

**Scotsman®**

Installation and  
User's Manual for  
Ice Maker-Dispenser

Model MDT6N90



# MDT6N90 User Manual

## INTRODUCTION

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To the owner or user: The service manual you are reading is intended to provide you, and the maintenance or service technician with the information needed to install, start up, clean, maintain, and service this ice maker-dispenser.

The MDT6 is a combination nugget ice maker and countertop dispenser. A water station is standard.

The ice making section is equipped with the following features: electronic controls for bin level and low water; thermostatic expansion valve; front service for most components; and R-404A refrigerant. The ice dispensing section is a seamless plastic storage bin, with a stainless steel ice agitator at the bottom to sweep the ice into the dispensing chute.

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Note this symbol when it appears.



It marks a possible hazard.

# MDT6N90 User Manual

## FOR THE INSTALLER: Specifications

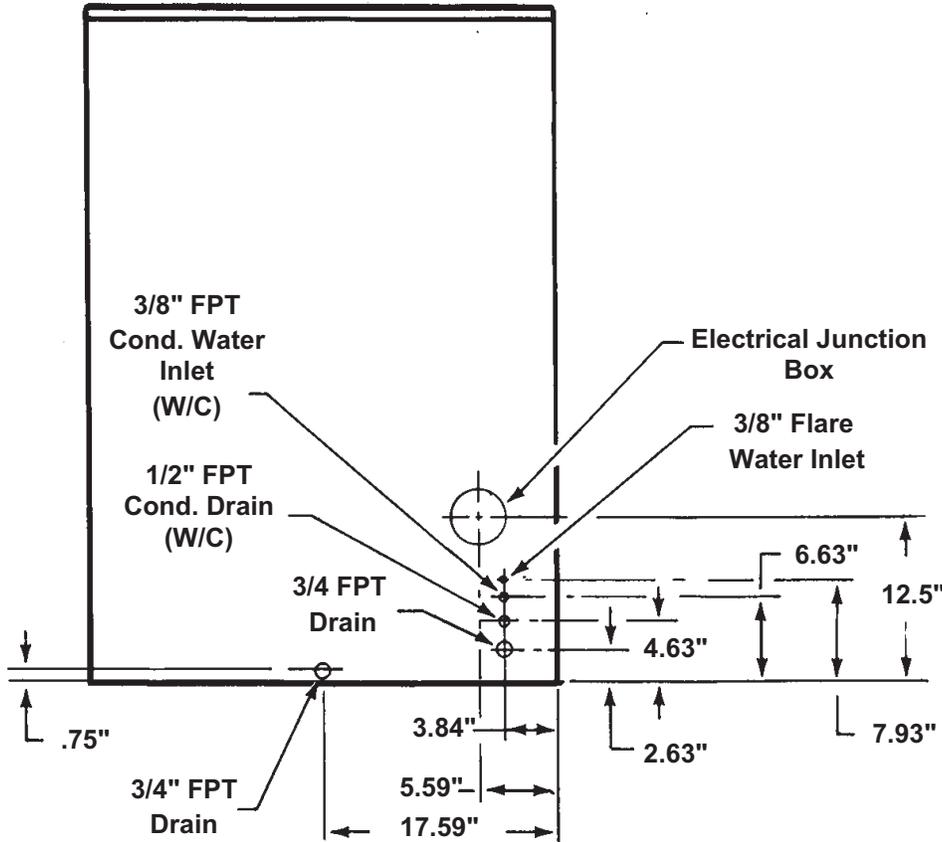
This ice maker-dispenser is designed to be mounted on a machine stand, or a countertop. Before beginning the installation, check that all the materials and kits required are available at the installation location.

Scotsman Ice Systems are designed and manufactured with the highest regard for safety and performance. They meet or exceed the standards of U.L., N.S.F. and other agencies.

Scotsman assumes no liability or responsibility of any kind for products manufactured by Scotsman that have been altered in any way, including the use of any parts and/or other components not specifically approved by Scotsman.

Scotsman reserves the right to make design changes and/or improvements at any time. Specifications and designs are subject to change without notice.

### BACK VIEW



### Water Limitations:

An ice machine is a food manufacturing plant; it takes in a raw material, water, and turns it into a food product, ice. The purity of the water is very important in obtaining pure ice and in maximizing product life.

General recommendations are:

1. Filter the water used to produce ice.
2. Check with a water treatment specialist for a water test, and any recommendations regarding filters and treatment.

Model Number	Model Series	Dimensions (w/o stand) H" x W" x D"	Condenser Type	Refrigerant Charge (R-404A)	Basic Electrical	Minimum Circuit Ampacity*	Max. Fuse Size
MDT6N90AS-1	J	45.74 x 35.18 x 29.26	Air	32	115/60/1	18.1	25
MDT6N90WS-1	J	same	Water	19	same	16.5	20

\*Minimum circuit ampacity is used to determine wire size and type per National Electric Code.

Options: Machine stand DMS31.

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## FOR THE INSTALLER

### Location

This ice system is designed to be installed indoors, in a controlled environment.

	Minimum	Maximum
Air Temp	50°F.	100°F.
Water Temp	40°F.	100°F.
Water Pressure	20 psi	80 psi
Voltage	104	126

Operating the machine outside of the above limitations, or outdoors, is potentially damaging to the machine; also it is misuse of the machine which may void the warranty.

### Service Limitations

Do not install in a location where the top of the machine is within 6" of a fixed ceiling. Air cooled models require a minimum of 6 inches to the left and right of the machine for air circulation. It is important that the machine be installed in a location where it has enough space above and behind it for service.

After uncrating and inspection, the unit is ready for installation.

### Machine Stand Installation

Tip the stand on its back and install the legs, return the stand to the upright position. Adjust leg levelers so that the stand does not "rock".

### Counter Top or Machine Stand Installation

The base of the icemaker-dispenser must be sealed to the object it rests upon. Food grade silastic sealant such as Scotsman part number 19-0529-01 is recommended.

