Hoshizaki KM-500MAH Service Manual

Equipment: Commercial Ice Maker
Model: KM-500MAH
Manufacturer: Hoshizaki America, Inc.
Service Level: Certified Technician Only

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1. Safety Information & Warnings

■■ CRITICAL SAFETY WARNINGS:

• This equipment operates at high voltage (208V, 3-phase)
• Always disconnect power before servicing
• Use proper PPE: safety glasses, insulated gloves, multimeter
• Refrigerant handling requires EPA certification
• Water system operates under pressure - depressurize before service

2. Technical Specifications

Electrical Specifications:

• Voltage: 208V, 3-phase, 60Hz
• Current: 12.5 Amps per phase
• Power: 4.5 kW (4,500 Watts)
• Ground Fault Protection: Required
• Wire Size: #12 AWG minimum

Refrigeration Specifications:

• Refrigerant: R-404A
• Charge: 3.2 lbs
• Compressor: Scroll type, 1.5 HP
• Condenser: Air-cooled
• Evaporator: Stainless steel, 2-pass

Performance Specifications:

• Ice Production: 500 lbs/24 hours @ 70°F/50°F
• Ice Production: 400 lbs/24 hours @ 90°F/70°F
• Ice Type: Cube ice
• Water Consumption: 0.8 GPM
• Dimensions: 24" W x 30" D x 66" H

3. Electrical Testing Procedures

Pre-Test Checklist:

■ Verify power is disconnected
■ Check multimeter calibration
■ Inspect all connections for damage
■ Ensure proper grounding

Voltage Testing:

1. Test L1-L2: Should read 208V ±10%
2. Test L2-L3: Should read 208V ±10%
3. Test L1-L3: Should read 208V ±10%
4. Test L1-Ground: Should read 120V ±10%
5. Test L2-Ground: Should read 120V ±10%
6. Test L3-Ground: Should read 120V ±10%

Current Testing:

• Normal Operation: 10-12 Amps per phase
• Startup Current: 15-18 Amps per phase
• Compressor Locked: 25+ Amps per phase

4. Refrigeration System Testing

Pressure Testing:

• High Side Pressure: 180-220 PSI (normal operation)
• Low Side Pressure: 25-35 PSI (normal operation)
• Suction Temperature: 28°F ±2°F
• Discharge Temperature: 160°F ±15°F
• Subcooling: 10-15°F
• Superheat: 8-12°F

Compressor Testing:

1. Check compressor windings resistance
- L1-L2: 2.1 ohms
- L2-L3: 2.1 ohms
- L1-L3: 2.1 ohms
2. Test start capacitor: 200-250 MFD
3. Verify compressor start-up sequence
4. Monitor current draw during operation

5. Water System Testing

Water Pressure Testing:

- Inlet Pressure: 20-80 PSI
- Flow Rate: 0.8 GPM minimum
- Water Temperature: 40-90°F
- Drain Flow: 1.0 GPM minimum

Water Quality Testing:

1. Test TDS (Total Dissolved Solids): <500 ppm
2. Check pH level: 6.5-8.5
3. Test for hardness: <7 grains per gallon
4. Check for chlorine/chloramine
5. Test for iron content: <0.3 ppm

6. Control System Diagnostics

Control Board Testing:

1. Check power supply voltage: 24V DC ±10%
2. Test input signals from sensors
3. Verify output signals to actuators
4. Check communication with display

Sensor Testing:

• Water Level Sensor: 0-5V DC output
• Temperature Sensor: 10K ohm thermistor @ 77°F
• Pressure Switch: Normally open, closes at 15 PSI
• Harvest Switch: Normally closed, opens during harvest

7. Troubleshooting Flow Charts

No Ice Production:

1. Check power supply - Is unit receiving power?
YES → Check water supply
NO → Check electrical connections
2. Check water supply - Is water flowing?
YES → Check refrigeration system
NO → Check water filter and pressure
3. Check refrigeration - Are pressures normal?
YES → Check control system
NO → Check for leaks or compressor issues

8. Error Code Reference

Error Code	Description	Cause	Solution
E01	Water Level Low	Water supply issue	Check water pressure and filter
E02	High Pressure	Condenser dirty	Clean condenser coils
E03	Low Pressure	Refrigerant leak	Check for leaks and recharge
E04	Compressor Overload	Electrical issue	Check windings and capacitor
E05	Sensor Fault	Bad sensor	Replace temperature sensor
E06	Communication Error	Wiring issue	Check control board connections
E07	Harvest Timeout	Harvest switch stuck	Check harvest switch operation
E08	Water Leak	Water system leak	Check water connections and seals

9. Parts & Service Procedures

Common Replacement Parts:

Part Number	Description	Price	Replacement Time
WF-001	Water Filter Assembly		15 minutes
HS-500	Harvest Switch		30 minutes
WIV-200	Water Inlet Valve		45 minutes
CB-300	Control Board		1 hour
TS-100	Temperature Sensor		20 minutes
PS-150	Pressure Switch		25 minutes
CP-400	Compressor		4 hours
EV-300	Evaporator		3 hours

10. Maintenance Schedules

Daily Maintenance:

• Check ice production rate
• Inspect for water leaks
• Clean exterior surfaces

Weekly Maintenance:

• Clean condenser coils
• Check water filter condition
• Test all safety switches

Monthly Maintenance:

• Replace water filter
• Clean water distribution system
• Check electrical connections

Quarterly Maintenance:

• Professional service required
• Check refrigerant charge
• Calibrate temperature sensors

11. Wiring Diagrams

Refer to electrical schematic for detailed wiring information.
All electrical work must be performed by licensed electrician.
For technical support: support@myguy.dev

12. Warranty Information

This equipment is covered by a 2-year parts and labor warranty.
Warranty is void if equipment is modified without authorization.
For service: support@myguy.dev