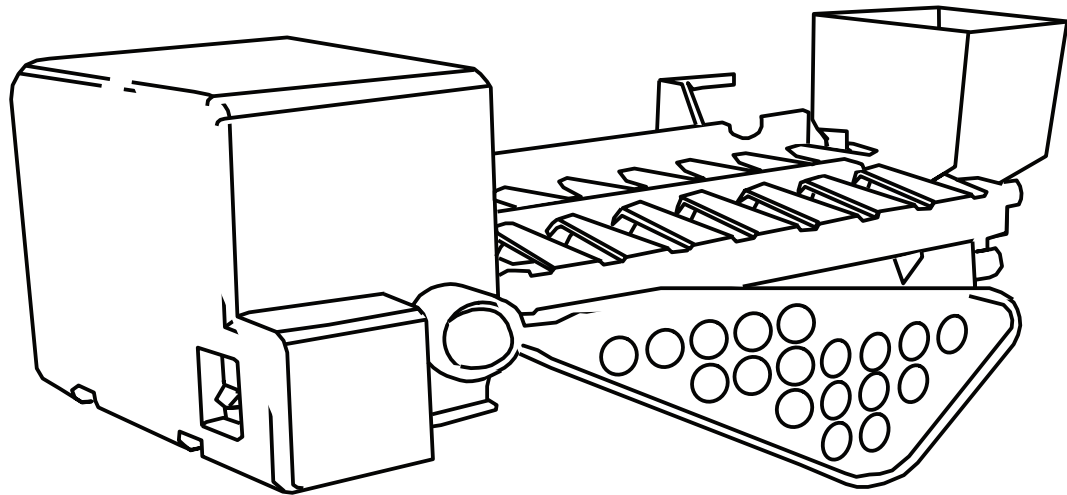




CONSUMER SERVICES TECHNICAL
EDUCATION GROUP PRESENTS

R-106

ICEMAKER FAMILIARIZATION AND TROUBLESHOOTING



TRAINING MANUAL
Part No. 8178689



FORWARD

The following training manual information is provided to make you more knowledgeable about icemaker familiarization and troubleshooting.

Training manual information is designed for the experienced service specialist. It keeps you advised of the most recent improvements and product changes, and allows you to service these products more efficiently.

WHIRLPOOL CORPORATION assumes no responsibility for any repairs made on our products by anyone other than authorized In-Home Service Professionals.

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— NOTES —

Icemaker Familiarization and Troubleshooting

Ice Makers

New Generation Compact – AKA, Mid South used on French Door Refrigerators (Ice-land) Ice and Water in the Door

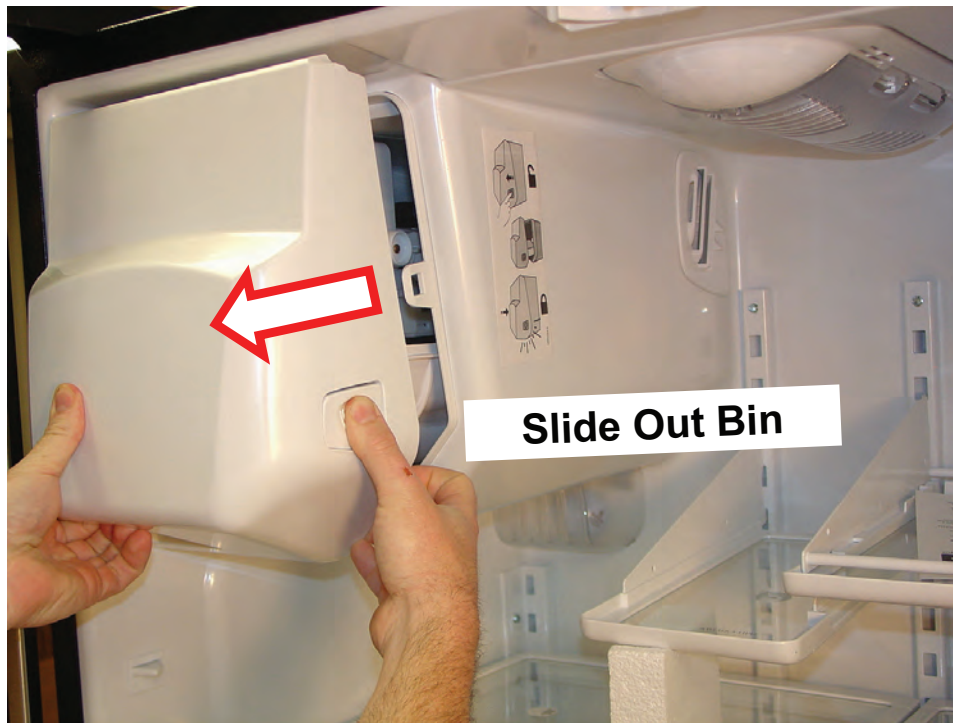
Modular Ice Maker – AKA, Whirlpool used on just about everything else