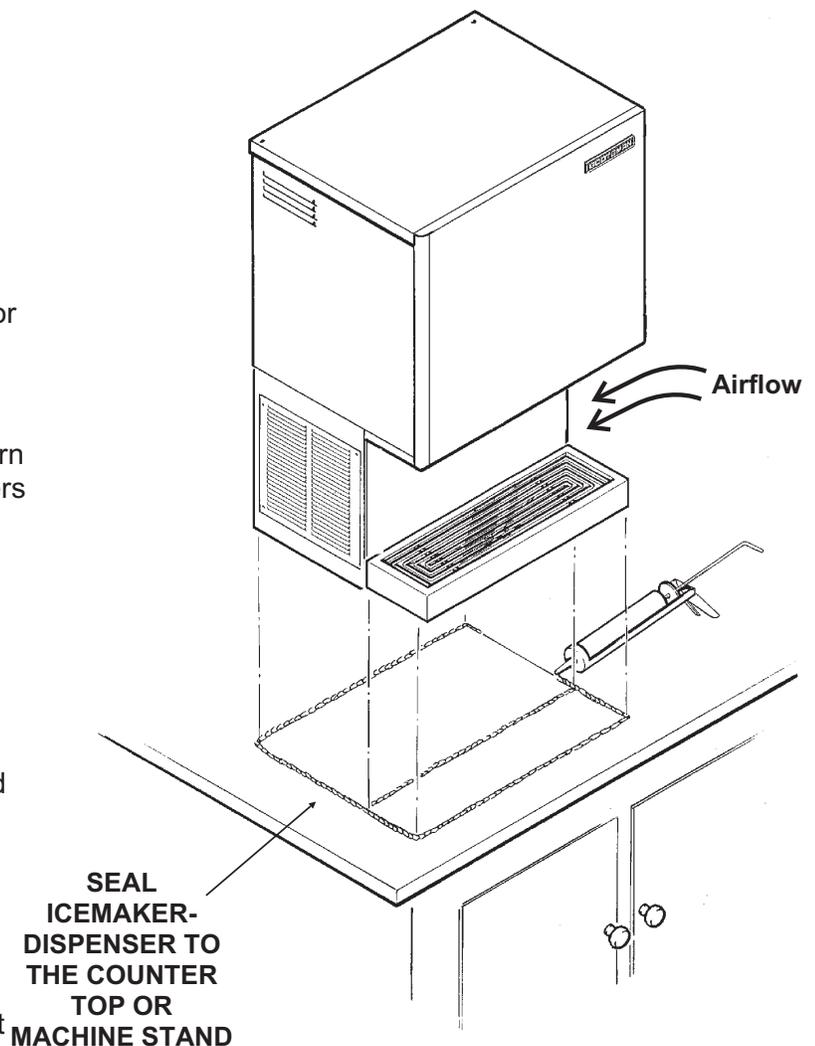
Place a bead of the sealant on the machine stand or counter top to match the outside edge of the cabinet base and sink.

The icemaker-dispenser is heavy: use of a mechanical hoist is recommended to lift it to the height required to install it.

The DMS machine stand has holes in the top that match up with threaded holes in the base of the machine. Secure the machine stand to the base with 4 5/16" bolts.

In both counter top and machine stand installations, wipe off and neatly smooth any excess sealant. Level the machine stand and cabinet.

Unpack and install the sink brackets. Fit the sink assembly onto the two sink brackets, and press onto the bead of sealant. Wipe off and neatly smooth any excess sealant from under the sink edge. Connect the sink drain to the dispenser drain system.



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## FOR THE PLUMBER

### CONFORM TO ALL APPLICABLE CODES

#### Water Inlet

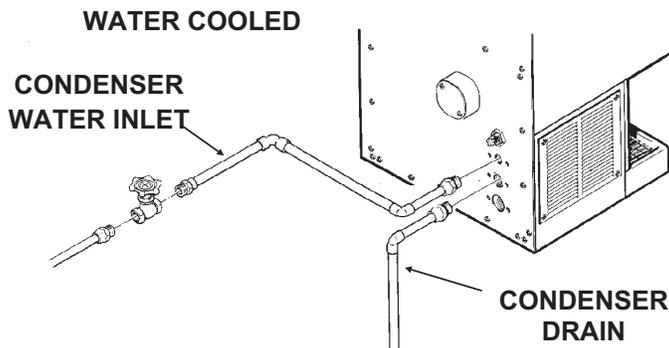
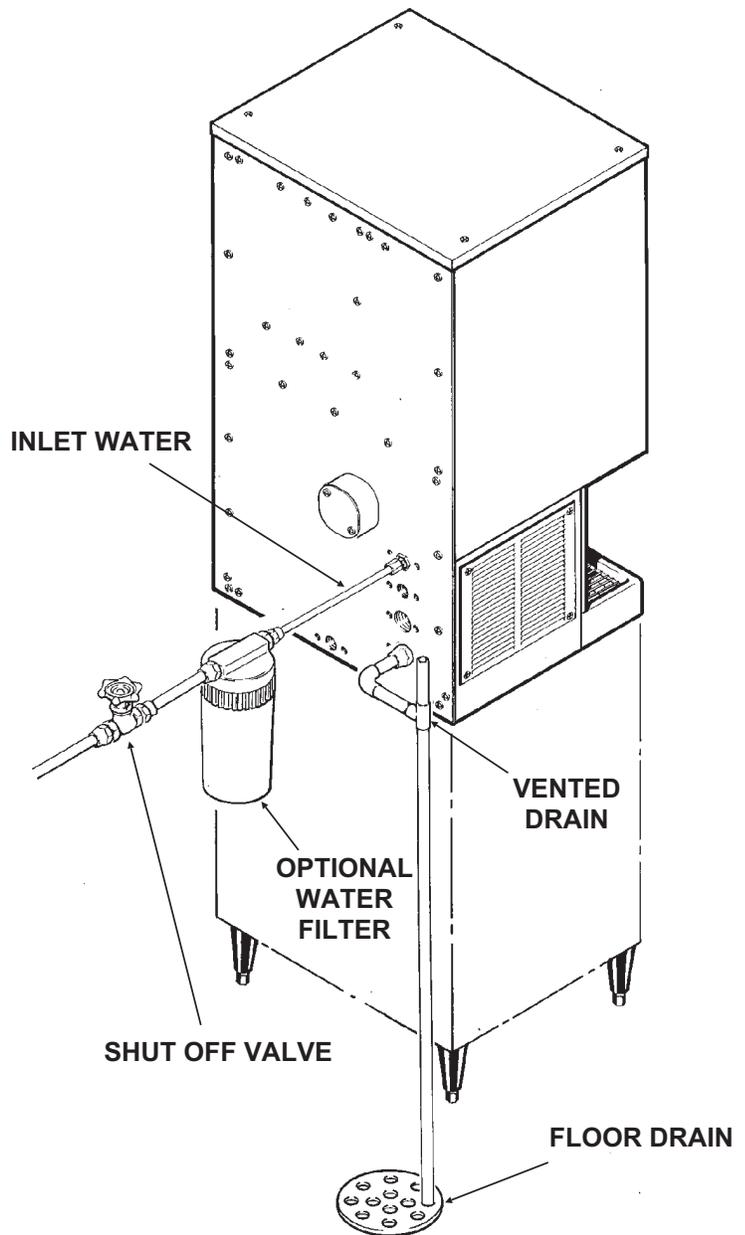
**Air Cooled Models:** Connect a clean, potable and cold water supply to the  $\frac{3}{8}$ " male flare at the back of the cabinet. Install a hand valve near the machine to control the water supply. Use  $\frac{3}{8}$ " O.D. copper tubing.

