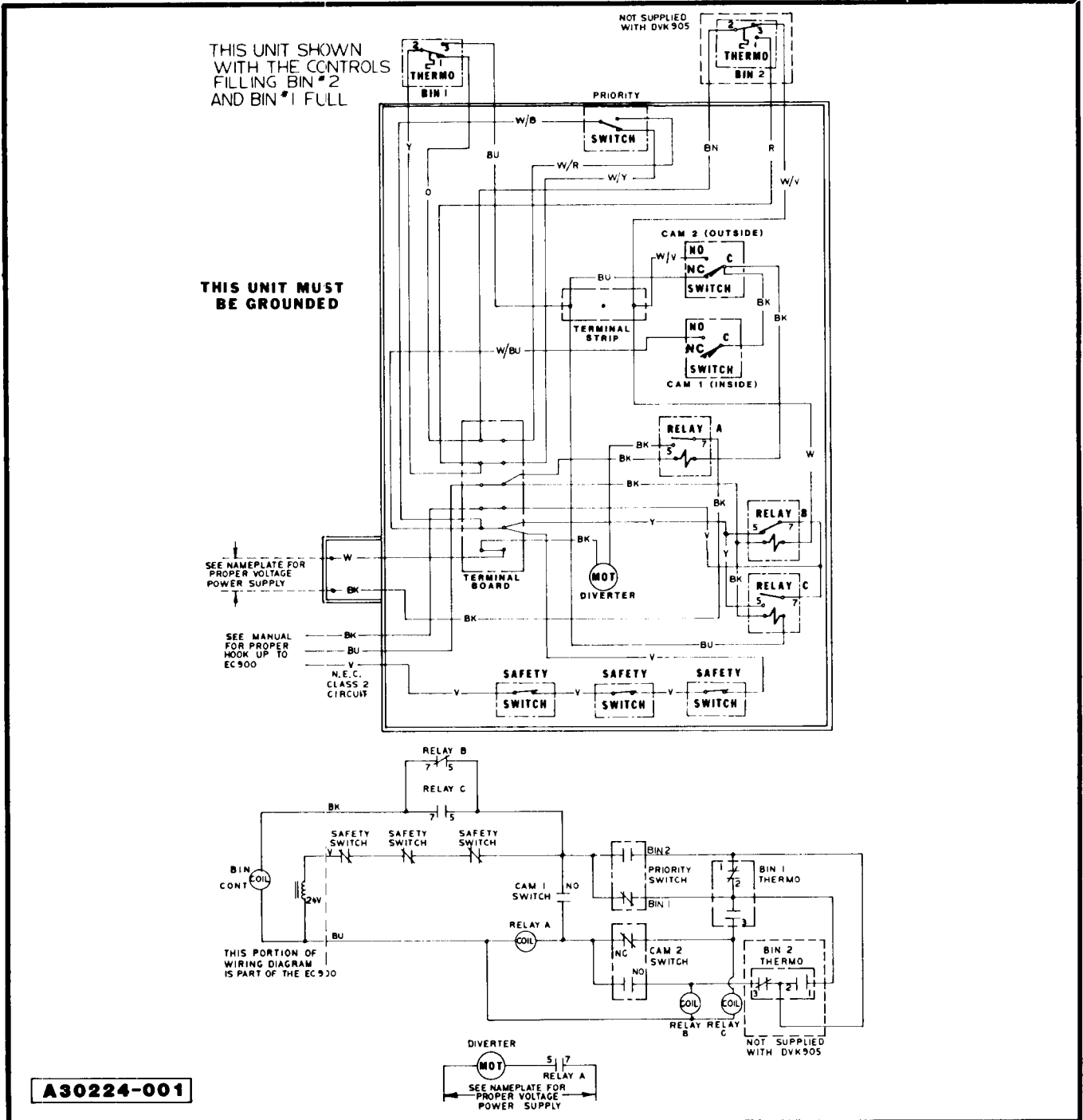


Figure 7-1. Wiring Diagram — DVK905-1B.



## SECTION VIII

### THE PARTS ILLUSTRATIONS AND PARTS LISTS

#### I. GENERAL

This section contains the Parts Illustrations and the Parts List for each of the major assemblies in the DVK905-1B Extruded Cube Ice Diverter.

Each Parts Illustration shows an assembly as an exploded view, with an Index Number for each part or sub-assembly, given in disassembly order. These Index Numbers key with the Parts List for the assembly and are found in the parts List Column headed Index Number. The Description Column gives the identifying nomenclature for the item indexed. The Part Number Column gives the number of item. The Number Required Column gives the number of items required per assembly, but not necessarily the total number of parts required per Diverter.

