

ICE MAKER DISPENSER - CMP 600-30

Service Manual

Release Date: March 3, 2004

Publication Number: 630460050SER

Revision Date: March 18, 2014

Revision: C

Visit the Cornelius web site at www.cornelius.com for all your Literature needs.

The products, technical information, and instructions contained in this manual are subject to change without notice.

These instructions are not intended to cover all details or variations of the equipment, nor to provide for every possible contingency in the installation, operation or maintenance of this equipment. This manual assumes that the person(s) working on the equipment have been trained and are skilled in working with electrical, plumbing, pneumatic, and mechanical equipment. It is assumed that appropriate safety precautions are taken and that all local safety and construction requirements are being met, in addition to the information contained in this manual.

This Product is warranted only as provided in Cornelius' Commercial Warranty applicable to this Product and is subject to all of the restrictions and limitations contained in the Commercial Warranty.

Cornelius will not be responsible for any repair, replacement or other service required by or loss or damage resulting from any of the following occurrences, including but not limited to, (1) other than normal and proper use and normal service conditions with respect to the Product, (2) improper voltage, (3) inadequate wiring, (4) abuse, (5) accident, (6) alteration, (7) misuse, (8) neglect, (9) unauthorized repair or the failure to utilize suitably qualified and trained persons to perform service and/or repair of the Product, (10) improper cleaning, (11) failure to follow installation, operating, cleaning or maintenance instructions, (12) use of "non-authorized" parts (i.e., parts that are not 100% compatible with the Product) which use voids the entire warranty, (13) Product parts in contact with water or the product dispensed which are adversely impacted by changes in liquid scale or chemical composition.

Contact Information:

To inquire about current revisions of this and other documentation or for assistance with any Cornelius product contact:

www.cornelius-usa.com

800-238-3600

Trademarks and Copyrights:

This document contains proprietary information and it may not be reproduced in any way without permission from Cornelius.

This document contains the original instructions for the unit described.

CORNELIUS INC
101 Regency Drive
Glendale Heights, IL
Tel: + 1 800-238-3600

Printed in U.S.A.

TABLE OF CONTENTS

Safety Instructions	1
Read and Follow ALL Safety Instructions	1
Safety Overview	1
Recognition	1
Different Types of Alerts	1
Safety Tips	1
Qualified Service Personnel	1
Safety Precautions	2
Shipping And Storage	2
Mounting in or on a Counter	2
General Information	3
Specifications	3
Installation Instructions	3
Icemaker Cleaning and Sanitizing Procedures	6
Maintenance	6
Monthly	6
Quarterly	6
Semi-Annually	7
Water Level Control	8
How Water Level Control Works	8
Purpose of Water Level Control	8
To Replace Water Level Control	8
To Replace Water Level Safety Switch	9
Ice Level Control	9
Refrigeration Systems	10
Refrigeration System Adjustments	10
Expansion Valve	10
Adjustment and Troubleshooting	10
Temperature/Pressure Charts*	11
Condenser Modulating Valve	11
Condenser Modulating Valve Removal	12
Gear Motor	12
Troubleshooting	13
Troubleshooting Gear Motors	13
The Gear motor will not run	13
The Gear motor Starts but Trips Repeatedly on the Overload Protector:	13
The Motor Runs but Output Shaft does not Rotate:	13
Overload Check:	13
Motor Check:	14

Installation and Shaft Seal Replacement	14
Auger & Extruding Head Removal	15
Auger & Extruding Head Removal	15
To Replace Bearings	15
Troubleshooting Compressor	16
Electrical Checkout	16
Overload Check	16
Compressor Check	17
Capacitor Check	17
Safety Controls	17
Guide to Good Ice	18

SAFETY INSTRUCTIONS

READ AND FOLLOW ALL SAFETY INSTRUCTIONS

Safety Overview

- Read and follow **ALL SAFETY INSTRUCTIONS** in this manual and any warning/caution labels on the unit (decals, labels or laminated cards).
- Read and understand ALL applicable OSHA (Occupational Safety and Health Administration) safety regulations before operating this unit.

Recognition

Recognize Safety Alerts



This is the safety alert symbol. When you see it in this manual or on the unit, be alert to the potential of personal injury or damage to the unit.

DIFFERENT TYPES OF ALERTS

DANGER:

Indicates an immediate hazardous situation which if not avoided **WILL** result in serious injury, death or equipment damage.

WARNING:

Indicates a potentially hazardous situation which, if not avoided, **COULD** result in serious injury, death, or equipment damage.

CAUTION:

Indicates a potentially hazardous situation which, if not avoided, **MAY** result in minor or moderate injury or equipment damage.

SAFETY TIPS

- Carefully read and follow all safety messages in this manual and safety signs on the unit.
- Keep safety signs in good condition and replace missing or damaged items.
- Learn how to operate the unit and how to use the controls properly.
- **Do not** let anyone operate the unit without proper training. This appliance is **not** intended for use by very young children or infirm persons without supervision. Young children should be supervised to ensure that they do not play with the appliance.
- Keep your unit in proper working condition and do not allow unauthorized modifications to the unit.

QUALIFIED SERVICE PERSONNEL

WARNING:

Only trained and certified electrical, plumbing and refrigeration technicians should service this unit. **ALL WIRING AND PLUMBING MUST CONFORM TO NATIONAL AND LOCAL CODES. FAILURE TO COMPLY COULD RESULT IN SERIOUS INJURY, DEATH OR EQUIPMENT DAMAGE.**

SAFETY PRECAUTIONS

This unit has been specifically designed to provide protection against personal injury. To ensure continued protection observe the following:

WARNING:

Disconnect power to the unit before servicing following all lock out/tag out procedures established by the user. Verify all of the power is off to the unit before any work is performed.

