CSW1/AC50

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INTRODUCTION

These instructions provide the specifications and the step-by-step procedures for the installation, start up and operation for the W-Series Models CSW1 or AC50 Cuber.

The Models CSW1 or AC50 Self Contained Cubers are quality designed, engineered and constructed, and are thoroughly tested icemaking systems, providing the utmost in flexibility to fit the needs of a particular user.
CSW1 or AC50
GENERAL INFORMATION AND INSTALLATION

This product qualifies for the following listings: NSF UL SF

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

SPECIFICATIONS

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Dimensions H&quot; x W&quot; x D&quot;</th>
<th>Bin Cap</th>
<th>Cond Unit</th>
<th>Finish</th>
<th>Basic Electrical</th>
<th>Comp H.P.</th>
<th>Time Delay Fuse Size Max.</th>
<th>Amp. (Average)</th>
<th>Water (In.)</th>
<th>Drain (In.)</th>
<th>Ship Wt (Approx. Lbs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSW1AE-1A</td>
<td>34-13/32 x 17-7/8 x 23-7/8</td>
<td>35 lbs.</td>
<td>Air</td>
<td>ES</td>
<td>115/60/1</td>
<td>1/5</td>
<td>15</td>
<td>4.6</td>
<td>1/4</td>
<td>5/6</td>
<td>120 lbs</td>
</tr>
<tr>
<td>AC50AE-1A</td>
<td>34-13/32 x 17-7/8 x 23-7/8</td>
<td>35 lbs.</td>
<td>Air</td>
<td>ES</td>
<td>115/60/1</td>
<td>1/5</td>
<td>15</td>
<td>4.6</td>
<td>1/4</td>
<td>5/6</td>
<td>120 lbs</td>
</tr>
</tbody>
</table>

(ES) Sandalwood, Leathergrain embossed steel with high gloss baked enamel finish

Use this value to determine minimum wire size as per National Electric Code Standards

IMPORTANT OPERATING REQUIREMENTS

*Air Temperatures .... 55°F (10.0°C) 100°F (38°C)
Water Temperatures .... 40°F (4.4°C) 100°F (38°C)
Water Pressures ....... 20 lbs. gauge 100 lbs. gauge
Single Voltage Units ... -10% + 10%

(Voltage rating specified on nameplate)

Extended periods of operation exceeding these limitations constitutes misuse under the terms of Scotsman Manufacturer's Limited Warranty, resulting in a loss of warranty coverage.

GRIDS FOR LARGE CUBES On Models CSW1 or AC50 to convert cube size to 1-1/4" x 1-1/4", order grid CCK-108-SG. Note: Order these special grids through the Scotsman Parts Department.
CHANGING THE BIN DOOR PANEL

The storage bin door is designed to accept an optional decorative wood panel of your choice. The wood panel should be no more than 1/4 inch (6mm) thick. Cut it to the same size as the production metal panel.

To change the panel:
1. Open the bin door.
2. Remove the two screws on top of the door which hold the handle.
3. Remove the handle.
4. Slide the metal panel out.
5. Break off the ribs on the door insulation to allow for the wood thickness.
6. Slide the wood panel into the door frame.
7. Replace handle and screws.

THERMOSTAT CALIBRATIONS

If icemaker is installed above two thousand feet of altitude, the bin and evaporator thermostats must be adjusted to a warmer setting. Disconnect electricity, remove thermostat and follow the directions for turning the altitude adjustment screw as shown in the label on each thermostat.

WOOD PANEL DIMENSIONS

13-3/16" 355MM

17" 433MM

1/4" 6MM

Lower Door Panel Size on "B" Models:

11 7/8" high by 17" wide

REMOVE ALL DOOR INSULATION RIBS TO ACCEPT WOOD PANEL THICKNESS
CSW1 or AC50
GENERAL INFORMATION AND INSTALLATION

OPEN BOTTOM FLAPS

REMOVE INTERIOR PACKING

THIS UNIT MUST BE INSTALLED IN AN AREA PROTECTED FROM THE ELEMENTS, SUCH AS WIND, RAIN, WATER SPRAY OR DRIP.