**Water Treatment:** In most areas, a water filter of some type will be useful. In areas where the water is highly concentrated with minerals the water should be tested by a water treatment specialist, and the recommendations of the specialist regarding filtration and/or treatment should be followed.

**Water Cooled Models:** Connect a separate  $\frac{3}{8}$ " O.D. copper line, with a separate hand valve to control it, to the  $\frac{3}{8}$ " FPT condenser inlet at the back of the cabinet. The water pressure to all lines must always be above 20 psig, and below 120 psig.

#### Drains

**Air Cooled Models:** Connect a drain tube to the one  $\frac{3}{4}$ " FPT drain fitting (plastic) at the back of the cabinet, the drain line is of the gravity type, and  $\frac{1}{4}$  inch per foot fall is an acceptable pitch for the drain tubing. There should be a vent at the highest point of the drain line, and the ideal drain receptacle would be a trapped and vented floor drain. Use only  $\frac{3}{4}$ " rigid tubing.



**Water Cooled Models:** In addition to the above mentioned drain, a separate condenser drain line must be installed. Connect it to the  $\frac{1}{2}$ " condenser drain connection at the back of the cabinet.

# MDT6N90 User Manual

## FOR THE ELECTRICIAN

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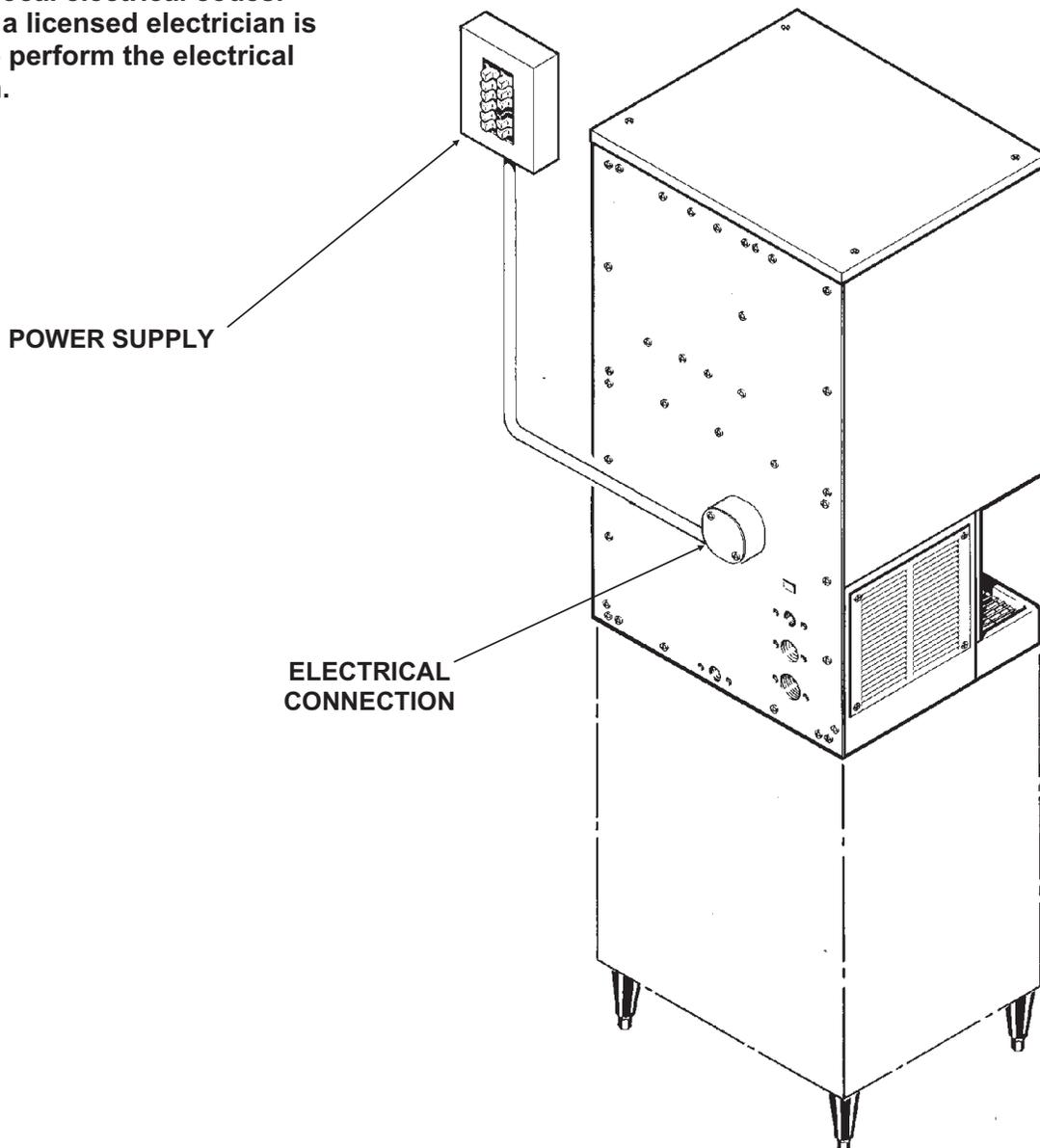
### CONFORM TO ALL APPLICABLE CODES

Connect the electrical power supply for the unit to the wires in the junction box at the rear of the machine.

