

## SERVICE BULLETIN

### Subject: Diagnostic Changes for Blue CM<sup>3</sup> Controllers

Controllers with blue housings work the same as the prior black controllers. However, in two areas they are different: Water sensor diagnostics and ice sensor diagnostics. This bulletin will detail how to diagnose these two components.

#### Water Level Sensor - for use with Black or Blue Controllers

Tools Needed: Digital voltmeter that can read DC

Goal: To determine if the water level sensor is capable of normal operation.

Note: Ambient light can affect this test. Shade the sensor if needed.

1. Unplug water sensor harness from controller (connection #2).
2. Confirm that the power to the machine is ON and that there is at least one light on the board that is glowing. If not, check the transformer.
3. Set the voltmeter to DC and use a scale low enough to measure less than 40 Volts.
4. Measure the voltage between the top and the bottom pins on the controller at connection #2 (the bottom is ground or negative).

	Yellow (bottom) - Black Housing Controller	Yellow (bottom) - Blue Housing Controller
Blue - harness unplugged	24 to 30 VDC	.5 to 2 VDC

If it is much less than that, there is something wrong with either the power supply to the controller or the controller itself. If the voltage measures correctly proceed to the next step.

5. Reconnect the harness. Be SURE it is on properly and has a good connection. To confirm, unplug the harness from the water sensor and redo step #4 at the end of the harness. Then plug the harness back onto the sensor.

#### Harness Connected Voltage (DC)

6. At the controller, measure the voltage between the top and bottom pins on connection #2. This should be between the ranges in the table below. If it outside this range there is a problem in the sensor and it should be changed out. If it is within this range, proceed to the next step.

	Yellow (bottom) - Black Housing Controllers	Yellow (bottom) - Blue Housing Controllers
Blue (top)	2 to 3.5 VDC	.4 to 2.0 VDC

7. Place negative voltmeter probe on the bottom terminal (yellow wire). Place the other on the one just above it (terminate freeze sender - white wire). Move the float stem/stick up and down and note the voltage changes. There should be a significant change between when it is blocked to when it is not blocked. If there is **NO change**, the sensor may be dirty or has failed. Remove the dust cover from the sensor to clean it.

Note: The sensor must be properly reassembled. When looking at the terminals of the sensor, they must be in the lower right corner. If they are in the upper left remove the sensor's dust cover and reverse the board. Later models have an UP arrow on the right side of the circuit board.

	Yellow (bottom) Black Housing Controllers	Yellow (bottom) Blue Housing Controllers
White - Blocked	5 VDC	about 5 VDC
White - Unblocked	<1 VDC	less than when blocked

8. With the voltmeter probe still on the bottom terminal (still in connection #2), place the other one on the second pin from the top (sump full sender - red wire). Move the float stick up and down, note the changes in voltage. It should react the same as in step 7.

	Yellow (bottom) Black Housing Controllers	Yellow (bottom) Blue Housing Controllers
Red - Blocked	5 VDC	about 5 VDC
Red - Unblocked	<1 VDC	less than when blocked

9. If all voltages check out, there is nothing wrong with the sensor or the voltage it receives from the controller.

### Ice Sensors (also called bin eyes)

Diagnostics assume that the control system is working but may not be able to sense cubes. Its purpose is to determine which component may be at fault - the controller or the ice sensors.

#### *Black Controllers*

Unplug thermostat (if used) and check bin full light, if off, place something between the electric eyes. The bin full light should begin glow steadily after 20 seconds of continuous blockage. If not, check operation of electric eyes by unplugging #4 and jumping out the two pins on the controller (touch the tool to the cabinet to discharge static electricity before contacting the controller). If the bin full light blinks, replace the bin controls. If it does not blink, replace the controller.

#### *Blue Controllers*

Unplug thermostat (if used) and check bin full light, if off place an object between the ice sensors, after 5 seconds the Bin Full light will be glowing steadily, if not check operation of sensors by unplugging #4. Bin Full light will go on after 5 seconds, If not, replace controller. If the light does go on, replace ice sensor set.

## SERVICE BULLETIN

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### Subject: New Auger Drive Motor Service Parts

**Models Affected:** NME - all, FME - all, MDT5, MDT6, NSE and service replacement assemblies

Scotsman has begun using GE ¼ HP auger drive motors in place of Emerson. The part number of the complete gear reducer or motor does not change and complete motors are interchangeable between Emerson and GE.

. However, there are two new service part numbers:

- Start Switch for GE split phase ¼ HP motor: 12-2430-44
- Rotor bearing for GE split phase ¼ HP motor: 12-2430-49

Use of the GE motor began in December 2003.

To identify the proper service part (start switch or bearing):

1. Check the ice machine model prefix: FM, FME, MTD5, MDT6, NM, NME, ND, NDE, NS, or NSE use this type of drive motor. See the appropriate part list for all others.
2. Check the brand of motor. There are two, Emerson or GE. If Emerson see the appropriate parts list. If GE go to the next step.
3. Check the type of motor. GE PSC motors (used from the early to mid 90s) have a capacitor and use different parts, see the parts list for that model (note that start switches for PSC motors are obsolete). GE split phase motors use the above part numbers.