Failure to disconnect the power could result in serious injury, death or equipment damage.

CAUTION:

Always be sure to keep area around the unit clean and free of clutter. Failure to keep this area clean may result in injury or equipment damage.

SHIPPING AND STORAGE

CAUTION:

Before shipping, storing, or relocating the unit, the unit must be sanitized and all sanitizing solution must be drained from the system. A freezing ambient environment will cause residual sanitizing solution or water remaining inside the unit to freeze resulting in damage to internal components.

CAUTION:

Very high discharges pressure is present in system. Quick disconnects on your gages will minimize danger and loss of refrigerant.

CAUTION:

Unit requires separate electrical line. See instruction manual for proper fuse size.

WARNING:

There must be adequate clearance around ice maker. Allow minimum 6" air intake and 4" air exhaust for air exhaust and panel removal.

NOTE: Unit must be installed per local plumbing and electrical codes. See Installation manual for unit requirements. Failure to do so may cause damage to unit, which would void unit warranty.

NOTE: Using any parts other than genuine factory manufactured parts relieves the manufacturer of all liability.

NOTE: Manufacturer reserves the right to change specifications at any time.



GENERAL INFORMATION

SPECIFICATIONS

Model	Cond. Unit	VAC	Hz.	Ph.	Wire	Comp. RLA	Fan Amps	Grmtr Amps	Refrig.		Circuit Fuse
									Oz.	Type	
CMP 600-30A	Air Cooled	115	60	1	2	12	1	2	28	R404A	20

INSTALLATION INSTRUCTIONS

1. REMOVE ICEMAKER FROM CARTON:

- A. Keep unit in the upright position, remove carton and pallet from unit and inspect unit for damage. Upon inspection of unit, if any damage is found, file a claim with carrier immediately.
- B. Locate Startup Card either on outside of container or on plastic liner. Fill in proper information and send one copy to factory, and other copy to Distributor. Postage is prepaid.

2. PREPARATION OF INSTALLATION SITE:

- A. The refrigeration system on air cooled units requires airflow, so a well ventilated area should be chosen. A minimum of (6) inches must be maintained, free of any obstruction, for air intake. A minimum of (4) inches clearance is required for air exhaust.

3. WATER INLET HOOK-UP:

- A. **Water Inlet** – Fitting is a 1/4" SAE male flare located at the left rear bottom of the unit. Connect water supply with a 1/4" or larger copper or flexible tubing.
- B. **Water Pressure** – Unless otherwise specified, the unit is designed to operate on water pressures between 10 P.S.I. and 90 P.S.I. (**NOTE:** for pressures above 90 P.S.I. a regulator must be installed).
- C. **Water Cooled Condensers**
 - Inlet to modulating valve uses 3/8" FPT. Use separate 3/8" or larger water line.
 - Outlet is 3/8" FPT.
- D. **Filters** – Filter/Conditioners are recommended on supply lines to icemakers. Never run the water supply to water cooled Condenser through Filter/Conditioner, it uses up the cartridge unnecessarily and a saturated cartridge can starve the icemaker causing premature component damage. Separate water supplies are recommended.

NOTE: Unit must be installed per local plumbing code.

4. ELECTRICAL SUPPLY:

- A. **Power Access** – Is provided by way of a 7/8" dia. hole in the base. Route incoming power in conduit, to icemaker electrical control box.
- B. Make connections to wires provided in control box and ground lug/screw. Plug unused hole.
- C. **Fused Line** – Should be a dedicated circuit checked and sized according to electrical rating shown on unit nameplate.

NOTE: Unit must be installed per local electrical code.

5. DRAIN CONNECTION:

- A. **Bin Drain** – is a 1" ID flexible tube located at the left bottom rear of the unit. Extend this line to proper drain.
- B. **Overflow Line** – is a 3/8" ID flexible tube located at the left bottom rear of the unit. Extend this line to proper drain.

6. AUGER ENGAGEMENT:

Be certain that auger is fully engaged to lower drive and that extruding head is fully engaged to evaporator.

7. INITIAL START UP, CHECKS & ADJUSTMENT INSTRUCTIONS:

NOTE: Do not start unit before completing Installation steps 1–6.

Turn on water supply and main power switch (located on top of electrical box). Make the following system checks:

NOTE: If unit will not start be sure water reservoir is full. Low water safety control must be properly adjusted to start and shut down unit. If water level drops below bottom of reservoir, unit must shut down. Adjustment is made by moving magnet up or down.

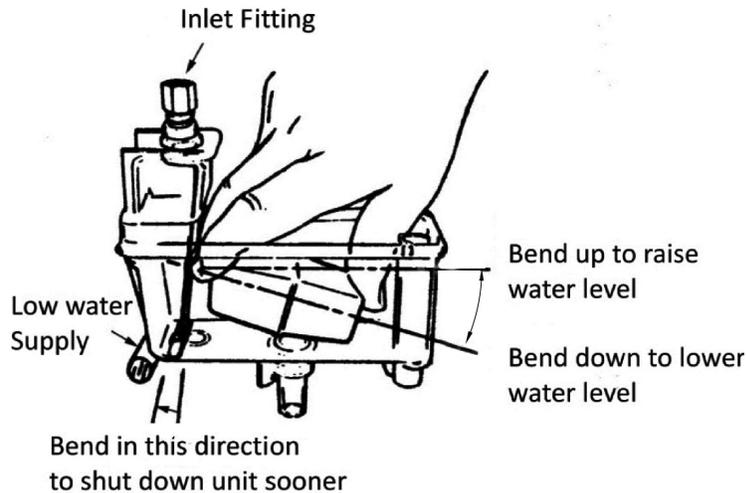


Figure 1. Water Reservoir

Water Level – If necessary adjust Float by bending float arm up or down as needed, push float assembly down until unit stops running. Release float and unit will restart. Keep water in reservoir at level line while unit is in operation. See Figure 1.