Check the nameplate (located on the back panel) for the voltage requirements, and for the minimum circuit ampacity. The machine requires a solid chassis to earth ground wire.

The ice maker should be connected to its own electrical circuit so it would be individually fused. Voltage variation must remain within design limitations, even under starting conditions.

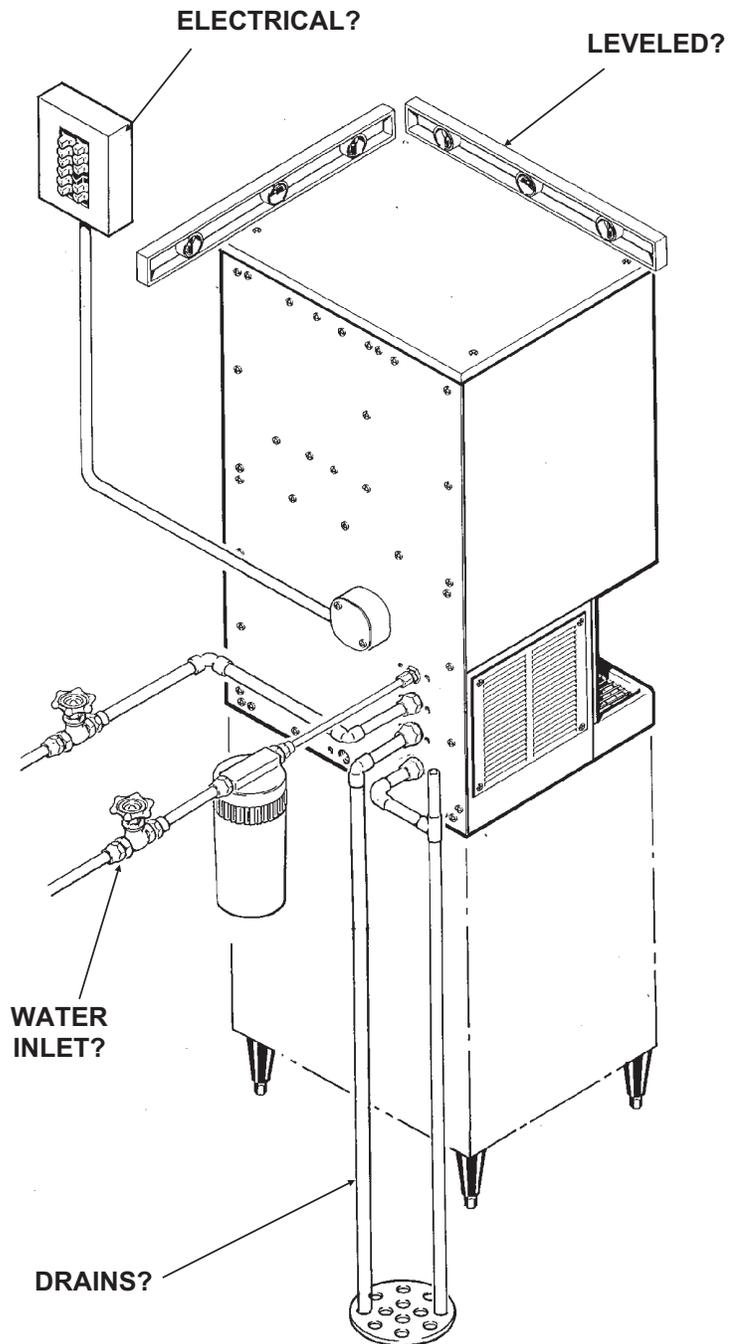
**All external wiring must conform to national, state, and local electrical codes. The use of a licensed electrician is required to perform the electrical installation.**



# MDT6N90 User Manual

## FOR THE INSTALLER: Final Check List

1. Is the icemaker-dispenser installed indoors, in a location where the air and water temperatures are controlled, and where they do not go beyond design limitations?
2. Is there an electrical service disconnect within sight of the installed machine? Is the machine on a separate circuit? Has the voltage been checked and compared to nameplate requirements?
3. Have all of the plumbing connections been made and checked for leaks?
4. Has the machine been leveled?
5. Is there a minimum of 6 inches of clearance at the left and right sides of an air cooled machine?
6. Is there a minimum of 6 inches of clearance at the top and back of the machine for service and utility connections?
7. Is there a water shut off valve installed near the machine?
8. Have all of the shipping blocks been removed?



# MDT6N90 User Manual

## INITIAL START UP

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### Pre Start Inspection

1. Remove the two front panels.
2. Check that all shipping blocks have been removed.
3. Remove any and all packing tape (check inside the storage bin).
4. Inspect the interior of the machine for loose screws or wires. Check the solenoid operated door over the ice discharge port for properly secured linkage pins.

Check that no refrigerant lines are rubbing each other. Check that the fan blade on air cooled models turns freely.