## SERVICE BULLETIN

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### Subject: CM<sup>3</sup> Controller Revision Change

The controller used in SCE275, CME256, CME306, CME456, CME506, CME656, CME686, CME806, CME810, CME1056, CME1356, CME1386, CME1656, CME1686, CME1856, CME2006 and CME2086 has been changed. The service controller, 12-2838-23, has also been changed.

The change is a revision to the existing controller. No part numbers change. The new revision, number 9, **adds a new diagnostic procedure**. All other prior features remain as they were.

### New Diagnostic

The new diagnostic procedure checks two functions of the controller:

1. At the beginning of the diagnostic, all the controller's relays are automatically switched on in a particular sequence for a short time to confirm that power is going to the electrical component and that the component is operating.
2. At the end of that test the water level sensor is checked. The green light display on the controller changes as the float stem is moved up and down in the sensor.

### Electrical Component Test Sequence:

1. **Water inlet valve test.** Verifies that the water inlet solenoid valve opens and water fills the sump. Some water may overflow into the bin.
2. **Water Pump test.** With water in the sump from the prior test, the pump starts and circulates water.
3. **Purge valve test.** Purge valve opens to discharge water. No effect on overflow models.
4. **Compressor test.** Compressor starts, hot gas valve open for short time.
5. **Harvest bypass valve test.** Compressor on, check valve remote systems verify that the harvest by-pass valve opens.
6. **All off test.** Verifies that the relays open.
7. **Hot gas valve test.** Verifies that the hot gas valve opens.
8. **Fan motor test.** The fan motor is switched on to verify its operation.

### To start the diagnostic process

1. Push and hold the Off button until the unit shuts off.
2. Push and hold the Off button again until the Purge indicator lights (green lights) switch on.
3. Push and hold the Clean button until the bin full light starts to blink, that starts the diagnostic. The test will begin and end automatically.

**Part One, Electrical Component Test.** It can be confirmed visibly, audibly or by volt or amp meter

		<b>Model Type - See Notes Below</b>			
Test	Seconds On	A. Air or Water Cooled	B. Check Valve Remote	C. Pump Down Remote	D. Eclipse
1	30	Water inlet valve	same as A	same as A	same as A
2	10	Water Pump	same as A	same as A	same as A
3	10	Pump, Hot gas valve (and purge valve when used)	same as A	same as A - but no purge valve	same as A, but vapor inlet valve in place of hot gas valve, and adding cond. bypass and receiver inlet valves
4	5	Hot gas valve, compressor	same as A	same as A, plus the liquid line valve	same as A, but vapor inlet valve in place of hot gas valve, and adding cond. bypass and receiver inlet valves
5	15	Compressor	same as A (plus fan motor), also harvest by pass valve	same as A (plus fan motor), also liquid line valve	same as A (plus fan motor)
6	5	None	same as A	same as A	same as A
7	10	Hot gas valve	same as A	same as A	same as A, but vapor inlet valve in place of hot gas valve, and adding cond. bypass and receiver inlet valves
8	5 or 10	Fan motor (10 secs)	By pass valve (5)	Liquid line valve (5)	none

**Results:**

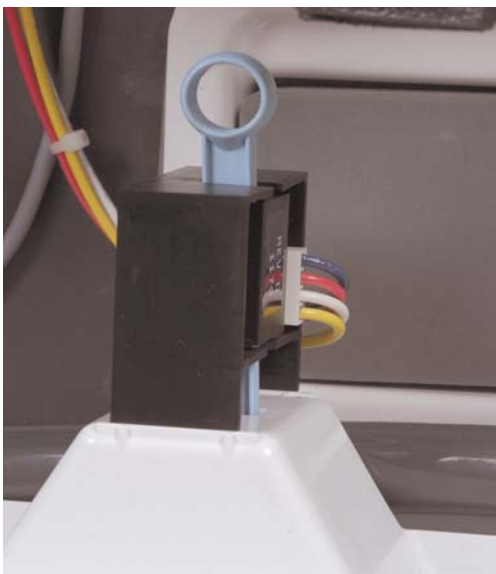
- If all the components operated as listed, the controller passed the test.
- If a component does not operate when it should, check its electrical connection. Check for open circuit or physical damage. If OK, refer to the product's wiring diagram and repeat the test with a voltmeter at the controller end of the harness. Check with one voltmeter lead on the proper terminal and the other to ground.
- If no voltage is present during the suspect component's turn in the second test, the controller needs to be replaced. If there is voltage at the controller end but none at the component, the harness needs to be replaced.

**Notes:**

- **Check Valve Remote** models are the CME456R, CME1056R, CME1356R, CME1656R and the CME2006R.
- **Pump Down Remote** models are the CME506R, CME656R and the CME806R.
- **Eclipse** models are the CME686, CME810, CME1386, CME1686 and the CME2086.
- Water cooled and Eclipse models in test 8 have nothing operating.