All assemblies are cross-referenced both from the major assembly listing where they first appear in the Parts Listing to their break-down listing, and from the break-down listing, back to the major assembly (next higher assembly) listing.

A *No Number* designation, when used in the Part Number Column indicates the unit is not available from SCOTSMAN as an assembly. This designation is used only for the convenience and clarity of division in cataloging.

When an Index Number is followed by a letter (e.g. 1a, 1b), the letter indicates the part listed is part of the assembly indexed by the basic Index Number. The number required of the part indexed by the number and letter combination

is only one of the assemblies indexed by the basic Index Number and not necessarily the total number or parts used in the Diverter. Where the notation *Ref* occurs in the Number Required Column the number of the assemblies or parts under a previous Index Number or in the next higher assembly Parts Listing. The next higher listing Figure/Index number is shown in the Description Column immediately following the items description.

#### II. HOW TO USE THE ILLUSTRATIONS AND PARTS LIST

To find the part number of a required part or assembly, turn to the List of Illustrations and find the page number of the Parts illustration of the major or sub-assembly containing the part. Turn to the indicated page and locate the part and its Index Number on the specific illustration. Find the Index Number on the required part in the Parts List to determine the complete description of the part.

#### III. HOW TO ORDER PARTS OR ASSEMBLIES

When ordering parts or assemblies, to avoid costly delays and errors in shipment, give the part number, the complete description shown in the list, and the quantities of each part or assembly required. Also include the Model name, the serial number of the Diverter for which the parts is required, and for parts which required color matching, the color of the Cabinet. See Figure 8-00, at the end of the Section for detailed ordering instructions.