5. Check that the machine is installed correctly according to the final check list.

### Start Up

1. Go through the pre start inspection.
2. Open the water hand valve, observe that water enters the water reservoir, fills the tube from the reservoir to the evaporator and then shuts off. Check for leaks.
3. Switch the mode switch to ON. The auger drive motor and compressor start, beginning the ice making process.
4. On air cooled models, warm air will begin to flow from the condenser. Water cooled models will begin to discharge warm water down the drain. The unit should soon be making ice.
5. There are no adjustments to make, so replace the panels.
6. Check ice dispensing by placing a container in front of the ice dispensing sensor, the dispensing system should activate and if there is ice in the machine it should dispense. Repeat for the water dispense.
7. Switch off the icemaker-dispenser, remove the top panel and the top of the ice storage bin. Sanitize the interior of the ice storage bin with a locally approved sanitizer. A possible sanitizer is a mixture of 1 ounce of household bleach to 2 gallons of water. Wash the interior of the bin with the sanitizing solution. Replace all covers and panels. Switch the icemaker-dispenser back on.
8. Give the owner/user the service manual, instruct him/her in the operation and maintenance requirements of the unit. Make sure they know who to call for service.
9. Fill out the Customer Evaluation and warranty Registration form, and mail it in to Scotsman or register on line at [www.scotsman-ice.com](http://www.scotsman-ice.com).

# MDT6N90 User Manual

## OPERATION: Ice or Water Vending

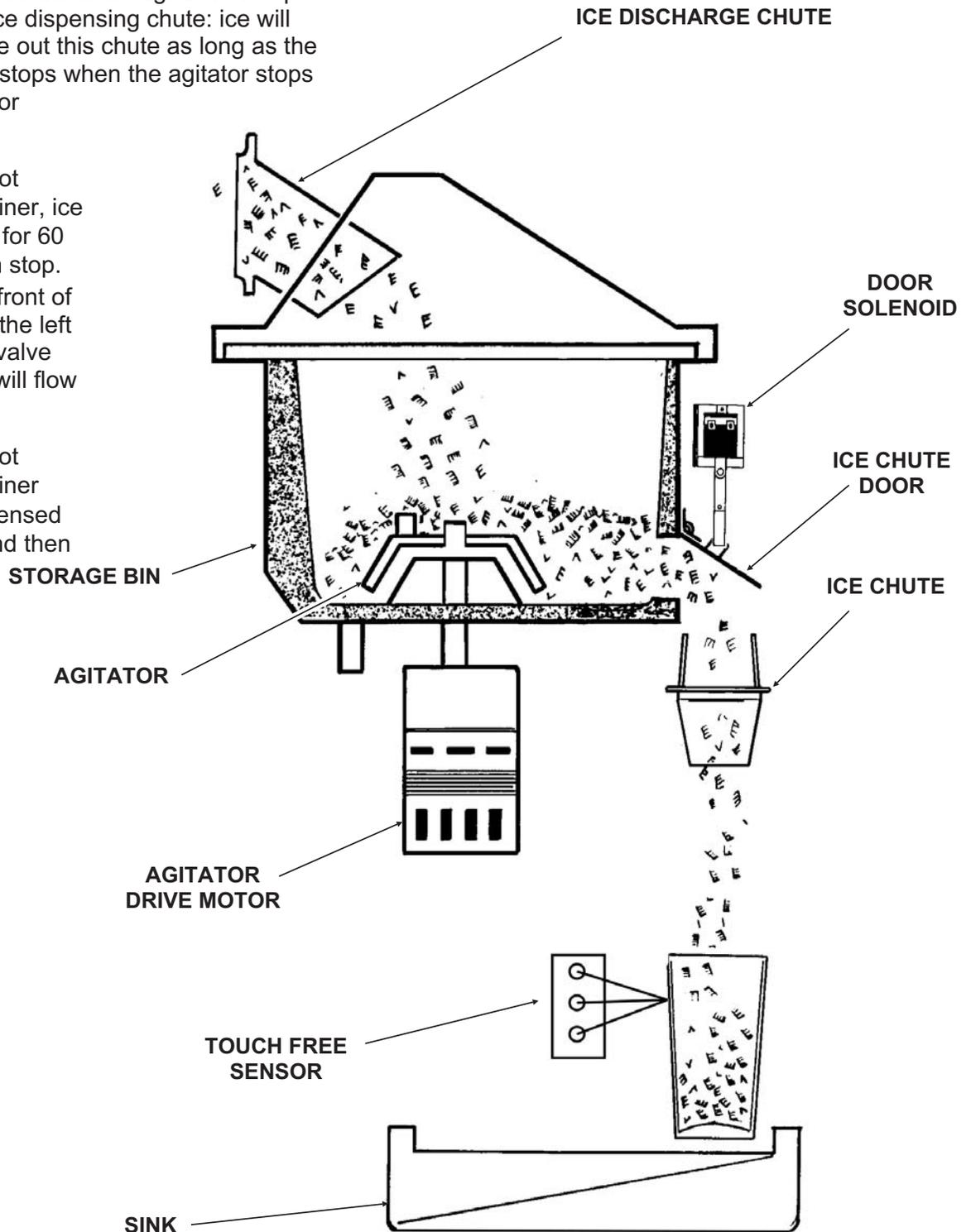
When the ice dispensing sensor detects a container in front of it, the control board connects an electrical circuit to the ice chute door solenoid causing the ice chute door to open. At the same time power is connected to the agitator drive motor.

Dispensing takes place when the agitator sweeps the ice through the ice dispensing chute: ice will continue to discharge out this chute as long as the agitator is turning. It stops when the agitator stops and the ice chute door closes.

- If the user does not remove the container, ice will be dispensed for 60 seconds and then stop.

If the container is in front of the water sensor on the left side, the inlet water valve will open and water will flow into the container.

- If the user does not remove the container water will be dispensed for 90 seconds and then stop.