**Part Two: Water Level Sensor Test. Covers: All Models:** The water float's position is indicated by the green lights on the controller. Refer to this table:

Column One: Float Position	Column Two: Green Lights On	Column Three: Jumper Test
Over filled or dry sump (float all the way up or down), all of the slot is visible	Freeze, Harvest, Clean and Off	Unplugging sensor harness from #2 on controller.
Full sump	Harvest, Clean and Off	Jump pins one (bottom) and two
Mid position	Clean and Off	Jump pins one (bottom) and three, and pins one and two
Sump needs refill or end of freeze	Off	Jump pins one and three



**Water Level Sensor Test.**

Example:

Float depressed or at low point, results in only the Off light on.



**To Test:** Move the float stick slowly up and down and observe the light display on the controller.

**Results:**

- If the lights change as listed in column two, the system has passed the test.
- If the test failed, perform the jumper test in column three. If that test results in the lights on as listed in column two, the controller is OK but the sensor or harness needs to be replaced. The harness can be checked the same way by unplugging the connection at the sensor and testing again.
- If the lights do not glow as indicated after the jumper test, the controller has failed and needs to be replaced.

**Overall Notes:**

- **Water valve test** may result in overfilling the sump, causing water to spill into the bin.
- **Test will stop** after 60 seconds of no input or whenever the Off button is pushed. Bin full light will stop blinking when the test is complete.

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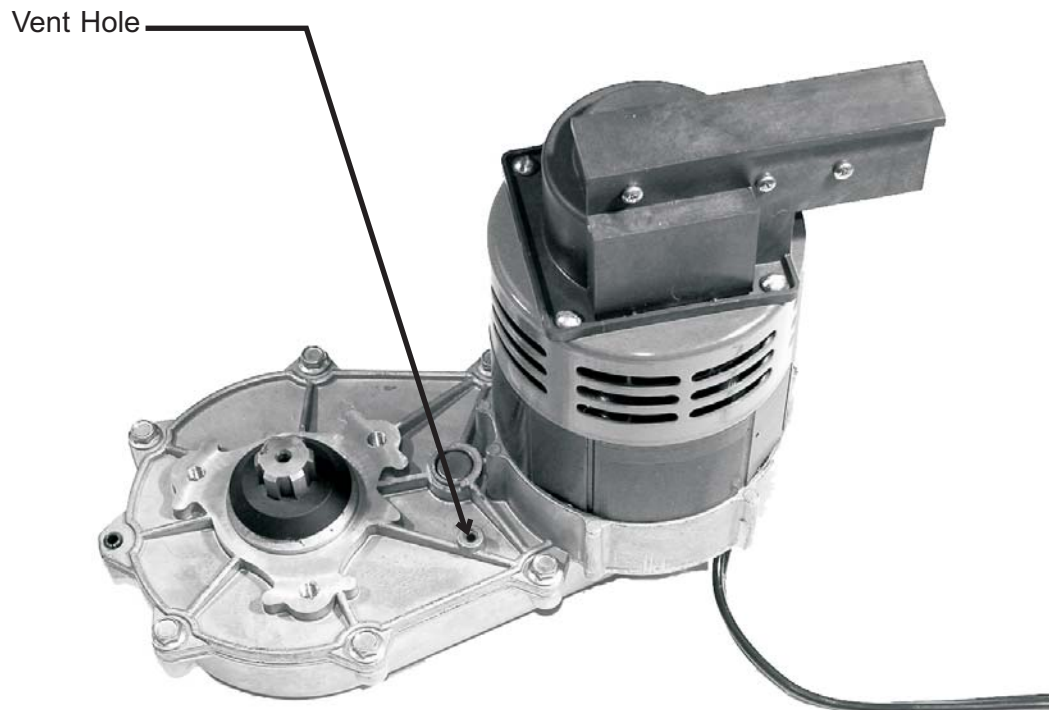
## SERVICE BULLETIN

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### Subject: Flake Gear Reducer Vent Change

The vent holes in the covers of all 1/10 HP gear reducers have been determined to be unnecessary and are being eliminated. This includes gear reducers in ice machines, complete gear reducers and individual service parts.

It is no longer necessary to remove the shipping vent plugs from any of these gear reducers.



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## SERVICE BULLETIN

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### Subject: Design change to BH1100, BH1300 and BH1600

The plastic top and plastic top filler panels have been changed. The hole in the top has been reduced (front to back) and the panels were changed to fit the new size hole. This does not affect placement of ice machines.

#### For current bins:

- 9 inch filler panel **02-4008-21** - 20.5" long
- 13.5 inch filler panel **02-4008-22** - 20.5" long
- Poly top with hole 45" wide x 20.5 deep 02-4008-17 (48") 02-4008-18 (60")
- SS frame 02-4008-16

#### For prior bins:

- 9 inch filler panel: 02-4008-19 - 21.5" long
- 13.5 inch filler panel: 02-4008-20 - 21.5" long
- Poly top with hole 45" wide by 21.5" deep. No longer available.
- SS frame. No longer available.

Another change is to the legs, the new legs are the standard Scotsman type, with 5/8 - 11 threads, kit KLP2E can be used as replacements on these bins..

These changes began with bins having a **January 2006 date code, 07F**.

#### Part number update:

- The left and right spring loaded hinges have been combined into one kit: **02-4008-23**
- The left and right door hinges have been combined into one kit: **02-4008-24**
- The upper and lower door tracks have been combined into one kit: **02-4008-25**



## SERVICE BULLETIN

### Subject: New Refrigeration Access Valves

Scotsman has begun phasing out of the current access valves to a new type. The new type looks like a Schrader valve but is actually quite different. It is much less restrictive than a Schrader valve, so recovery, evacuation and recharging time will be minimally affected.