DVK905-1B  
SECTION VIII PARTS ILLUSTRATIONS AND PARTS LISTING

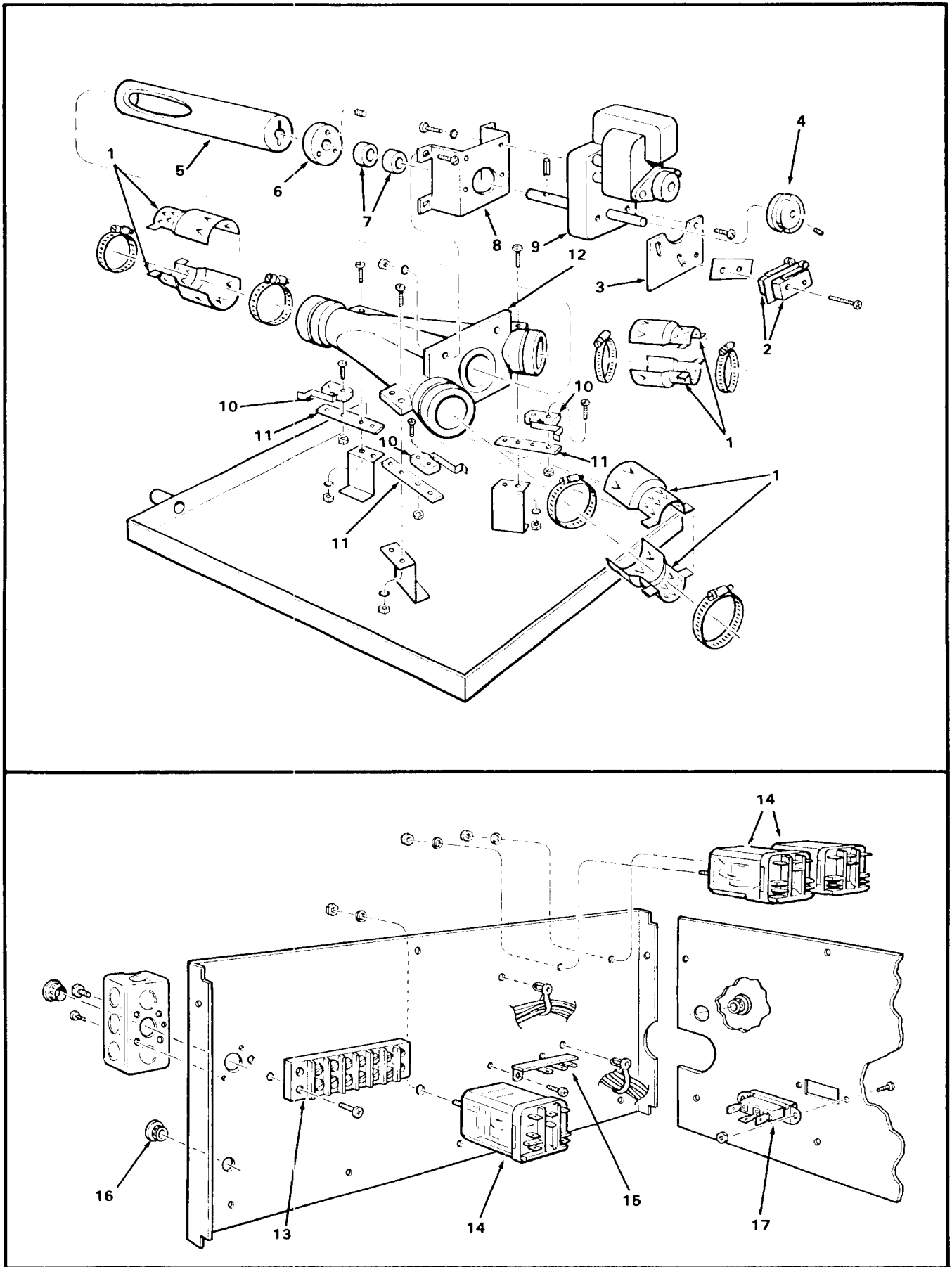


Figure 8-1. DVK905-1B — Major Assemblies.

DVK905-1B  
SECTION VIII PARTS ILLUSTRATIONS AND PARTS LISTING

INDEX NO.	DESCRIPTION	PART NUMBER	REQ'D NUMBER
	Major Assemblies - DVK905-1B * * *	No Number	Ref.
1	Clamp, Hose - Diverter attaching parts, Index 1 Clamp, Hose * * *	A28252-001 02-0179-02	6 6
2	Switch Pad Insulation attaching parts, Index 2 Screw, No. 4-40 x 1-1/4 Phil Recess Pan Hd Nut, No. 4-40 * * *	12-1614-01 No Number 03-1403-63 03-1406-14	2 2 2 2
3	Bracket, Cam Switch attaching part, Index 3 Screw, No. 8 x 1/4 T/F Tap * * *	A29516-001 No Number	1 2
4	Cam attaching part, Index 4 Setscrew * * *	A28258-001 03-0431-05	1 1
5	Rotor, Diverter attaching part, Index 5 Pin, Spring * * *	A28762-001 03-0774-12	1 1
6	Pad, Adjusting adjusting screws (SEE NOTE at end of Parts List) Setscrew, No. 10-24 x 3/8 * * *	A28781-001 03-0431-08	1 3
7	Bushing - Delrin * * *	A28782-001	2
8	Bracket, Motor Mounting attaching parts, Index 8 to 12 Screw, No. 8-32 x 5/8 Phil Recess Pan Hd Washer, No. 8 Plain Lockwasher, No. 8 Helical Spring Nut, No. 8-32	A28783-001 03-1403-20 03-1407-02 No Number 03-1406-03	1 4 4 4 4

DVK905-1B  
SECTION VIII PARTS ILLUSTRATIONS AND PARTS LISTING

INDEX NO.	DESCRIPTION	PART NUMBER	REQ'D NUMBER
	attaching parts, Index 8 to 9		
	Screw, No. 8-32 x 1/4 Phil Recess Pan Hd	03-1403-15	4
	Lockwasher, No. 8 Helical Spring	No Number	4
	***		
9	Gearmotor	12-2110-01	1
	***		
10	Switch, Forming	A28242-001	3
11	Bracket, Switch	No Number	3
	attaching parts, Index 10 to 11		
	Screw, No. 4-40 x 1-1/4 Phil Recess Pan Hd	03-1403-63	2 (6)
	Nut, No. 4-40	03-1406-14	2 (6)
	attaching parts, Index 11 to 12		
	Screw, No. 8-32 x 3/8 Phil Recess Pan Hd.	03-1403-17	2 (6)
	Lockwasher, No. 8 Internal Tooth	03-1417-02	2 (6)
	Nut, No. 8-32	03-1406-03	2 (6)
	***		
12	Body, Diverter	A29249-001	1
	***		
13	Strip, Terminal	12-0813-03	1
	attaching part, Index 13		
	Screw, No. 8-32 x 5/8 Phil Recess Pan Hd	03-1403-20	2
	***		
14	Relay	12-2091-02	3
	attaching part, Index 14		
	Lockwasher, No. 6	03-1410-01	3
	Nut, No. 6-32	03-1406-01	3
	***		
15	Strip, Solder Terminal	12-2160-01	1
	attaching parts, Index 15		
	Screw, No. 6-32 x 3/8 Phil Recess Pan Hd	03-1403-04	2
	***		