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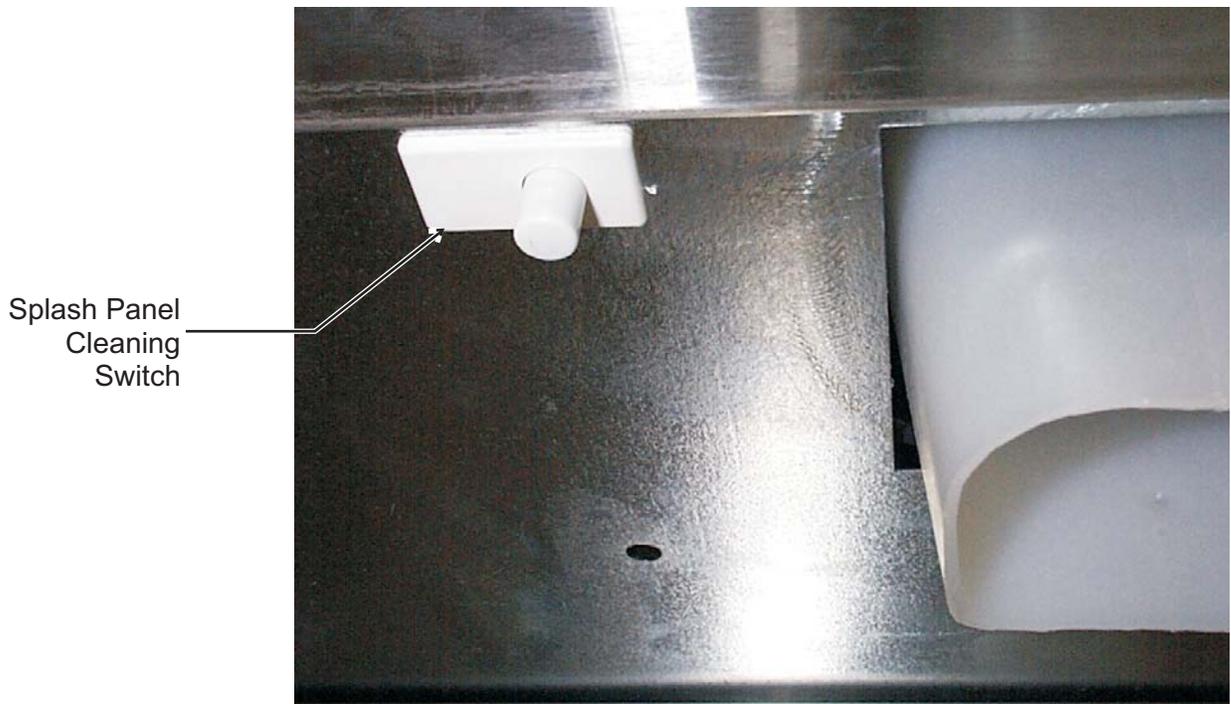
## DISPENSE AREA SANITATION

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The dispense area; spouts, sink, grill and splash panel will need periodic cleaning and maintenance.

1. The ice chute may be pulled down to remove it from the ice dispenser. Wash and sanitize it.
2. The sink grill may be removed for washing and sanitizing.
3. The sink should be flushed with hot water and wiped clean with sanitizer.
4. The splash panel requires special attention to clean it.
  - Push and release the Splash Panel Cleaning switch located to the left of the water spout. This disables the Touch Free sensors so the splash panel may be cleaned without vending ice and/or water.
  - Wash the splash panel and wipe with with sanitizer.

Re-push the clean switch or allow 2 minutes to pass for the Touch Free system to reset.



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## CLEANING and SANITIZING

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It is the USER'S RESPONSIBILITY to see that the unit is properly maintained. It is always preferable, and less costly in the long run, to avoid possible down time by keeping it clean; adjusting it as needed; and by replacing worn parts before they can cause failure. The following is a list of recommended maintenance that will help keep the machine running with a minimum of problems.

Cleaning should be scheduled at a **minimum of twice per year.**

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**Electrical power will be ON when doing in place cleaning.**

### ICEMAKING SYSTEM: In place cleaning

1. Check and clean any water treatment devices, if any are installed.
2. Remove screws and remove the upper front panel.
3. Move the ON-OFF switch to OFF.
4. Remove the cover to the ice storage bin, and remove the ice.
5. Remove the cover to the water reservoir and block the float up.
6. Drain the water reservoir and freezer assembly using the drain tube attached to the freezer water inlet. Return the drain tube to its normal upright position and replace the end cap.
7. Prepare the cleaning solution: Mix eight ounces of Scotsman Ice Machine Scale Remover with three quarts of hot water. The water should be between 90-115 degrees F.

<p><b>Scotsman Ice Machine Scale Remover contains acids.</b></p> <p>These compounds may cause burns. If swallowed, DO NOT induce vomiting. Give large amounts of water or milk. Call Physician immediately. In case of external contact, flush with water. Keep out of the reach of children.</p>	<p><b>⚠ WARNING</b></p> 
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8. Slowly pour the cleaning solution into the water reservoir until it is full. Wait 15 minutes, then switch the master switch to ON.

9. As the ice maker begins to use water from the reservoir, continue to add more cleaning solution to maintain a full reservoir.

10. After all of the cleaning solution has been added to the reservoir, and the reservoir is nearly empty, switch the master switch to OFF.

11. After draining the reservoir, as in step 6, wash and rinse the water reservoir.

### To Sanitize:

Repeat steps 8-11, except substitute sanitizer solution for the cleaning solution.

A possible sanitizer solution may be made by mixing 1 ounce of household bleach and 2 gallons of warm (95°F. - 115°F.) potable water.

12. Remove the block from the float in the water reservoir.

13. Switch the master switch to ON

14. Continue ice making for at least 15 minutes, to flush out any cleaning solution. Check ice for acid taste - continue icemaking until ice tastes sweet.

**DO NOT USE any ice produced from the cleaning solution. Be sure no ice remains in the bin.**

15. Remove all ice from the storage bin.

16. Add warm water to the ice storage bin and thoroughly wash and rinse all surfaces within the bin.

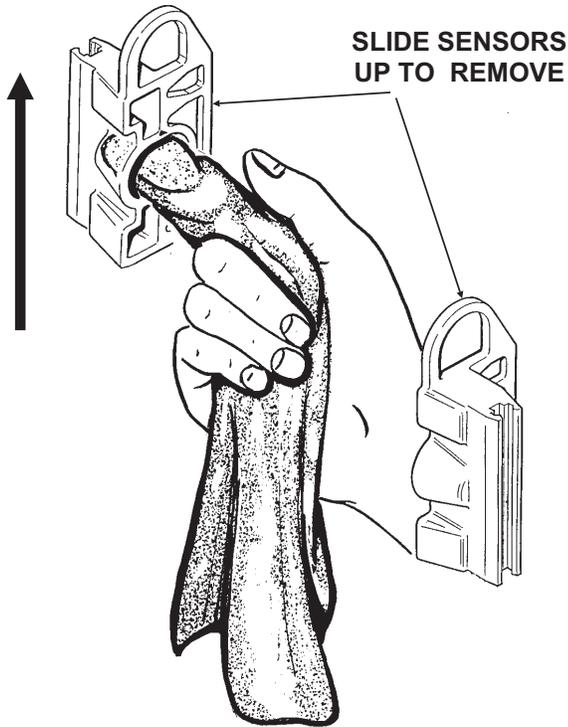
17. Sanitize the bin interior, cover, door and agitator with an approved sanitizer using the directions for that sanitizer.