New Generation Compact Ice Maker French Door Ice2o



Mid-South

Removing Storage Bin and Cover



Mid-South

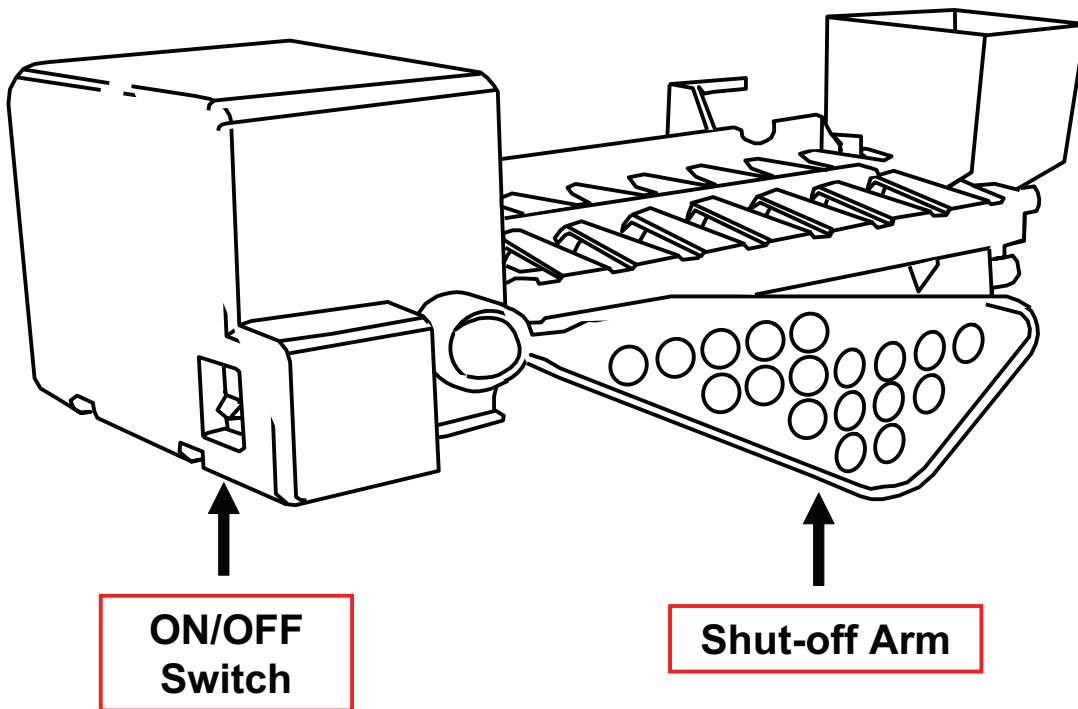
To remove storage bin and cover, with the release button depressed slide out the assembly.

Bin and Cover Removed



Mid-South

With the ice bin removed, the icemaker can be accessed.