It is compatible with standard hose fittings. No special tools are required, but a Schrader core removal tool cannot be used with it.

The valve core part number is .....16-1139-01

The valve body & seat, without core, is part number .....16-1137-01.

The valve cap is part number .....16-1140-01

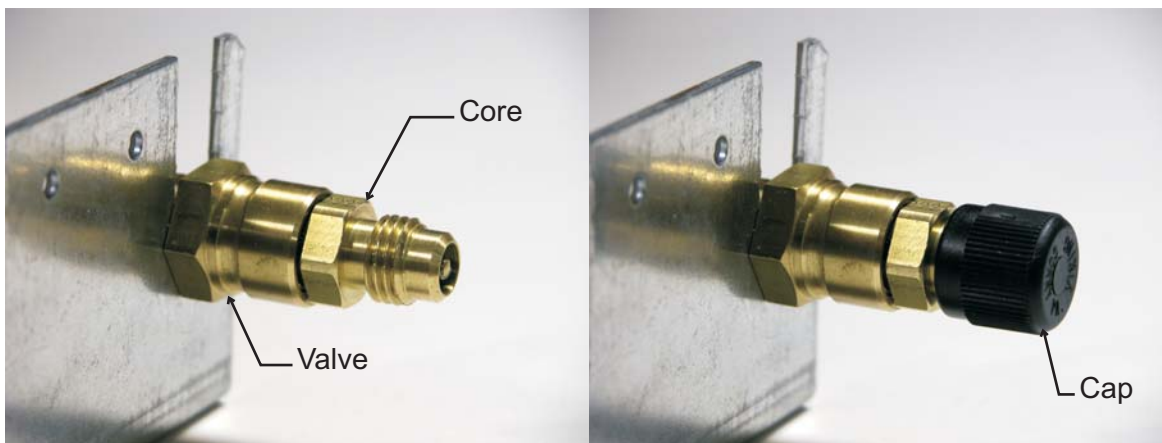
The first series of machines to receive these valves are the FME and NME models. Other models will be switching to this valve throughout 2007.

The first unit to receive the new access valve was FME804AS-1B, serial number 06111320014812.

The valve core can only be replaced on a system empty of refrigerant.

Typical Steps to replace the core:

- A. Recover the charge.
- B. Unscrew the core assembly, part number 16-1139-01.
- C. Install a new core. The torque spec for the valve core is 8 FT-LBS.
- D. Evacuate
- E. Weigh in new charge.
- F. Put the cap on the valve, secure it finger tight.



## SERVICE BULLETIN

### Subject: New 1/10 HP Gear Reducer

The gear reducer assembly used in the AFE325, AFE400, MDT3F12, MDT4F12 and MFE400 has been changed.

The **changes** include:

- New cover
- New case. The new case is sealed with a gasket instead of the prior o-ring.
- New output shaft bearing, output shaft and output gear.
- New gear reducer kit w/out motor.

#### Interchangeability:

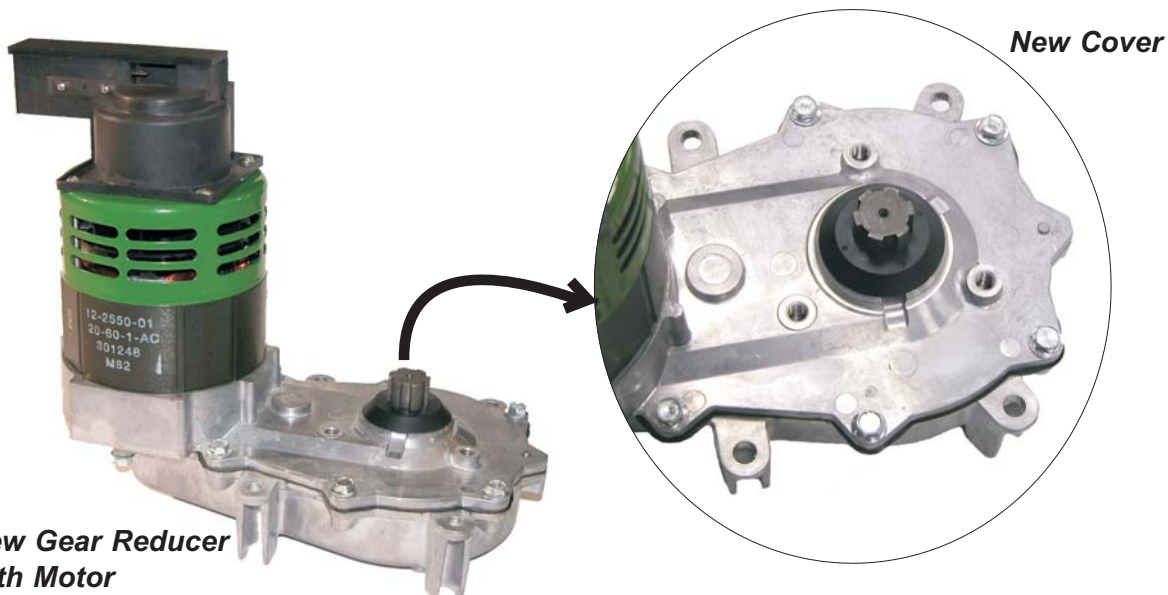
- The new gear reducer can be used as a direct replacement for the prior 1/10 HP gear reducer.
- Most internal parts are NOT interchangeable with any prior 1/10 hp gear reducer. Only the 1st and 2nd gears and the motor were not changed and are interchangeable.