Low Water Safety Control – Adjust magnet by bending magnet arm as shown in Figure 1 to shut down unit if the water level drops below the line on the side of the reservoir.

Bin Control – Remove four screws from top of bin cover and lift cover so bin control plate can be manually lifted until unit shuts down. Release plate and unit will restart (**NOTE: the dispense button must be depressed for 45 seconds before unit will start**). Replace screws.

Dispense Switch and Mechanism – By depressing the dispense switch, the dispense mechanism door on the storage bin will open, and agitator will rotate counterclockwise.

NOTE: If any of these checks or adjustments cannot be achieved, refer to Troubleshooting Section of this manual or call our technical support center for assistance.

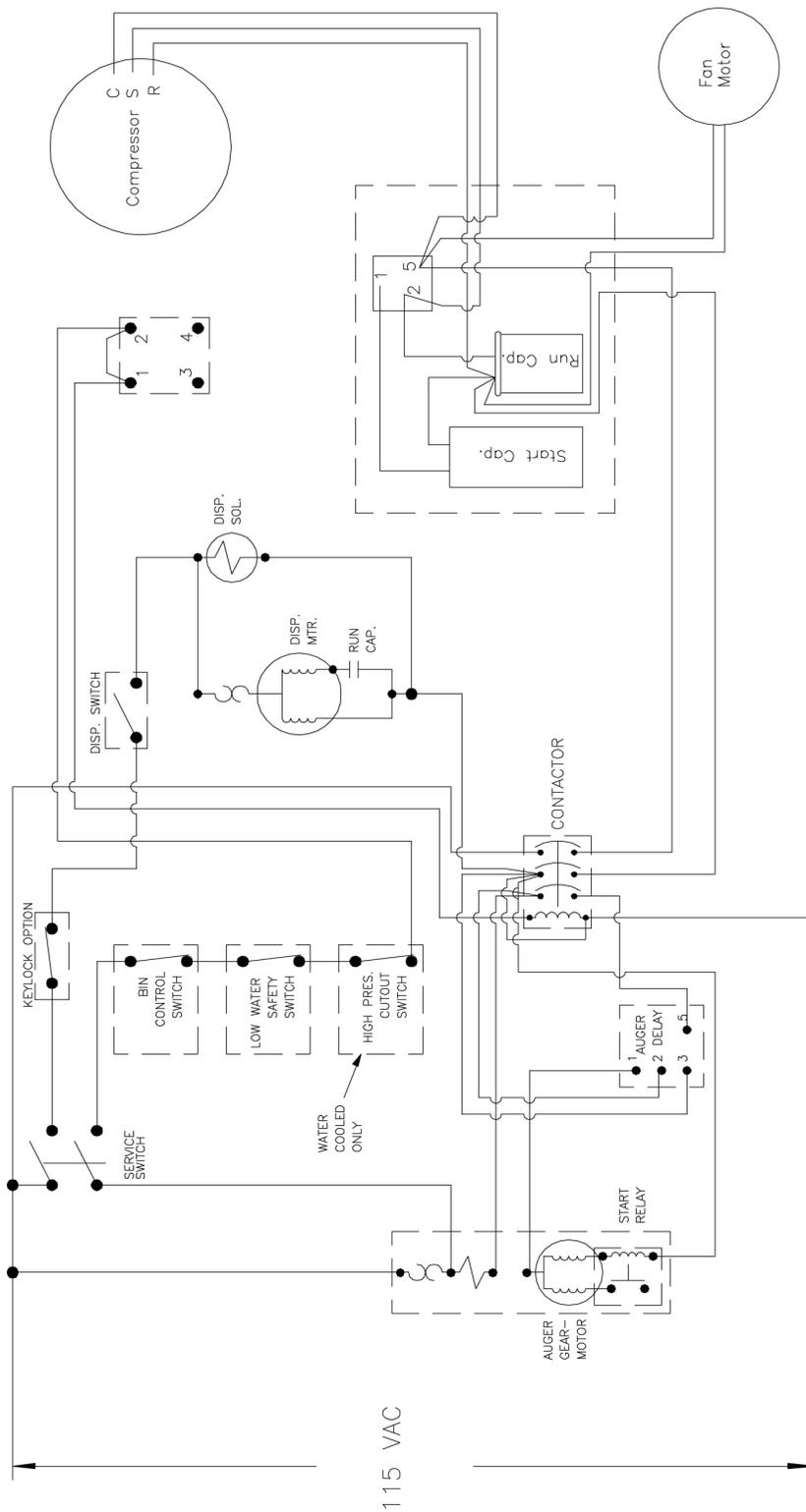


Figure 2. Schematic Diagram

ICEMAKER CLEANING AND SANITIZING PROCEDURES

CAUTION:

Do not use any of the ice made during cleaning operations.

Clean and sanitize ice storage area when cleaning icemaker.