LOCATE UNIT

1. Place unit so the front side will be completely unobstructed, to provide proper air flow.
2. Area should be well ventilated with temperature above 55°F and below 110°F. Best results are obtained between 70°F and 90°F.
3. Provision for electricity, water and drain connections should be determined.
4. The unit may be closed in on the top and three sides, but the front MUST BE unobstructed for air circulation and proper operation. Installation should be such that the cabinet can be moved forward for servicing, if necessary.

LEVEL UNIT

1. After placing unit in position, check to make certain the unit is level side to side and front to back.
2. Accurate leveling is essential for proper operation.
3. Unit should be shimmed so that it is solid as well as level. The shims should be of hard permanent type material such as masonite.
4. If required by sanitation code, seal the cabinet to the floor with an approved caulking compound.

UNPACK

1. Lay carton on rear face and break open bottom flaps.
2. Set carton upright with all four flaps outward.
3. Lift container up and off of machine.
4. Remove all tape and packaging material from the outside and inside of the cabinet.
5. Remove the front grill; take out the screws securing the grill at the bottom and lift it free of cabinet.
6. Turn the fan by hand to make certain it moves freely.
7. Loosen thumb screws holding cutter grid and water pan to "thumb tight."

UTILITIES

OBSERVE LOCAL CODES

Each installation is unique but will require:
1. A cold water inlet of 1/4" OD soft copper tubing and a shut-off valve.
2. Either a gravity drain system or a sump pump to lift the water to an existing drain.
3. An electrical branch circuit of 115 Volt, 60 Hz, 1 phase, with a 15 Amp delayed action fuse.

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CONNECT TO WATER

OBSERVE LOCAL CODES
1. Use 1/4" OD soft copper tubing for the cold water supply.
2. Provide a convenient manual shut-off valve in the water line.
3. Position the tubing so it can enter the access hole located in the right-hand rear of the cabinet. The tubing should extend beyond the cabinet front when the cabinet is pushed back into position.

NOTE: Always purge the water line before making the final connection to the inlet of the water valve to prevent possible water valve malfunction.

After the cabinet is in place, bend the tubing to meet the connection at the water valve. The garden hose threaded compression fitting is found in the parts bag. This joint provides a convenient disconnect for service. Be sure the tubing is clear of compressor, to prevent rattle.

CONNECT THE DRAIN

OBSERVE LOCAL CODES
1. The unit is provided with a gravity drain.
2. The ideal installation has a standpipe (1-1/4" minimum) installed directly under the outlet of the drain tube.
3. It may be desirable to insulate drain line thoroughly up to drain inlet.

SUMP PUMP (To be purchased locally - not available from Scotsman)
1. When a drain connection below the level of the unit is not available, a sump pump may be used to lift the water to an available drain.
2. Install sump pump on floor behind icemaker with discharge tube to the rear. Run bin drain directly into sump pump as shown in the illustration.

NOTE: Electric connection to sump pump should be from a circuit that remains energized continually.
ELECTRICAL REQUIREMENTS
A 115 Volt, 60 Hz, AC only, 15 Amp fused electrical supply is required (time delay fuse or circuit breaker is recommended). It is recommended that a separate circuit, serving only this appliance, be provided DO NOT use an extension cord.

ELECTRICAL GROUND IS REQUIRED ON THIS APPLIANCE.

RECOMMENDED GROUNDING METHOD
DO NOT, UNDER ANY CIRCUMSTANCES, REMOVE THE POWER SUPPLY CORD GROUND PRONG.