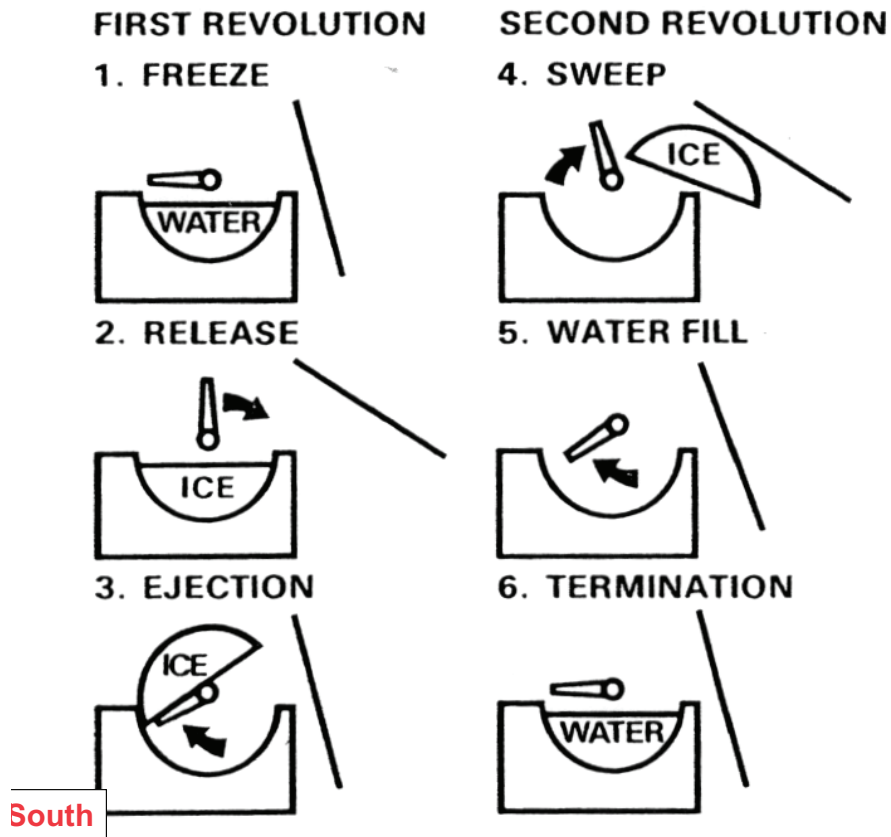
Mid-South

Mid South - This compact design is a variation of previous designs. Operation is identical except for the following:

The metal feeler arm has been replaced with a plastic paddle that moves up and down on a cam.

During the ice ejection cycle, the paddle lifts in the same manner as the feeler arm and automatically turns the icemaker off if it senses that the bucket is full (while on its downward movement).

Operation



Operation

Icemaker Operational Cycle

Both the Compact and the Modular icemakers rely on a combination of electrical and mechanical functions to create and eject ice. The complete ice cycle for the Compact icemaker is described below and is divided into six major functions. The Modular icemaker cycle is also divided into the same six functions but requires only one revolution to complete the ejection of the ice. The six major functions are:

Freeze- Water enters the icemaker and is deposited in an ice mold. While the evaporator fan runs, part of the sub zero air that enters the freezer compartment is directed across the top of the mold. Heat is removed from the water and the water freezes in the mold.

Release- The temperature of the ice continues to drop until a thermostat in the icemaker closes. The thermostat is in contact with the mold and senses the temperature of the mold and, thus, the ice within the mold. Designs vary but the mold temperature must drop to around 15°F before the thermostat closes. This assures that the water is completely frozen before the icemaker attempts to eject the ice. The closing of the thermostat energizes a mold heater and starts the icemaker motor. The purpose of the heater is to raise the temperature of the mold above 32°F.

Eject- With the mold heater energized, the ice in the mold begins to melt, freeing the ice from the mold. At the same time, the icemaker motor turns an ejector blade which lifts the ice out of the mold and dumps it into the ice bucket.

Sweep- The icemaker motor continues to rotate the ejector blade for another revolution. Any ice that might have not ejected during the first sweep will be ejected.

Water fill- At the end of the second revolution, an internal cam in the icemaker energizes a fill switch. The switch turns on the icemaker water valve and water is allowed to enter the icemaker.

Terminate- Once filled with water, the icemaker cycle terminates. The icemaker is now ready to repeat the cycle.