1. Shut off water supply.
2. Remove ice from storage bin.
3. Mix approved cleaner (2 gallons as directed). **Recommended cleaner:** Calgon Corp. or Virginia Chemicals, ice machine cleaner. **Mixture:** 3-1/3 ounces per gallon water. Do not use nickel safe cleaners.
4. Turn machine on and add cleaner solution to water level control (float reservoir) until 2 gallons have been used.
5. Turn on water supply and run machine for 15 minutes.
6. Turn off machine. Remove and discard all ice.
7. Sanitize using household liquid bleach (50 PPM chlorine). **Mixture:** 1 fluid ounce per gallon room temperature water. 2 minute exposure time.
8. Sanitize pre-cleaned inside areas of storage bin liner, door frame, door, as well as exposed surfaces of the evaporator assembly and bin shutoff assembly with sanitizing solution and allow to air dry.

MAINTENANCE

CAUTION:

Preventive Maintenance Can Increase The Trouble Free Life Of Your Ice Maker. Failure To Perform Preventive Maintenance Could Void Your Equipment Warranty.

Many authorized Cornelius Service Agencies offer service contracts. Contact your local distributor for further information.

Monthly

1. Clean the condenser. Use a brush, vacuum cleaner or blow from inside with air or CO2 gas. If unit is provided with an air filter, clean or replace.
2. Inspect water feed reservoir at least once a month until a definite pattern for cleaning and sanitizing has been established.

Quarterly

This is the maximum period of time between cleaning and sanitizing the icemaker. In addition to recommended monthly procedure, and if a more frequent cleaning and sanitizing pattern has not been established, unit must be cleaned and sanitized quarterly.

Semi-Annually

1. Semi-Annually in addition to all previously established service procedures perform the following:
2. Check for water leaks; tube connections, water fillings and lower icemaker water seal.
3. Check drain tubes for clogs and “aged” tubes. Replace if tubes are stained or brittle.
4. Check for signs of condensation. Clean where necessary and replace insulation properly.
5. Check safety circuits for proper operation.
6. Check refrigeration system (see Page 9).
7. Check unit for abnormal noise. Tighten machine and cabinet screws, if necessary.
8. Check white upper bearings on auger assembly. If bearings are less than 1/16” thick, replace See Figure 3.

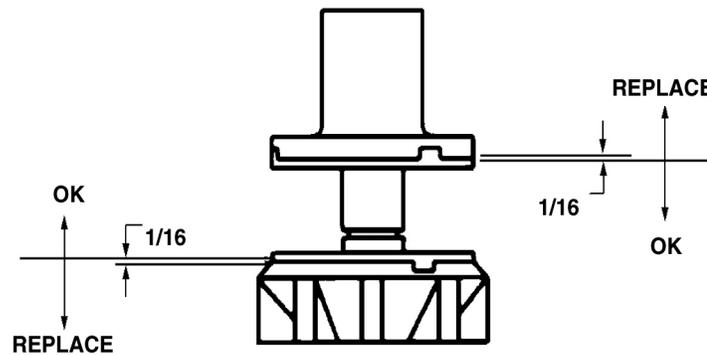


Figure 3. Auger Assembly

WATER LEVEL CONTROL

HOW WATER LEVEL CONTROL WORKS

When water is introduced through the inlet fitting the float rises, the float pushes against a lever that in turn, forces the poppet assembly against the inlet fitting valve seat that seals the water off. See Figure 1. Before the water inlet is sealed, the safety switch is operated. In the event of a water failure the float would drop down and operate the safety switch to shut off the machine.

If water level control will not shut off and seal at level as indicated, be sure inlet pressure does not exceed recommended factory operating range.

Under ordinary circumstances adjustment should not be necessary providing it was properly adjusted when unit was installed or relocated. If however, the control becomes inoperative, repair or replace. See Start-up Adjustment page 7.

PURPOSE OF WATER LEVEL CONTROL

1. To automatically maintain proper water level in the evaporator when the unit is running and making ice.
2. A safety switch is operated in the event of an interruption in water supply. The switch shuts off the electrical power to the icemaker and its refrigeration system. Switch will reset as soon as cause of water failure has been corrected and proper water level in icemaker has again been reached.
3. The transparent bowl not only provides a visible check of water level, but also is a good guide to the internal conditions which exist within the icemaker assembly itself. (See cleaning procedure.)

TO REPLACE WATER LEVEL CONTROL

WARNING:

Disconnect power to the unit before servicing. Follow all lock out/tag out procedures established by the user. Verify all power is off to the unit before performing any work.

Failure to comply could result in serious injury, death or damage to the equipment.

1. Shut off the water supply, unplug the ice dispenser from electrical outlet.
2. Remove the flexible tubing from bottom of water level control and drain water from water level control and evaporator.
3. Remove flexible tubing at bottom of water level bowl connected to the overflow.
4. Hold water inlet fitting with proper tool to prevent it from rotating when disconnecting the water inlet.
5. Remove wing nut holding water control to its mounting bracket. Control can be removed by lifting straight up.

TO REPLACE WATER LEVEL SAFETY SWITCH



WARNING:

Disconnect power to the unit before servicing. Follow all lock out/tag out procedures established by the user. Verify all power is off to the unit before performing any work.

Failure to comply could result in serious injury, death or damage to the equipment.

1. Unplug the ice dispenser from electrical outlet.
2. Unplug Molex connector connecting switch to electrical box.
3. Remove the 2 screws anchoring the water level safety switch to the bottom of the water level control mounting bracket.

ICE LEVEL CONTROL

The ice level control assembly is secured to the top of the ice storage container cover. The cover is secured to the storage container with four screws. The level control switch is operated by a plate assembly located beneath the diaphragm. When the plate assembly is down due to lack of ice in storage container, electrical impulse is sent to compressor, starting the ice making cycle. As ice level increases in storage container, the plate assembly is pushed up. When storage container is full, it deactivate the switch, stopping the compressor and ice making cycle. The operating positions of the switch is fixed, no adjustments are necessary. If switch replacement becomes necessary, simply disconnect cable at connector, remove wires from switch.