For your personal safety, this appliance must be grounded. This appliance is equipped with a power supply cord having a 3-prong grounding plug. To minimize possible shock hazard, the cord must be plugged into a mating 3-prong grounding type wall receptacle, grounded in accordance with the National Electrical Code and local codes and ordinances. If a mating wall receptacle is not available, it is the personal responsibility and obligation of the customer to have a properly grounded 3-prong wall receptacle installed by a qualified electrician.
BEFORE OPERATING THE ICEMAKER

It is your responsibility to make sure that the icemaker:

- has been installed where it is protected from the elements
- is located so that the front is not blocked to restrict incoming or discharge air flow.
- is properly leveled.
- is located in a well ventilated area with temperatures above 55°F (13°C) and below 110°F (43°C). Best results are obtained at temperatures between 70°F (21°C) and 90°F (32°C).
- is properly connected to a water supply and drain.
- is properly connected to electricity. A 115 Volt, 60 Hz., 15 amp fused electrical supply is required. NOTE: Time delay fuse or circuit breaker is recommended.
- is properly electrically grounded.
- is not operated by anyone unable to use it properly.
- is used only for the job it was designed to perform.
- is properly maintained.

2. When the desired thickness is reached, the ice sheet is released and slides on to a cutter grid. The grid divides the sheet into individual cubes.

3. The water containing the rejected minerals is drained after each freezing cycle.

4. Fresh water enters the machine for the next ice making cycle.

5. Cubes fall into the storage bin. When the bin is full the icemaker shuts off automatically and restarts when more ice is needed.

ICEMAKER OPERATION

How it makes ice:

1. Water is constantly circulated over a freezing plate. As the water freezes into ice the minerals in the water are rejected. This produces a clear sheet of ice with a low mineral content.
CSW1 or AC50
OPERATING INSTRUCTIONS

TO OPERATE THE ICEMAKER:

1. Select ice thickness. The icemaker has been pre-set to produce ice approximately 1/2" thick, while operating in a room ambient of 70°F (21°C).

Operation in different ambient temperatures may require readjusting the control toward "THICK" or "THIN."

Best operation will be obtained with ice 1/2" to 5/8" thick.

If operating in a warm room ambient (above 90°F [32°C]) DO NOT set control to maximum thickness or the unit may malfunction.

2. To start the normal ice making cycle, turn service or cycle switch to "ON."

3. To stop icemaker operation, turn service or cycle switch to "OFF."

4. The "CLEAN" setting is used whenever solutions are circulated through the icemaker for cleaning. Only the water pump operates at this setting.
HOW IT WORKS
● Compressor runs
● Condenser fan runs
● Water pump runs (circulates water)
● Cutter grid is warm to touch

WHEN THE DESIRED ICE SLAB THICKNESS IS REACHED THE HARVEST CYCLE BEGINS AND THE FOLLOWING HAPPENS:

● Evaporator thermostat is satisfied
● Condenser fan stops or turns very slowly
● Water pump stops
● Hot gas solenoid opens
● Water inlet valve opens
● Excess water is flushed out of the drain pan
● Cutter grid is warm to the touch

NOTE: Normal harvest cycle takes 60 to 120 seconds.

MACHINE RESUMES FREEZING AFTER SLAB IS RELEASED FROM EVAPORATOR AND THE CUTTING PROCESS BEGINS.

WHEN THE STORAGE BIN IS FILLED, BIN THERMOSTAT OPENS.
● Cutter grid remains on

THINGS TO REMEMBER
● Water enters only during the defrost cycle. Therefore the first cycle will be completed without water in the system.
● As the room and water temperatures vary, so will the amount of ice produced. This means that higher operating temperatures will result in reduced ice production.
● The unit will shut off when ice in the storage bin touches the bin thermostat well and will automatically cycle to keep the bin full.
● The storage bin is not refrigerated and some meltage will occur. This, too, varies with the room temperature.
● The unit needs good air circulation to perform efficiently. Keep the front grill and the condenser clean.
● The water system, including filter screen in the water inlet solenoid valve, needs to be cleaned periodically for good circulation. Instructions are located on the inner door panel.

