

HOSHIZAKI AMERICA, INC. SERVICE BULLETIN

SB20-0009R1

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Subject: 2A9093-01 Timer Board Troubleshooting

The 2A9093-01 advanced flaker timer board, replaces boards 2A4296-01, 2A4296-02, 2A8053-01 and the 2A8054-01. These flaker timer boards have a series of built in safeties, with corresponding audible alarms to alert the owner of a possible failure. These alarms can also assist with the trouble shooting of the equipment.

After inspecting warranty return parts of this board, we are finding a large percentage of boards have no fault. This board should not be replaced without proper and thorough troubleshooting of the possible causes for the alarm. Below is a breakdown of the alarms and a series of items to check. If the board is found to be at fault, the proper course of action is to replace the board and to document its failure, in detail on the warranty claim form.

When replacing a control board make sure to accurately set the DIP switches. Correct DIP switch settings can be found in the specific model's service manual.

1 Beep Alarm: Low water safety – The upper float switch in the reservoir is reading open 90 seconds after the unit has called for water.

1. Water supply to the unit

- a. The water supply valve/stop is closed.
- b. Water supply water pressure too low.

2. Filter system

a. Restricted filters

3. Water Inlet Valve

- a. Clogged water valve screen
- b. Weak or open solenoid coil

4. Float Switch

- a. Scale buildup on the floats
- b. Loose or corroded electrical connections
- c. Failed internal contacts
 - i. Closed (Float in the up position) should be 0.2 ohms of resistance or less / Open (Float in the down position) should show no resistance
 - Lower Float check: Black wire to Dark Blue wire
 - Upper Float Check: Black wire to the Red wire

5. Reservoir

- a. Leaking water
 - i. External crack
 - ii. Internal crack on the overflow
 - iii. Reservoir inlet hose mis-aligned
- b. Missing Baffle

6. Flush valve

a. Leaking by

7. Control board

- a. No voltage to the water valve board relay (24vAC K2 pin #7 white/red wire from the 1 amp fuse to light blue bundle)
 - i. Loose electrical connection
 - ii. Transformer
 - 24vAC output (White/Red wire K8 Pin 1 to Light Blue K8 Pin #2)
 - iii. No voltage out of the relay to the water valve -24vAC (K2 pin #8 to Light Blue bundle) Loose electrical connection

2 Beep Alarm: Control switch in the Drain position for longer than 15 minuets

1. Selector switch

- a. In the "Drain" position
- b. Corroded switch contacts

2. Control Board

3 Beep Alarm: High pressure switch activation one or two times in the past hour

1. Loose electrical connections on the K9 board connector pins # 3 & 4

2. High pressure switch connections

- a. Corroded contacts
- b. Loose connection
- 3. Broken or damaged wire

4 Beep Alarm: Third high pressure switch activation in one hour

1. Condenser

- a. Dirty or clogged
- b. Weak fan motor / or low water flow (Water cooled condenser)
- c. Restricted piping
 - i. Internal scale build-up on a water condenser
- d. Damaged fin or coil

2. Water regulating valve (Water cooled unit)

- a. Clogged
- b. Not opening

3. High pressure switch

- a. Physical damage
- b. Opening at the wrong pressure
 - i. Air / Remote condensed 411psi +/- 21psi
 - ii. Water condensed 384psi +/- 21psi
- 4. Control Board

5 Beep Alarm: Freeze back up timer – Unit calling for ice but has not called for water in the past 30 minutes

1. Water Valve

- a. Leaking by
 - i. Supply pressure too high (Above 113 PSI)
 - ii. Diaphragm not sealing

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2. Float Switch - closed upper float with an open lower float

- a. Dirty or scaled up lower float
- b. Open or damaged lower float contacts
- c. Loose electrical connection for lower float
- d. Loose K8 board connector pin # 7

4. Refrigeration

- a. Refrigerant Charge
 - i. System leak
- b. TXV
- c. Inefficient compressor
- d. Headmaster

6 Beep Alarm: Low Voltage

- 1. Low voltage supply to the unit
 - a. 92v + 5%
- 2. Low voltage supply to the board transformer a. Loose electrical connection
- 3. Low Voltage supply from the 24volt transformer
- 4. Damaged fuse holder
- 5. Defective 1 amp fuse
- 6. Loose connection at K8 pin #1

7 Beep Alarm: High Voltage

- 1. High voltage supply to the unit
 - a. 147 volts +/- 5%

2. High voltage supply from the 24volt board transformer

8 Beep Alarm: Gear motor failed to close the compressor control relay

1. Board connector / supply voltage

- a. Low or No voltage supply to the board 115vAC (K1 connector pin #2 to any white neutral)
- b. Low or No voltage supply out of K1 connector pin #3 to any neutral 115vAC
- c. Failed control board "GM" relay
- d. No 5vDC from K9 connector pin #5 (K9 pin 5 +dc to K7 pin 1 is -dc)
 i. Loose connections on K9 pin #6
- e. Damaged White / Orange wires

2. Fuse / Fuse Holder

- a. Blown or open fuse
- b. Damaged fuse holder

3. Gear Motor

- a. Loose or defective connection on the RED wire
- b. Open internal overload
 - i. Capacitor

4. Compressor Control Relay

- a. Loose connection
- b. Open coil
- c. Damaged relay contacts
 - i. High resistance
 - ii. Open

9 Beep Alarm: BC2 Actuator engaged – Dip switch #7 is ON

1. IR bin control sensor

- a. Dirty or scaled up face
- b. Damaged

2. K6 board connector

- a. Loose wires
- b. Damaged connector

3. Chute

a. Restrictions

4. Chute safety actuator switch

- a. Open contacts
- b. Damaged wires

5. Control Board dip switches timer set shutdown delay too high

| S1 Dip Switch Setting | | | Infrared Canada Shutdown Dalay |
|-----------------------|-------|-------|---|
| No. 1 | No. 2 | No. 3 | Infrared Sensor Shuldown Delay |
| OFF | OFF | OFF | 0 Seconds |
| ON | OFF | OFF | 100 Seconds (1.6 minutes) (Factory Default) |
| OFF | ON | OFF | 1100 Seconds (18.3 minutes) |
| OFF | OFF | ON | 1650 Seconds (27.5 minutes) |
| ON | ON | OFF | 2200 Seconds (36.7 minutes) |
| OFF | ON | ON | 0 Seconds |
| ON | ON | ON | 0 Seconds |

If you have any questions concerning this change, please contact the Technical Support Department at <u>tech-support@hoshizaki.com</u> or 1-800-233-1940.