#### Availability:

- Prior internal parts will remain available.
- Covers and cases for the prior gear reducer will no longer be available.

#### Part Numbers:

- The gear reducer complete (115 volt) is part number: **02-4399-21**
- The gear reducer complete (230 volt, 50 Hz) is part number: **02-4399-24**
- The gear reducer, with gears and oil, but w/out a motor is part number: **02-4398-21**



## SERVICE BULLETIN

### Subject: CSW45 Inlet Water Valve

The tubing connections for the CSW45 inlet water solenoid valve have changed from compression fittings to the push-in type fittings. This change occurred in mid-2006.

The new part number for the inlet water solenoid valve is W10139486. It replaces all prior CSW45 water valves. When replacing an inlet water valve with compression fittings, the inlet tubing must be replaced with tubing from the kit. To attach the outlet tubing (1/4" OD polyvinyl) remove the nut and metal insert, then push the tubing into the fitting on the valve.



## SERVICE BULLETIN

### Subject: 1/10 HP Breaker Bearing Design Change

Applies to MDT3, MDT4, AFE325, AFE400 and related prior models.

The breaker / bearing retainers for all of the 1/10 HP flakers have changed. The cap hook and cap have been replaced by a sealing cap that covers the entire top of the breaker or bearing retainer. The design change includes new part numbers for the replacement parts:

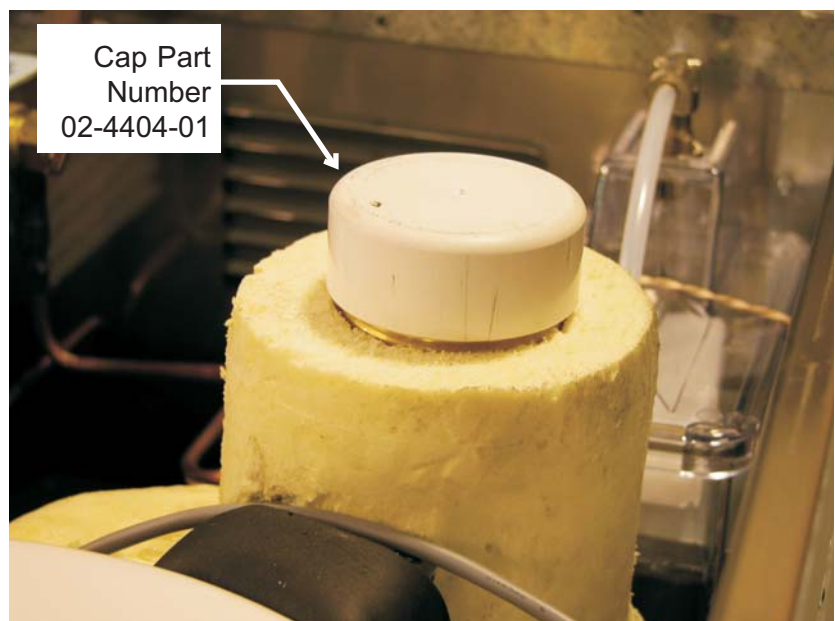
	Prior Number	New Number
AFE400 style	A26706-001	<b>A09413-020</b>
MDT3, MDT4 style	A14678-020	<b>A14591-020</b>
AFE325 style	A26707-001	<b>A15508-020</b>

The service kits are like the prior ones and are complete with a new bearing, and include instructions. Production of new units with the above change began in mid-April with MDT3F12A-1H, serial number 07041320014409.

#### Interchangeability:

The new parts can be used on prior models.

Replacement of a prior breaker in an MDT3 or MDT4 will require removal of some of the foam insulation at the top of the evaporator to allow space for the cap. Replacement of a prior breaker on an AFE400 eliminates use of the 13-0887-01 rubber cap and 13-0886-01 insulation halves.



## Service

The new threaded breaker requires a new method to pull an auger or remove the breaker. The steps below begin after the breaker to evaporator screws and in some cases the external spout have been removed.

There are two methods:

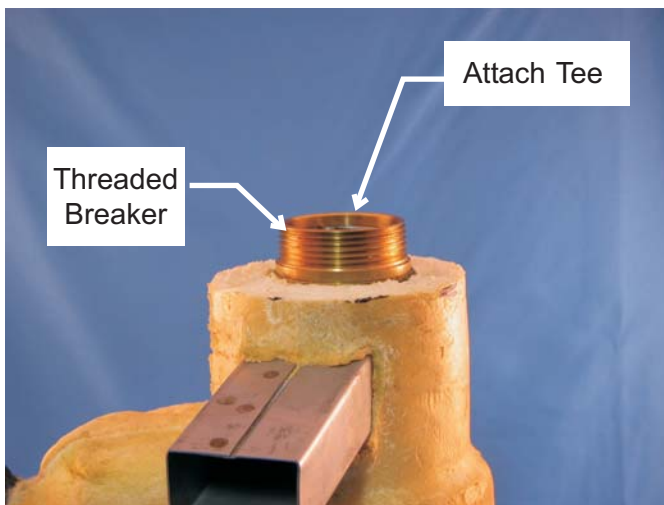
1. The flange on the outside of the breaker has indents in it so a screwdriver tip can be inserted between the flange and the top of the evaporator wall. Prying up on the flange should lift the auger and / or breaker out.