REFRIGERATION SYSTEMS

REFRIGERATION SYSTEM ADJUSTMENTS

A complete understanding of the icemaker and hermetic refrigeration system is necessary before any adjustments are made. The refrigeration technician must use high and low side pressure readings, water and air temperatures, plus general conditions of cleanliness to assess the refrigeration system status when making any adjustments.

All icemaker products are tested and adjusted at the factory prior to shipment where the ambient temperature ranges from 65°F to 90°F, depending on the season of the year.

Whenever a new icemaker is initially installed and started-up, it is imperative that the start-up operator make the following checks and readjustments for local conditions.

EXPANSION VALVE

You will find a thermal expansion valve on Wilshire ice makers, which is used to control the amount of refrigerant flowing through the evaporator. Improperly installed or defective expansion valves may cause low production, soft ice, squeaking from evaporator and excessive load inside evaporator.

By using general refrigeration trouble shooting along with the pressure charts, you can easily determine whether or not the expansion valve is working properly.

ADJUSTMENT AND TROUBLESHOOTING

When troubleshooting the expansion valve, you must;

1. Be sure you have adequate water flowing into the evaporator, a clean and properly ventilated condenser, and the system is properly charged and free of any restrictions. Also be sure compressor is operating properly.
2. Take reservoir water temperature and air temperature from condenser inlet and determine at what pressure unit should be running. On machines equipped with thermostatic valve there is NO adjustment. If correct pressure cannot be obtained, be sure system has time to stabilize, 10–15 minutes.
3. Be sure sensing bulb is located at outlet side of evaporator about 3–4 inches away from evaporator and be sure to insulate well and clamp tightly to tubing. If system pressures are still not adequate, take a second water and air temperature reading and go over other parts of the system for possible problems. If proper charge is questionable evacuate and recharge to nameplate and leak check. If valve still malfunctions replace valve.

Use general refrigeration system practices when replacing and recharging unit. After new valve is in place, go through previous monitored adjustments and troubleshooting to be sure valve is functioning properly.

NOTE: On water cooled units adjust condenser modulating valve before troubleshooting expansion valve.

CAUTION:

Very high discharge pressure is present in system. Quick disconnects on your gages will minimize Danger and loss of refrigerant. Comply with federal regulations for reclaiming refrigerant.

TEMPERATURE/PRESSURE CHARTS*

Refrigerant Type R404A		CMP 600-30		
		±10 lb. Discharge Pressure		
		Water Temperature(° F)		
		40	65	90
Air Temperature (°F)	50	174	177	180
	60	202	205	208
	70	230	233	236
	80	265	269	272
	90	300	304	307
	100	328	334	340

NOTE: *The thermostatic expansion valve is non-adjustable on all models

CONDENSER MODULATING VALVE

The reason for using a water modulating valve is to supply the correct amount of water to the condenser to maintain the proper operating pressure in the refrigeration system high side. The flow of water through the valve is increased as the high side pressure rises and decreases as high side pressure lowers.



Figure 4. Adjustment Screw

To calibrate the amount of water flow with the refrigeration system high side pressure, turn adjustment screw located on end of valve opposite of bellows See Figure 4. Turn screw counterclockwise to raise opening point. Opening point of valve should be set to maintain proper operating pressure in refrigeration system high side. Refer to Pressure Chart on Page 10. Closing point of valve should be set low enough to close valve during compressor stand by periods.

NOTE: Cold water will absorb more heat faster than warm water. The water flow will therefore automatically increase as inlet temperature increases.

CONDENSER MODULATING VALVE REMOVAL

WARNING:

Disconnect power to the unit before servicing. Follow all lock out/tag out procedures established by the user. Verify all power is off to the unit before performing any work.

Failure to comply could result in serious injury, death or damage to the equipment.

1. Shut off water supply to condenser and reclaim refrigerant from system.
2. Remove inlet water line from Condenser modulating Valve. Also remove tube from refrigerant high side line.
3. Remove Condenser Modulating Valve and bracket from unit.
4. Remove valve from bracket.
5. Replace Condenser Modulating Valve by reversing Steps 2 thru 4. Then pull system into vacuum.
6. Recharge unit with refrigerant per nameplate.
7. Turn power and water **ON** to unit.
8. With unit running adjust modulating valve to proper setting.
9. Go through a complete system check.

GEAR MOTOR

The gear motor is equipped with a start relay and a manual reset overload. When current is applied, the relay energizes and completes the circuit to the start winding. The motor reaches a predetermined speed and the relay drops out, disconnecting the start winding. The run winding remains in the circuit as long as current is applied.

The purpose of the overload is to automatically shut off the motor in the event of a mechanical bind of the transmission, an overload condition within the evaporator or an electrical malfunction. It does this by sensing amperage draw. If the motor stalls the start relay would energize and stay energized. The amperage would surge to 5 to 6 times greater than normal draw. In this event the overload would shut off the transmission in 4 to 8 seconds.

If the motor is subjected to an abnormal load, but does not reach stall condition, the overload will react, but over a greater period of time. The reaction time depends upon the amperage to which it is subjected.

The overload, through the safety circuit, also shuts off the compressor.

Refer to Troubleshooting Guide.

TROUBLESHOOTING

⚠ WARNING:

Only trained and certified electrical, plumbing and refrigeration technicians should service this unit.