Electrical Operation

Ejector Blade Shut off Arm

Freeze cycle

Immediately after the icemaker fills with water, the freezer air begins to cool the ice mold. Since the mold and water are essentially at the same temperature, the mold thermostat will remain open until the ice and mold reach a predetermined temperature (15°F, ±3°). Notice that the ejector blades are at approximately the 9:00 o'clock position at the start of the cycle. This is known as the "home" position.

Thermostat Closes

When the mold and ice reach the set temperature, the thermostat closes. The mold heater is energized through a parallel circuit which also energizes the motor.

First Three Seconds of Operation

All the while the icemaker is in the freeze cycle, the hold switch contact sits in a notch on the icemaker cam. As soon as the motor begins to rotate the cam, the hold switch contacts transfer and the switch closes. The hold switch contacts remain in this position until the cam has traveled a full 360° and the switch contact falls into the notch again.

At the same time, the feeler arm begins to raise. Since the shut-off switch is mechanically coupled to the feeler arm, movement of the arm causes the shut-off switch contacts to transfer. The transfer of both these switches creates a parallel current path for the mold heater and the icemaker motor. The heater begins to thaw the ice in the mold and the motor advances the ejector blades until they come in contact with the ice.

Blade Contacts Ice

Upon contacting the ice, the motor stalls since the mold heater has not had sufficient time to melt the ice enough to free it from the mold. The heater continues to warm the mold until the ice is free and the blades can dislodge the ice and continue their sweep.

Once free of the mold, the ice loosens and the blades resume their rotation towards the home position (9:00 o'clock). The ice is ejected.

Water Switch Closes

Just before the blades reach their home position, the cam closes the water fill switch for approximately 7 seconds. Since the thermostat has not yet opened and is shunting the water valve solenoid, the water valve doesn't open at this time.

Start of the Second Revolution

Once the cam reaches the home position, the hold switch momentarily goes back to its normally closed position. While the mold has heated sufficiently to loosen the ice, the mold has not yet reached the temperature required to open the mold thermostat. The motor and heater continue to operate through the closed thermostat.

After Three Seconds (Second Revolution)

Just as before, the cam continues its rotation and the hold switch contacts transfer to the normally open position. The feeler arm begins to raise. The shut-off switch contacts transfer and the ejector blades resume their sweep.

If the bucket is full, the feeler arm will come to rest on top of the ice and prevent the shut-off switch from resetting. This will keep the icemaker from producing any more ice until the customer removes some of the ice from the bucket.

Thermostat Opens

Some time during the second revolution, the mold warms enough to open the thermostat and the heater is taken out of the circuit. The motor continues to get its power through the normally open contacts of the hold switch.

Water Switch Closes

Just before the cam returns to the home position, the water switch is closed for the second time. This time, the thermostat is open, eliminating the shunt to the water valve. The water valve is energized for about 7 seconds. Current path for the valve is from L1, through the heater and water switch.

Back to the Freeze Cycle

Once the motor advances the cam back to its home position, the hold and shut-off switches transfer back to their normal positions and the icemaker is now ready for the next freeze cycle. Once the mold gets down to temperature, the icemaker thermostat closes and the ice harvest cycle repeats.

Water Fill Adjustment

Many of compact icemakers used today are equipped with a water fill adjustment. Turning the fill adjustment screw changes the alignment between the cam and switch and alters the amount of time the fill switch is energized. One full turn of the screw in either direction changes the fill ± 20 cc's (approximate).

Manual Cycle Initiation

As we learned, the icemaker ejection cycle is initiated by the thermostat. If, however, the icemaker is not ejecting, it will be necessary to manually initiate an ice ejection cycle.

After removing the front cover, turn the motor shaft (small gear) $\frac{1}{2}$ turn in the counter-clockwise direction. This will rotate the cam enough to transfer the hold switch and provide power to the motor. If the thermostat is closed at this time, the heater will likewise be energized and the icemaker will complete the cycle.

After manual initiation, carefully feel the bottom of the mold. It should begin to heat. If it doesn't, either the thermostat has not yet closed or the heater is open.