OPERATING INSTRUCTIONS
● For complete operating information, refer to the Use and Care Guide
● Before starting, wash out interior of cabinet with a Baking Soda solution (2 tablespoons soda to a quart of warm water). Rinse thoroughly.
● Make certain the water is turned on.
● Turn switch to the “ON” position.

IMPORTANT:
Allow unit to run for 3 hours before expecting ice and for 24 hours before trying to set the thickness control.
If installed above 2,000 feet altitude, see thermostat adjustments.

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UNIT WIRING DIAGRAM

This model operates at 115 volts except for the cutter grid circuit which operates at 8.5 volts at 1 amp.

The compressor runs at all times except when the bin thermostat becomes satisfied and opens up. This de-energizes the system except for the transformer and cutter grid.

Under normal operating conditions, when the evaporator reaches the preset temperature (+10° to -3° F, depending on thickness of ice) the evaporator thermostat opens, terminating operation of the fan motor and pump motor. The hot gas solenoid and the water valve solenoid are energized at this time and remain so until the evaporator reaches 38 + 2° F.

DANGER: ELECTRIC SHOCK HAZARD disconnect power before servicing unit. Maximum voltage is 575 Vac.

NOTE: CONTACTS SHOWN IN FREEZING CYCLE

YOUR UNIT MAY OR MAY NOT BE EQUIPPED WITH A CUTTER GRID FUSE.

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CHECK OPERATION

✓ Start the unit by turning the service switch to “ON” and opening the line water valve.

✓ NOTE: Left is “OFF” — Middle is “ON” — Right is “CLEAN.” In “CLEAN” position, only the pump operates.

✓ Check condenser fan to make sure it is revolving.

✓ Water will not enter pump pan until freezing plate gets cold and machine goes into a harvest cycle.

✓ Check for even water flow over freezing plate. Unit must be level for proper operation.

✓ Check for desired cube thickness and after 24 hours adjust if necessary. Maximum ice yield will be obtained with ice thickness at 1/2" to 5/8".

✓ Replace grill.
GENERAL CARE AND CLEANING

Periodically inspect and clean the icemaker to keep it operating at peak efficiency and to prevent premature failure of system components.

Both the ice making system and the air cooled condenser need to be cleaned regularly.

CLEANING EXTERIOR SURFACES:
Wash the exterior enamel surfaces and gaskets with warm water and mild soap or detergent. Rinse and dry. Regular use of a good household appliance cleaner and wax will help protect the finish.

NOTE: Do not use harsh or abrasive cleaners on enamel surfaces as they may scratch the finish.

CLEANING THE CONDENSER:
A dirty or clogged condenser:
• prevents proper air flow.
• reduces ice making capacity.
• causes higher than recommended operating temperatures which may lead to component failure.

TO CLEAN:

1. Disconnect electrical power supply to the machine or place the service switch in the “OFF” position. The condenser fan should not operate while removing dirt from the condenser.

2. Remove the two screws from the bottom of the grilled front panel.

CAUTION: Switch must be in “OFF” position to keep condenser fan from rotating. Do not touch condenser fins. They are sharp. Refrigerant tubing gets very hot during normal operation. Be careful.

3. Pull forward and down to remove the panel.

4. Remove dirt and lint from the condenser fins with a soft brush and then use a vacuum cleaner to remove the dirt from the unit compartment.

CAUTION: Condenser fins are sharp and can bend easily. Use care when brushing the condenser to keep from bending the fins. Condenser tubing gets hot enough during normal operation to burn your hand. Use care and do not touch the tubing.

5. Replace the grilled front panel and screws.
ICE MAKING SYSTEM:
The minerals rejected from the circulating water during the freezing cycle will eventually form a hard scaly deposit in the water system which prevents a rapid release of the ice.
Clean ice and water system periodically to remove mineral scale build-up. Frequency of cleaning depends on water hardness. With soft water, cleaning may not be required for several years. With hard water (15 to 20 grains/gal.) cleaning may be required as frequently as every six months.