All wiring and plumbing must conform to national and local codes. Failure to comply could result in serious injury, death or equipment damage.

TROUBLESHOOTING GEAR MOTORS

Basically, Gear motor problems can be narrowed down to three areas of checkout.

The Gear motor will not run

1. No voltage to the transmission terminals – check external circuit.
2. Low voltage – check supply.
3. Problems in the gear motor electrical circuit. See Figure 5.

The Gear motor Starts but Trips Repeatedly on the Overload Protector:

1. Voltage – high or low voltage can cause the overload to trip.
2. High Gear motor amperage draw, see Specification Chart for ratings and Troubleshooting Guide.



Figure 5. Output Shaft

The Motor Runs but Output Shaft does not Rotate:

Replace defective gear motor.

⚠ WARNING:

Disconnect power to the unit before servicing. Follow all lock out/tag out procedures established by the user. Verify all power is off to the unit before performing any work.

Failure to comply could result in serious injury, death or damage to the equipment.

OVERLOAD CHECK:

1. Allow motor to cool and reset overload if necessary.
2. Remove motor end bell and stator, if necessary.
3. Check terminals 1 and 3 on overload. No continuity replace overload. Use a volt-ohm meter. See Figure 5 and Figure 6.

MOTOR CHECK:

The resistance readings on the windings will be between 5 to 25 ohms. A meter capable of these low readings must be used. The Start Relay cover must be removed. **NOTE:** Gear motor and related components can be checked from Pin Connector. See Figure 5 and Figure 6.

If no continuity on start or run winding test, replace stator. If continuity on grounded motor test, replace stator.

INSTALLATION AND SHAFT SEAL REPLACEMENT (See Figure 6)

1. Place shaft seal locator seat over gear motor output shaft, embossed side down, and push down until shaft seal seat rests flush on top of gear motor.
2. Place rubber coated ceramic seal (important: ceramic face up) over output shaft and push down until seal rests on top of the shaft seal seat. (Lubricate rubber on ceramic seal with [#06195] rubber lubricant.)
3. Place shaft seal with carbon face down (spring up) over output shaft and push (gently) downward until seal rests on carbon face of the output shaft seal.
4. Push down on the washer compressing the spring on the output shaft seal. While holding the seals (down) in place slide the E-ring into the groove on the output shaft.

AUGER & EXTRUDING HEAD REMOVAL

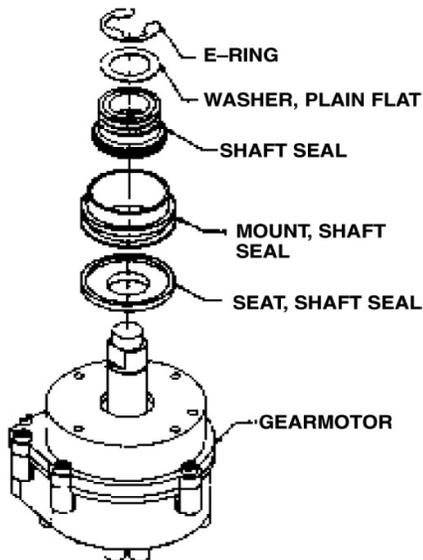


Figure 6. Shaft Seal Replacement

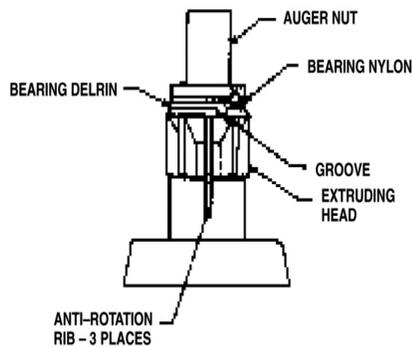


Figure 7. Extruding Head

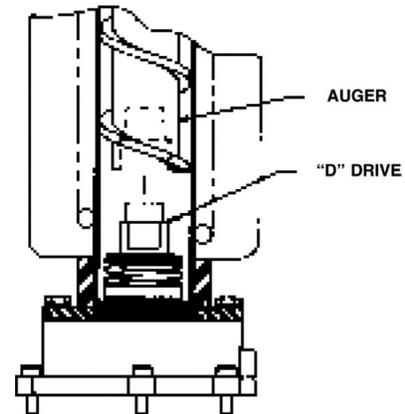


Figure 8. Auger

AUGER & EXTRUDING HEAD REMOVAL

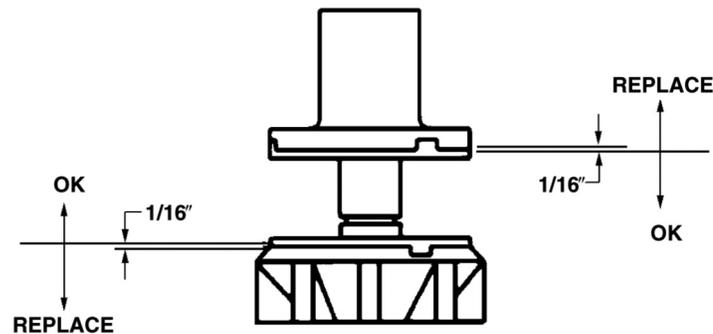


Figure 9. Upper Nut and Bearing

The upper bearings located on top of the auger is used to absorb the force between the auger and extruding head.

The bearings are 3/32" thick. When they wear below 1/16" they should be replaced. Bearings to be inspected for wear during quarterly maintenance. See Figure 9.

TO REPLACE BEARINGS



WARNING:

Disconnect power to the unit before servicing. Follow all lock out/tag out procedures established by the user. Verify all power is off to the unit before performing any work.