2. A low cost tool can be made using a 1 1/2" pipe thread tee.

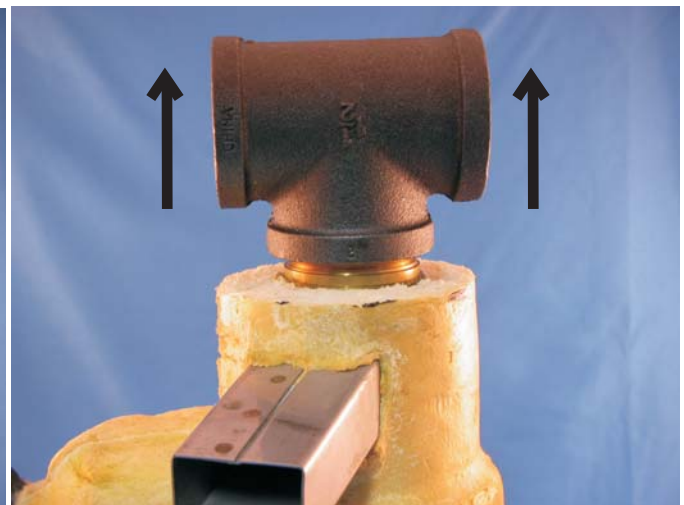
A. Remove the sealing cap.

B. Install the Tee, it will screw onto the breaker, which has 1 1/2" NPT threads.

C. Pull up on the Tee or insert a bar thru the Tee and pull up on it.



*Method 2 - Sealing cap removed*



*Method 2 - Tee Attached*

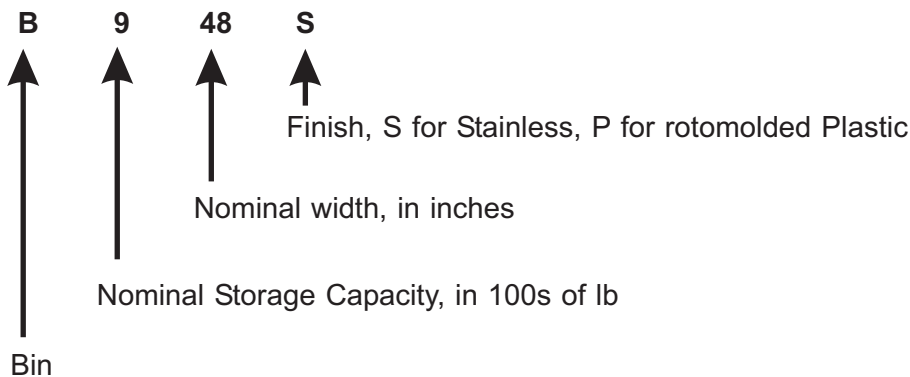
## SERVICE BULLETIN

### Subject: New Ice Storage Bins

A new line of ice storage bins is being produced, replacing the prior models.

New Model	Prior Model
B222S	none
B322S	BH360
B330P	HTB350 & HTB250
B530P	HTB555
B530S	BH550
B842S	BH801
B948S	BH900

The model number nomenclature is:



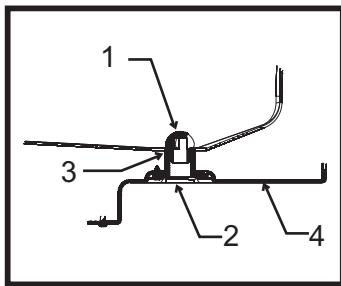
#### Notes:

- Current ice machine adapters will work with the new bins with the exception of the KBT22, KBT24 and KBT25. For those substitute the KBT22A, KBT24A and KBT25A.
- The drain fitting is recessed into the bottom of the bin, allowing more pitch to building drains
- The Kbaffle kits will not be used with the new bins.
- KBC1 casters can be used with the stainless bins, but are not recommended for use with stacked ice machines or 22" wide bins.
- If using casters with a B330P or B530P, use new caster kit KBC1P. The prior kit will not fit.
- Optional leg kit, KLP8S, can be used in place of the standard flanged foot legs.