18. Replace the ice storage bin cover, and the front panel.

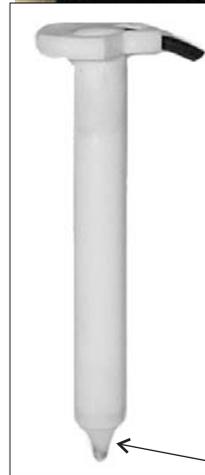
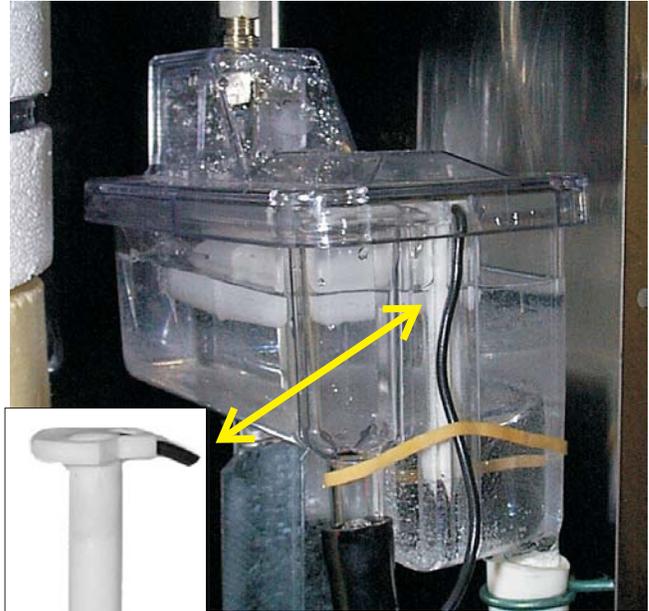
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## SENSOR MAINTENANCE

1. The ice machine senses water level by a probe located in the water reservoir. At least twice a year, the probe should be removed from the reservoir, and the tip wiped clean of mineral build-up.



2. The bin control uses devices that sense light, therefore they must be kept clean enough so that they can "see". At least twice a year, remove the bin control sensors from the ice chute, and wipe them clean.



Clean the Probe's Tip with ice machine cleaner and a clean, soft cloth.

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## BEARING MAINTENANCE

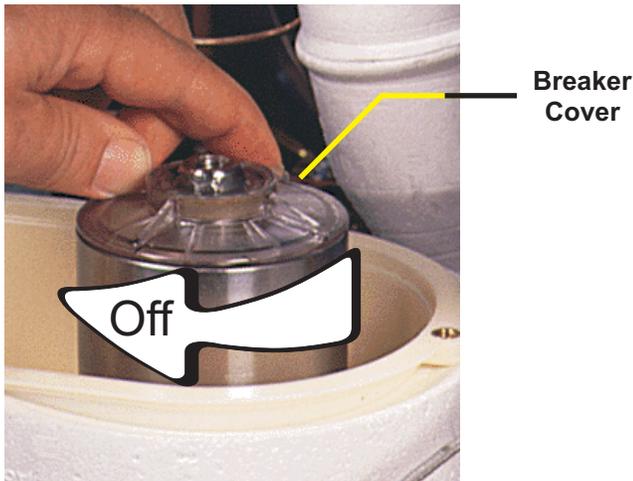
The bearing in the breaker should also be checked at least **two times per year**.

A. Check the bearing by:

- removing the ice chute cover
- unscrewing the ice sweep

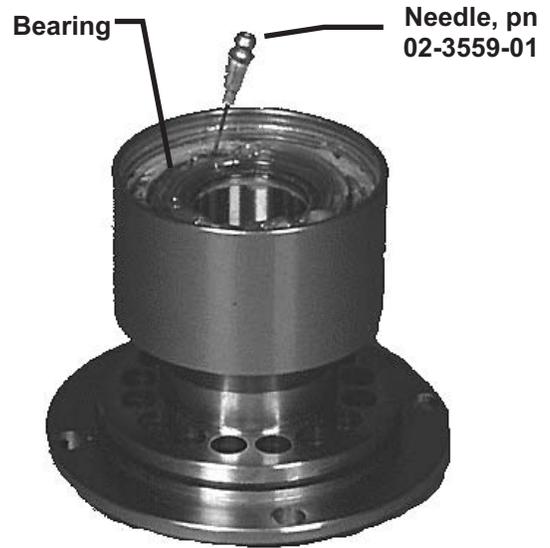


- removing the water shed
- unscrewing the breaker cover.



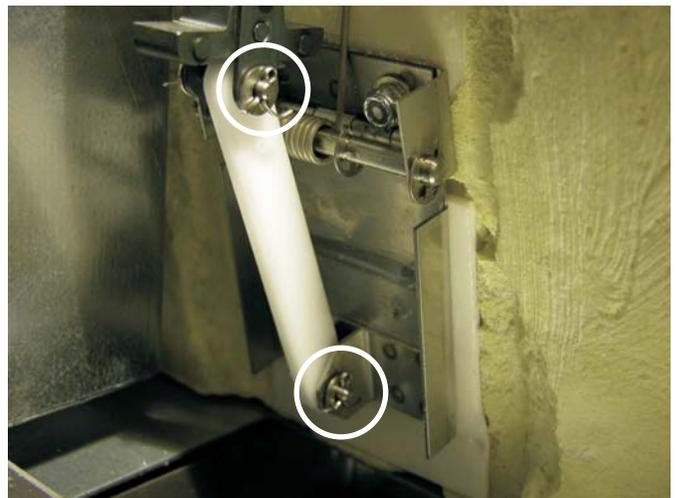
Inspect the bearing. There should be plenty of grease and it should not appear watery or contaminated.