Failure to comply could result in serious injury, death or damage to the equipment.

1. Dispense all ice from unit.
2. Remove panels.
3. Unplug Dispense Motor and Ice Level Switch.
4. Remove four screws holding dispense cover in place.
5. Remove dispense cover assembly.
6. Use an open end wrench on auger nut connected to bearing and turn and turn counterclockwise to remove assembly.
7. Remove worn bearings. Replace with new bearings and then reinstall assembly. **NOTE:** If auger turns with nut, remove cover on top of gear motor stator and hold rotor while loosening nut.
8. Reconnect power to icemaker.

TROUBLESHOOTING COMPRESSOR

Basically the compressor problems can be narrowed down to three areas of checkout

1. **THE COMPRESSOR WILL NOT RUN:**
 - A. No voltage to the compressor terminals – check circuit.
 - B. Low voltage – below 90% of nameplate rated voltage.
 - C. Problems in the compressor electrical circuit. See Electrical Checkout instructions.
2. **THE COMPRESSOR STARTS BUT TRIPS REPEATEDLY ON THE OVERLOAD PROTECTOR:**
 - A. Check for proper fan operation and clean condenser.
 - B. Check the compressor suction and discharge pressures.
 - C. Voltage – The voltage should be within 10% of the rated nameplate voltage.
 - D. High compressor amperage draw, it should never exceed 120% of the rated nameplate amperage. See Electrical Checkout Instructions.

3. THE COMPRESSOR RUNS BUT WILL NOT REFRIGERATE:

Check the compressor suction and discharge pressures. See Chart on Page 10.

ELECTRICAL CHECKOUT

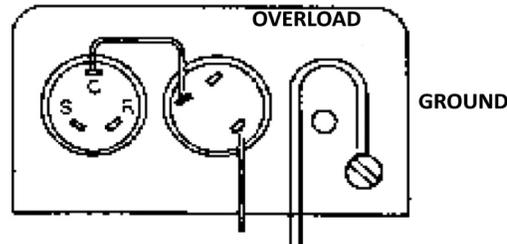


Figure 10. Electrical Box

⚠ WARNING:

Disconnect power to the unit before servicing. Follow all lock out/tag out procedures established by the user. Verify all power is off to the unit before performing any work.

Failure to comply could result in serious injury, death or damage to the equipment.

1. Be sure the unit is disconnected from the power source. Remove the compressor electrical box cover. Check for obvious damage and loose wires.
2. Disconnect the fan motor leads. Since capacitors store energy, short the capacitor with a screwdriver. This will prevent shocks.
3. Disconnect the compressor terminal wires.

OVERLOAD CHECK (See Figure 5)

Using a volt-ohm meter check the continuity across the overload, contacts #1 & #3. If none, wait for unit to cool down and try again. If still no continuity, the overload protector is defective and should be replaced.

COMPRESSOR CHECK (See Figure 10)

The resistance readings on the windings will be between 0.25 and 10.00 ohms, a meter capable of these low readings must be used.-

1. Check between "C" & "R." Replace compressor if there is no continuity as the run windings are open.
2. Check between "C" & "S." Replace the compressor if there is no continuity as the start windings are open.
3. Check between "C" & "R", or "S" and shell of the compressor. If there is continuity replace the compressor as the motor is grounded.
4. Check between screw terminal on the overload and "C" on the compressor. Check and repair the lead or connections if there is no continuity.

CAPACITOR CHECK

1. Check or replace start capacitor, disconnect bleed resistor before checking for shorted capacitor.
2. Check or replace run capacitor (if supplied) check or shorted capacitor or either terminal grounded to case.

SAFETY CONTROLS

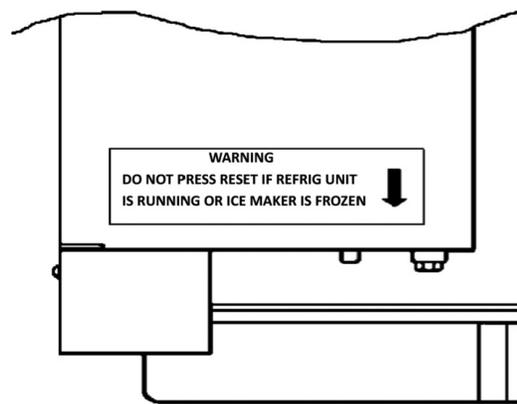


Figure 11. Gear Motor Thermal Overload

Your Icemaker unit has several safety and control devices incorporated into its design.

⚠ WARNING:

None of the below described devices should ever be “bypassed” to allow the unit to function.

The safety and control system shut-off devices are:

1. Low water shut off reed switch located in icemaker float assembly. (Automatic reset type).
2. Gear motor thermal overload, manual reset type (red button on motor). See Figure 11.
3. Compressor thermal overload, automatic reset type.
4. Main service switch located on top of the control box.
5. Hopper shut-off.
6. High pressure cut out (water cooled only).