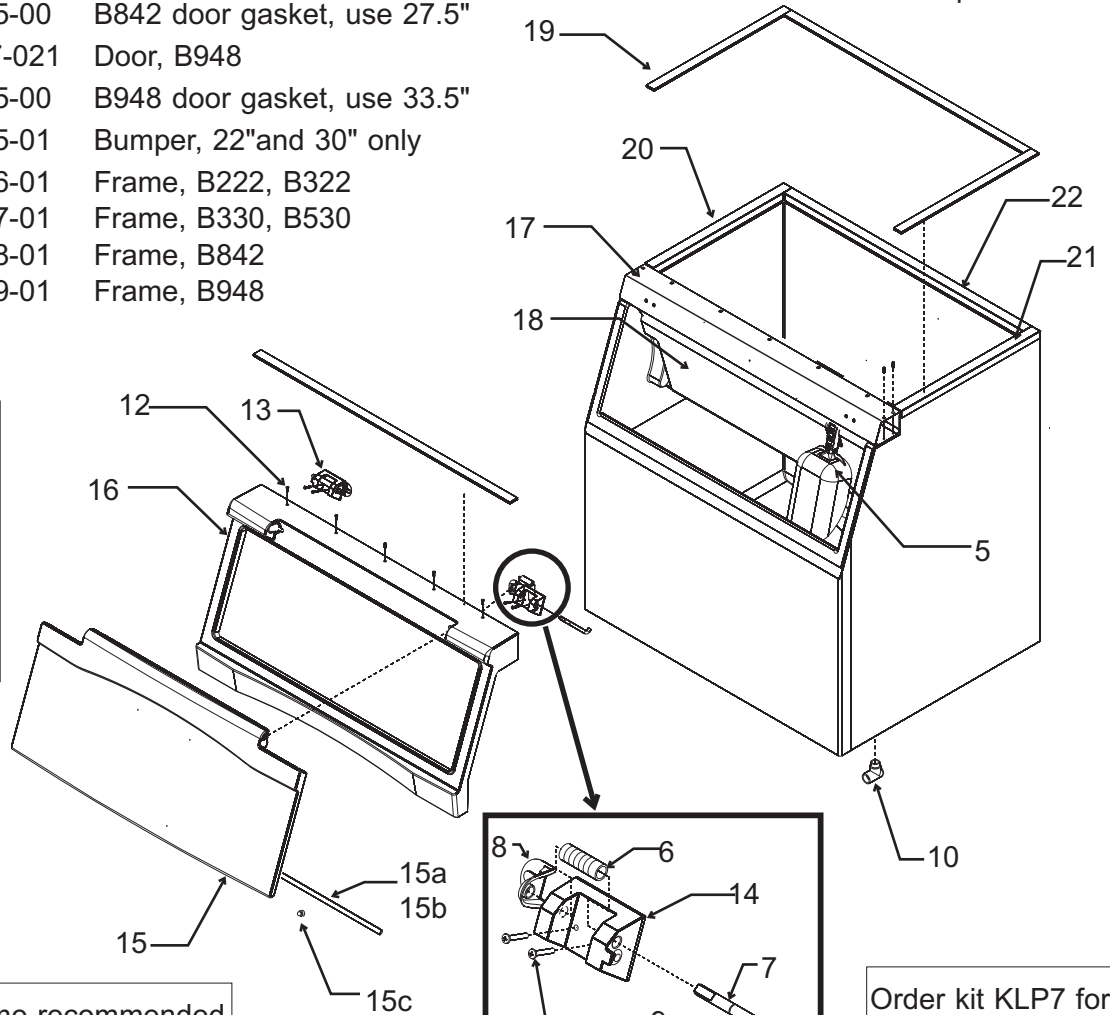
A list of service parts is on the back of this bulletin.



Item Number	Part Number	Description
1	02-2809-01	Drain top
2	02-3108-01	Drain fitting
3	02-4193-01	Drain gasket
4	02-4234-01	Drain panel, SS only
5	02-0540-01	Scoop
6	03-3876-01	Spring*
7	03-3874-01	Hinge pin*
8	13-0946-01	Hinge gasket
9	03-1539-12	E clip*
10	05-0586-01	Elbow for drain
11	03-1403-71	Screw, hinge to canopy
12	03-1418-30	Screw, frame to canopy
13	02-4232-01	Left hinge mount*
14	02-4233-01	Right hinge mount*
15	A38914-021	Door, B222, B322
	A38915-021	Door, B330, B530
	A38916-021	Door, B842
15a	13-0595-00	B842 door gasket, use 27.5"
	A38917-021	Door, B948
15b	13-0595-00	B948 door gasket, use 33.5"
15c	02-4235-01	Bumper, 22" and 30" only
16	02-4236-01	Frame, B222, B322
	02-4237-01	Frame, B330, B530
	02-4238-01	Frame, B842
	02-4239-01	Frame, B948
17	A38920-001	Canopy, B222, B322
	A38921-001	Canopy, B330, B530
	A38922-001	Canopy, B842
	A38923-001	Canopy, B948
18	A38910-001	Baffle, B222, B322
	A38911-001	Baffle, B330, B530
	A38912-001	Baffle, B842
	A38913-001	Baffle, B948
19	13-0943-02	Gasket, 22" use 86" Gasket, 30" use 102" Gasket, 42" use 126" Gasket, 48" use 136"
20	A38907-001	Left cap - SS bin
	A39240-001	Left cap - plastic bin
21	A38908-001	Right cap - SS bin
	A39241-001	Right cap - plastic bin
22	A38977-001	22" back cap
	A38978-001	30" back cap
	A38979-001	42" back cap
	A38980-001	48" back cap



Drain Detail



Hinge Detail

\* Replacement of frame recommended when servicing hinge parts.