DVK905-1B  
SECTION VIII PARTS ILLUSTRATIONS AND PARTS LISTING

INDEX NO.	DESCRIPTION	PART NUMBER	REQ'D NUMBER
16	Bushing * * *	12-1213-02	1
17	Switch — (SPDT) attaching parts, Index 18 Screw, No. 6-32 x 3/8 Phil Recess Pan Hd Nut, No. 6-32 * * *	12-2054-01  03-1403-04 03-1406-01	1  2 1
	<b>NOTE:</b> Temperature Control Assembly consists of: Cover, Grommet, Bushing, 4 Screws Control, Temperature (included in A29611-001). * * *	A29611-001 No Number	1
	<b>NOTE:</b> Adjust three setscrews in Adjusting Pad until Rotor is just ahead of ridge, inside body, for uniform ice flow.	11-0412-01	1

**DVK905-1B**  
**SECTION I GENERAL INFORMATION AND INSTALLATION**

2. Loosen and slide two hose clamps over the free end of the Nylobrade tubing. See Figure 1-1. DVK905-1B detail.
3. Cut the measured new end of the Nylobrade tubing *square and even* and *insert the tubing to the bottom shoulder*, inside the INLET end of the Diverter.
4. Install the two-part metal clamp device on INLET end of the Diverter, with the barbs on the inner surface of the large end positioned within the ring depression on the diverter body and the opposite end of the clamp parts on the Nylobrade tubing.
5. Slide one hose clamp into position over the large end of the two-part clamp, and the other hose clamp over the smaller end of the two-part clamp.
6. Position the hose clamp at the smaller end in the clamp parts: Tighten both clamps to a snug tightness. **DO NOT** over-tighten.

**NOTE**

*The two-part metal clamp is designed so the barbs on the inner surface of the smaller end will just dig in the Nylobrade tubing enough to securely hold the tubing, and also the design prevents over-tightening.*

7. Similarly cut the end of a length of the same size Nylobrade tubing and repeat steps 4, 5 and 6 on each of the OUTLET ends of the Diverter.
8. Route each Nylobrade tube to the associated bin or dispenser, avoiding undue heated areas and support tubing to prevent trapping water in horizontal areas of tubing.

**CAUTION**

**HEED THE FOLLOWING PRECAUTIONS WHEN INSTALLING NYLOBRADE ICE TRANSPORT TUBING:**

1. Use only one-inch I.D. Nylobrade tubing.
2. Use only one continuous length of Nylobrade tubing for each point-to-point tubing run. **DO NOT** install spliced tubing. This can cause ice jamming problems.
3. Cut ends of Nylobrade tubing square and even and remove all shavings.
4. Support all Nylobrade tubing to prevent low spots and trapping water.
5. **DO NOT** use any substitute tubing.
6. Install tubing so all meltage water will drain to one end of the tubing or to the other end.
7. **DO NOT** install tubing in areas where ambient temperatures are below 40 degrees F. or above 100 degrees F.

9. Install tubing insulation of one and one-half inch I.D. Armoflex, or equivalent, around the lengths of routed Nylobrade tubing. (Half-inch wall thickness insulation.)
10. Install drain line on the drain fitting provided on the Diverter Assembly drain pan.
11. Cut the Nylobrade tubing to the required length at the associated ice storage bin and dispenser, and secure in place with clamps provided.

**V. BIN THERMO BRACKET**

A. To install Bin Thermo Bracket: Refer to Figure 1-1 Installing Tubes and Clamps.

1. Using the bin thermo bracket as a template drill or cut a 1-7/16 inch diameter hole through the left end wall of the Bin, centered 2-1/2 inches below the top center of the wall.
2. Inside the Bin, align the hole in the Thermostat Bracket with the hole prepared in above step, and attach the Bracket to the inner wall, using four screws.
3. Insert the two-piece Hose Clamp Assembly through the hole in the Thermostat Bracket and Bin, so the clamping parts are outside of the Bin; then, attach the Clamp parts inside the Bin, using two screws.
4. Position the Bin Control Assembly housing immediately below the hole prepared in step 1 above, on the outside of the Bin, securing with two screws.
5. Carefully route the capillary tube through the open hole in the Bin wall and thread the tube through the two loops in the wire Bulb Holder, nearest to the wall; then, bend a U-turn in the tube and thread it through the second set of loops, extending the end of the tube at least an inch beyond the last loop of the Bulb Holder
6. Dress the tube neatly, to take up excess slack back to the Bin Control Thermostat housing and carefully coil the excess tubing out of the way.
7. Slide a hose clamp over the end of the Nylobrade transport tube and insert the end of the tube through the hole in the Bin wall, loosely fitting the hose clamp around the two-piece Hose Clamp Assembly holding the tube.
8. Adjust the end of the Nylobrade transport tube, inside the Bin, to extend away from the inner wall just beyond the end of the Bulb Holder; then, tighten the hose clamp