If the bearing needs grease, inject grease into the bearing using Scotsman grease needle pn 02-3559-01 and Scotsman bearing grease cartridge, pn A36808-001. Be sure to inject grease evenly and thoroughly.



### Solenoid Linkage Check

Confirm that the linkage pins at the solenoid door are properly secured with cotter pins.



**Check Cotter Pins (Circled)**

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## SERVICE DIAGNOSIS

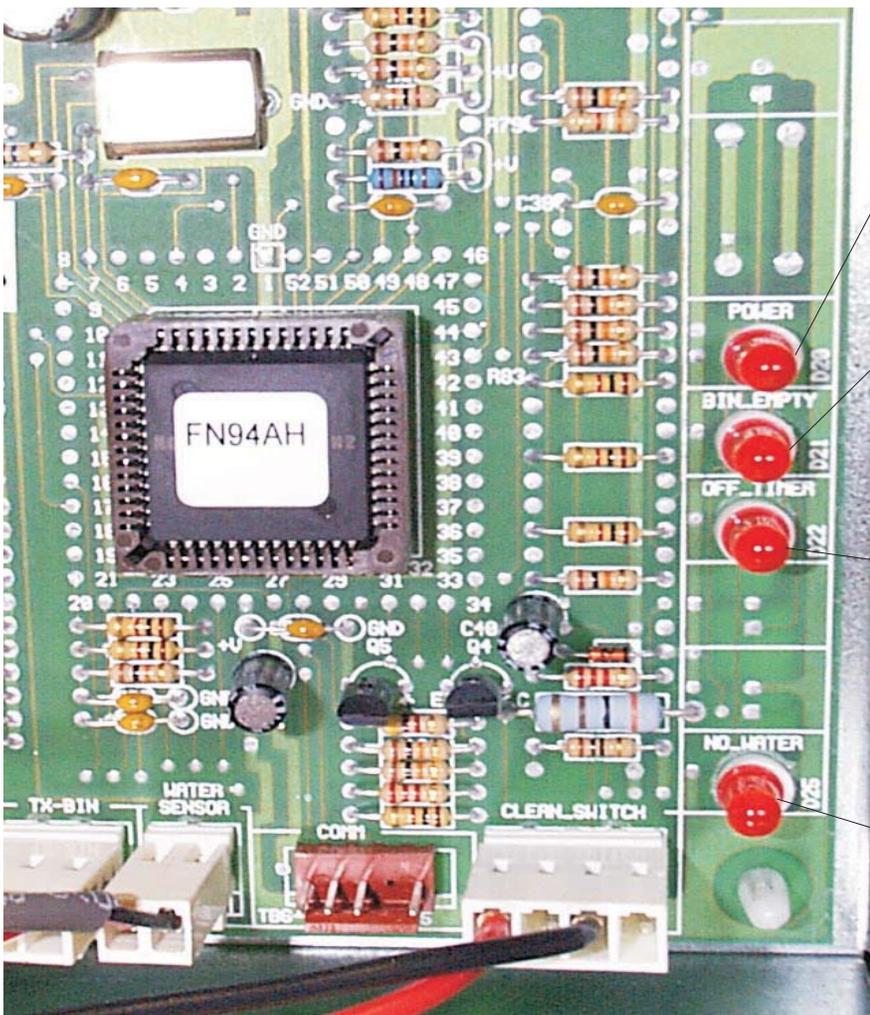
Symptom	Possible Cause	Probable Correction	
No ice is made, nothing operates	Unit off due to no power	Restore Power	
	Unit off due to master switch in OFF position.	Switch master switch to ON.	
	Unit off due to low water level.	Check water supply, filter, float valve. Correct water supply.	
	Unit off due to ice level sensors (photo-electric eyes) blocked.	Check/clean ice level sensors.	
	Unit off due to scale on water level sensor.	Clean water level sensor.	
	Unit off due to high pressure control open.	Check for water interruption (water cooled) or fan motor failure (air cooled).	
	Auger motor hums but does not turn.	Auger can't turn.	
	No power to circuit board.		Check harness
			HI pressure cut out open
	Circuit Board gear motor relay will not close		Check, replace board
Water level or ice level sensor failed.		Check, replace sensor	
No ice, auger motor is turning	Compressor contactor coil is open	Check/replace contactor	
	Compressor will not start	Check start capacitor.	
		Check start relay	
		Check compressor windings	
Circuit board compressor relay will not close.		Check, replace board	
Unit makes ice, but very slowly.	High discharge pressure because of a dirty condenser	Clean the condenser.	
	Low capacity because the auger and evaporator are coated with mineral scale	Clean the water system	
	Low suction pressure due to low refrigerant charge	Locate leak. Recover refrigerant, repair leak, replace dryer, evacuate and weigh in the nameplate charge	

# MDT6N90 User Manual

## CONTROL SYSTEM DIAGNOSTICS

The control system consists of:

- Control Board
- Water Sensor
- Ice Sensors
- Vending Sensors



1, Power Light

2, Bin Empty Light

3, Delay Timer Light

4, No Water Light

Explanation of Indicator Light	Position On Board	Name and Meaning of Light or Reset
On at all times when the master switch is ON and machine is connected to electrical power.	1	<b>Power,</b> ON = Normal
On when ice level is low (unit making ice).	2	<b>Bin Empty,</b> ON = Needs Ice
Normal 6 minute off/delay start. To prevent short cycling, the machine will not restart after <b>any</b> shut off (except power to the board) until 6 minutes have passed.	3	<b>Off Timer,</b> ON = Unit cycling off
On when water level is low in the reservoir.	4	<b>No Water,</b> ON = Trouble

SCOTSMAN ICE SYSTEMS

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