Order kit KLP7 for a set of 4 legs.

## SERVICE BULLETIN

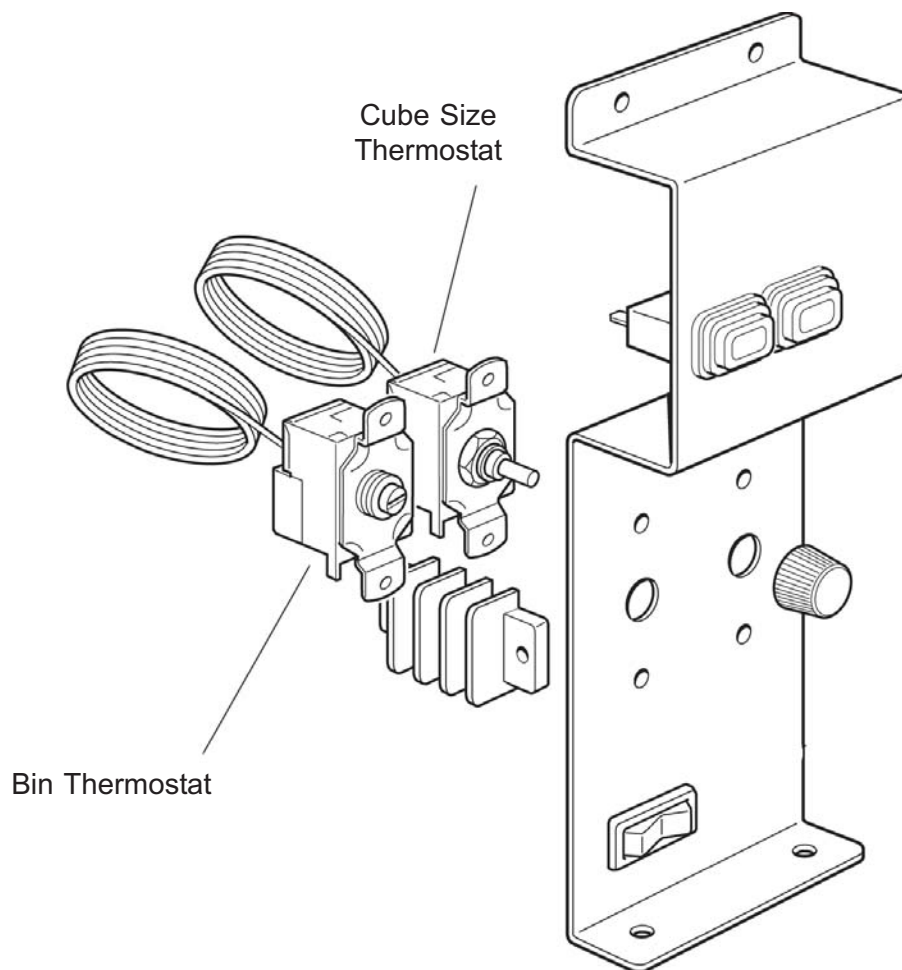
### Subject: CU0515 Cube Size and Bin Thermostat Locations

The Cube Size Thermostat on this model is the control with the plastic knob. It is located on the right side of the front of the control box. The bin thermostat is located on the left.

Two batches of units were manufactured with the thermostat positions reversed:

- From s.n. 0710 1320 011109 to 0710 1320 011128
- From s.n. 0711 1320 011493 to 0711 1320 011616

All documentation shows them the correct way.



*Cube Size and Bin Thermostats, shown in their correct positions.*



# SERVICE BULLETIN

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**Subject: CS0415 Model and Compressor Change**

The CS0415 ice machine's compressor and related components have been changed. This has resulted in a series change. The new model numbers are:

- CS0415A-1B
- CS0415PA-1B

**New Service Parts**

Due to a change in the wiring to the compressor, the new series service parts are **not interchangeable** with the prior models.

- W10164538 - Compressor kit for B series, includes drier, grommets and starting device
- W10139121 - Wiring harness for B series
- W10136197 - Start relay, overload and cover combination for B series

# SERVICE BULLETIN

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## Subject: New Prodigy Service Controller

The part number for the Prodigy Cuber Service controller has been changed. The most recent part number was 11-0550-23. The new part number is **11-0550-24**. It can be used as a service replacement on any Prodigy cuber made to date.

New with the 11-0550-24 controller is the ability to automatically select the appropriate sensitivity range used to detect reservoir water level. That feature is also in the current production units. This water level system is still able to sense RO water to 10 microSiemens/cm, but will now adjust to a less sensitive range when RO or very pure water is not present. If a machine, not using RO, is then connected to RO water, cleaning the machine using the cleaning process will reset the sensitivity level and allow normal operation.

### Controller Use Reference:

- 11-0550-20 - use on C0322, C0330, C0522, C0530, C0630, C0830, C1030, C1448, C1848 and C2148
- 11-0550-21 - part number not used
- 11-0550-22 - use on all the above plus EH430 and EH222
- 11-0550-23 - use on all the above plus CU1526, CU2026 and CU3030
- 11-0550-24 - use on all the above plus EH130 and EH330