⚠ WARNING:

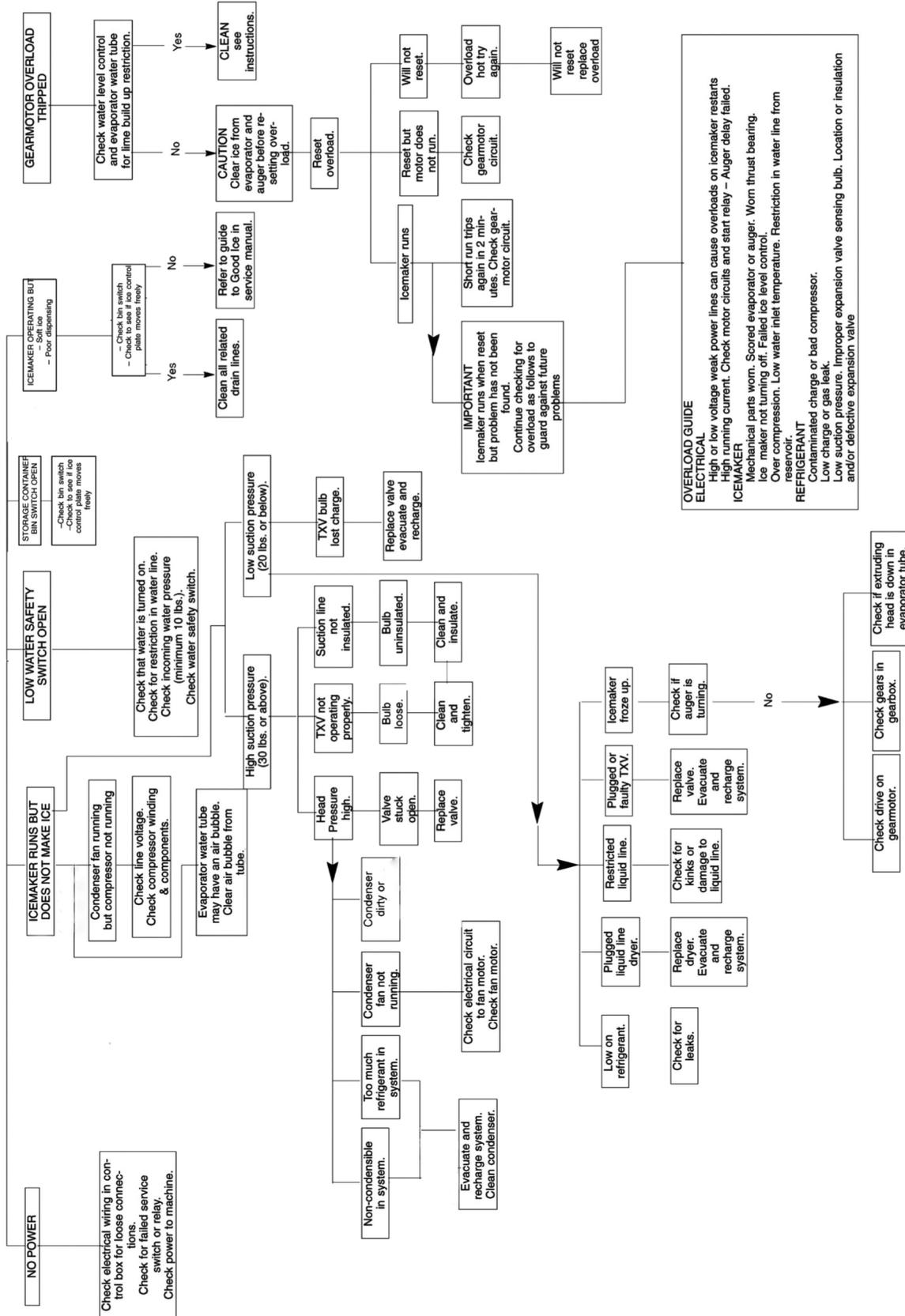
Do not reset gear motor overload if ice is present in the evaporator



GUIDE TO GOOD ICE

Customer Comments	Check Icemaker Location Conditions First	Check Icemaker
<p>It runs but the ice is too soft.</p> <p>The icemaker is not producing enough ice.</p> <p>The ice is too wet.</p>	<p>Under compression</p> <p>Proper air flow for condensing system</p> <p>Location too close to high temp units such as coffee urns, deep fryers, grills etc.</p> <p>Supply water conditions</p> <p>Water too warm (above 90°F)</p> <p>Water artificially softened above 262 PPM sodium chloride.</p> <p>Normal water supply too high.</p>	<p>Use gages for checking suction and head pressures. See manual for correct reading and conditions.</p> <p>Check water level for proper adjustment and restrictions. See Manual.</p> <p>Check evaporator assembly for worn parts, bearings, scored evaporator and, bad expansion valve, etc.</p>
<p>It makes too much noise.</p> <p>(with this comment the ice is usually extremely hard and larger than the normal).</p>	<p>Over Compression</p> <p>Check to see if noise objection objections is normal fan and air flow noise.</p> <p>Water supply conditions.</p> <p>Water too cold (below 50°F) (Possibly running from Pre-cooler).</p>	<p>Obstructions partially blocking ice exit from top of evaporator.</p> <p>Check fan and fan shroud.</p> <p>Check for loose parts and screws rattling.</p> <p>Check evaporator assembly for worn parts, bearings, scored evaporator and auger, bad expansion valve etc.</p>

TROUBLESHOOTING CHART – ICEMAKER NOT OPERATING



OVERLOAD GUIDE
ELECTRICAL
 High or low voltage weak power lines can cause overloads on icemaker restarts
 High running current. Check motor circuits and start relay – Auger delay failed.
ICEMAKER
 Mechanical parts worn. Scored evaporator or auger. Worn thrust bearing.
 Ice maker not turning off. Failed ice level control.
 Over compression. Low water inlet temperature. Restriction in water line from reservoir.
REFRIGERANT
 Contaminated charge or bad compressor.
 Low charge or gas leak.
 Low suction pressure. Improper expansion valve sensing bulb. Location or insulation and/or defective expansion valve

Figure 12. Troubleshooting Chart - IceMaker not working



Cornelius Inc.
www.cornelius.com