TO CLEAN AND SANITIZE, FOLLOW THIS PROCEDURE.*
*Approved by the National Sanitation Foundation.
  1. Place cycle or service switch in “OFF” position.

  2. Remove the two thumb screws and slide the ice cutter grid out of the two slots near the water pan.

  3. Unplug the electrical harness.
Any ice on the grid should be melted under running warm water. Attempting to pick the ice slab off the grid may stretch and damage grid wires.

  4. Remove all ice from the storage bin and the freezing plate.

  5. Drain the water pan by removing the drain plug and then replace the plug.

WARNING: Most ice machine cleaners are citric or phosphoric acid which can cause irritation even after dilution. In case of contact with eyes, flush eyes thoroughly with fresh water and contact a physician immediately. In case of contact with skin, rinse well with water. If swallowed, give large amounts of water and contact a physician immediately. Do not induce vomiting. KEEP OUT OF REACH OF CHILDREN.

  6. Pour 1/2 gallon (1.9 L) of hot tap water into the water pan and turn the service or cycle switch to “CLEAN.” This warms up the system to make the cleaning solution more effective. Let circulate for five minutes. While tap water is circulating, prepare cleaning solution. Mix:

  6 oz. (170g) powdered citric, or phosphoric acid into 1/2 gallon (1.9L) hot water
(Citric and phosphoric acid crystals are available from many pharmacies or scientific supply houses.)

Commercial Ice Machine cleaners (liquid) are also available from your dealer or refrigeration parts supply stores. Mix according to instructions on label (total quantity 1/2 gallon [1.9L]).

  7. Turn Service or Cycle switch to “OFF” and drain tap water.

  8. Turn the switch to “CLEAN” and slowly pour the hot cleaning solution into the water pan. (If the solution foams while pouring, wait until foaming stops.) Then add the balance of the solution.

Allow solution to circulate until the scale has dissolved (15 to 30 minutes). Severe scale build-up may require repeated cleaning with a fresh quantity of cleaning solution.

To clean scale off the side flanges of the freezing plate, use rubber gloves and scrub with a plastic scrubby or non-soap filled stainless steel pad dipped in cleaning solution.

  9. Drain the cleaning solution. Using the rubber gloves, remove the drain plug and set the switch to “OFF.”

  10. Replace the plug and add 1/2 gallon (1.9 L) of fresh water. Set switch to clean, circulate five minutes, drain. Repeat rinsing process.
CSW1 or AC50
CLEANING AND SANITIZING THE ICE MAKING SYSTEM

REMOVAL AND CLEANING OF INTERIOR COMPONENTS:
DO NOT OPERATE UNIT WITH PANELS REMOVED.

1. Remove ice retainer baffle by flexing it and then slide it off the studs.

2. Remove the water pan by unscrewing the two thumb screws.

3. Remove the hose from the water pump.
   Clean the water inlet hose hanging in the water pan.

4. Remove the water distributor from the freezing plate. It is held in place by rubber end caps. Remove the inlet hose and clean all water distributor holes and the small orifice in the inlet side of the distributor. When replacing the distributor, make sure the end caps are located in the evaporator flange detents and that the water distributor holes face down.

5. Wash the interior components you have just removed with mild soap or detergent and warm water. Rinse in clean water. Sanitize in a solution of 1/4 oz. (8 ml) of chlorine laundry bleach mixed with 1 gallon (3.8 L) warm water.

   NOTE: Do not wash plastic parts in dishwasher. Plastic parts can not withstand temperatures above 145°F (63°C).

6. Wash the storage bin, door, gasket, and ice scoop with mild soap or detergent and warm water. Rinse with clean water. Sanitize with the chlorine bleach and water solution.

7. Replace the interior components: water distributor, hoses, water pan, and ice retainer.

8. Check the following:
   ● Hose from water valve is in water pan.
   ● Rubber drain plug is in water pan.
   ● Water distributor is seated and holes are facing down.
   ● Hose is reconnected to pump and water distributor.
   ● Hose from water pan is inserted into storage bin drain opening.

REPLACING THE CUTTER GRID FUSE:
Disconnect the power cord. Open the bin. Remove the electrical control panel cover by removing the two screws located underneath and lifting off. The fuse is located on the left front with an arrow pointing to it. To remove, push in and twist fuse. Replace with the same size fuse, 2.8 amps.

NOTE: Fuses with other amp ratings may not fit and will not provide adequate protection.

4. Slide the optional metal panel into the door frame and replace the handle and screws.

NOTE: A brushed chrome door panel is available that you can order from your dealer as part No. 755340.

You can also have a decorative wood panel to match existing cabinets. The panel should be 1/4" x 17" x 13-3/16" (6mm x 433mm x 355mm).

5. To change a wood panel, follow the procedure 1 through 3 and continue as follows:

6. Break off the ribs on the door insulation to allow for the wood thickness.

7. Slide the wood panel into the door frame.

8. Replace the handle and screws.

FILTERING AND TREATING WATER
In most areas it will be beneficial to filter or treat the water being supplied to the ice machine. It can improve the reliability of the machine, reduce water system maintenance and produce the best quality of ice.

The installation of a polyphosphate feeder will generally reduce scale build-up and the ice machine will require less frequent cleaning.

Municipal water systems are generally treated with chlorine to maintain a safe potable water supply. Activated carbon filters will sufficiently remove the residual chlorine from the water to reduce surface staining on stainless steel materials in the ice machine.

TO SHUT DOWN THE ICEMAKER
1. Turn icemaker to "OFF."
2. Remove all ice from storage bin.
3. Shut off the water supply.
4. Remove front grill.
5. Disconnect the inlet and outlet lines to water valve. Allow these lines to drain and then reconnect to the valve.
6. Replace front grill and screws.
7. Remove water from drain lines and drain water pan if the unit will be subjected to freezing temperatures during shut down.
8. Before using again, clean and sanitize the icemaker and storage bin.

OILING:
All components of the icemaker are permanently lubricated at the factory. They should not require any additional oiling throughout the normal life of the machine.
SELF-SERVICE CHECK LIST

Performance problems often result from little things you can find and fix yourself.

1. Unit does not run:
   - Service or Cycle switch must be in "ON" position.
   - Check to see that power cord is plugged in.
   - Check for blown fuse or tripped circuit breaker in electrical supply to machine.
   - Room temperature must be above 55°F (13°C). Otherwise, bin thermostat may sense cold room temperature and shut off even though bin is not full of ice. Also, unit may not restart once it does shut off.

2. Unit runs but produces no ice:
   - Service or Cycle switch must be in "ON" position.
   - Check water supply to make sure it is open.
   - Check to see if grid fuse is blown.
   - If ice machine is operated at an elevation of 2,000 feet or more above sea level, both the bin thermostat and the ice thickness thermostat need to be recalibrated. See Installation Instructions.

3. Unit runs but produces very little ice:
   - Room temperature may be extremely high, over 90°F (32°C). In this case, it is normal for ice production to be low.
   - Dirt or lint may be blocking the air flow through the finned condenser. Condenser needs to be cleaned.
   - Check to see if the unit has a scale build-up in water and freezing system. Clean, if necessary.

4. Grid is not cutting ice sheets:
   - Check the grid harness plug to make sure the connection is secure.
   - Check grid fuse.

5. Taste in ice cubes:
   - There may be an unusually high mineral content in water supply. Water may need to be filtered or treated.
   - Do not store any foods in the ice bin.
   - Packaging material not all removed.

A more detailed "Trouble Diagnosis Chart" and other technical information is shipped with each unit and is located in the unit compartment section.

Service repair and replacement parts manuals may be ordered directly from:

Scotsman Ice Systems
505 Front Street
Albert Lea, MN 56007
Telephone 507-373-3961
TWX 910-565-2173

Specify the model number of the ice machine when ordering.

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