Before manually initiating a cycle, check the position of the ejector arm. Assuming the problem is in the icemaker, the position of the ejector arm will give you an indication of the failed component.

If the ejector blades are still in the home position (9 o'clock) the thermostat is most likely at fault.

If the ejector blades stopped between the 9 and 10 o'clock positions, the hold switch is most likely at fault.

An ejector at the 4 o'clock position normally indicates an open heater.

Any position other than the 9 or 4 o'clock positions may indicate motor problems or broken, stripped or missing parts in the housing.

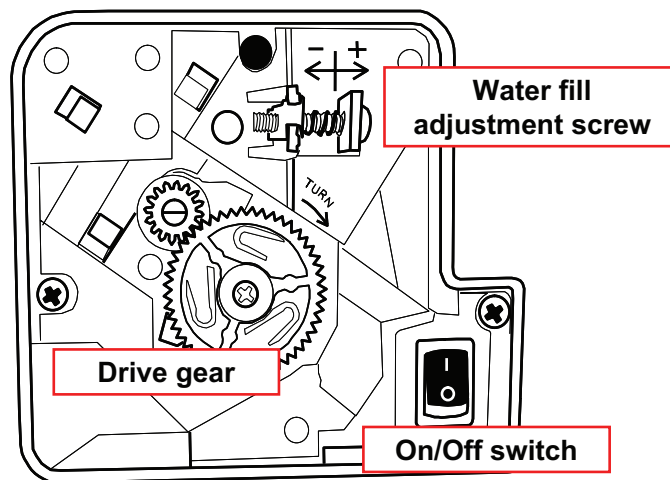
Removing Cover



Mid-South

Remove one screw to remove front cover.

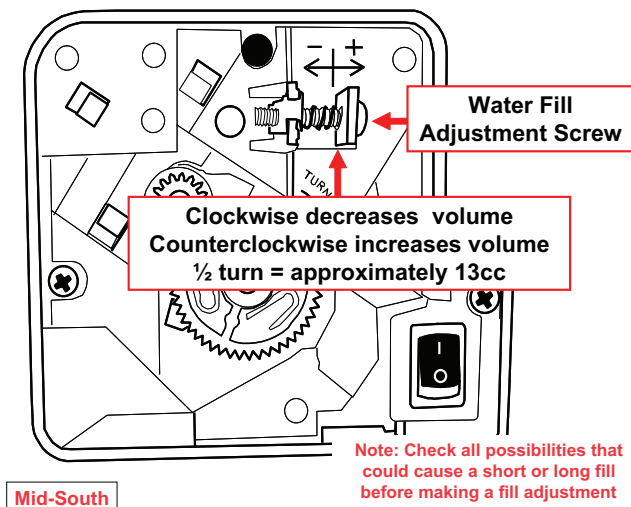
Cover Removed



Mid-South

With the cover removed the drive gear and water fill adjustment screw are accessible.

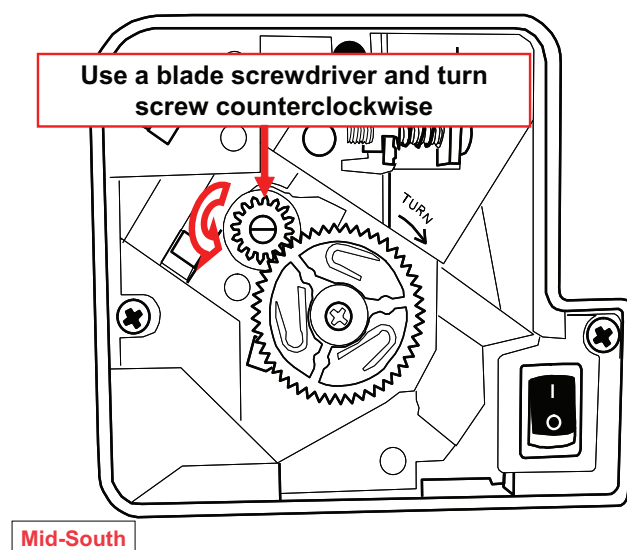
Water Fill Adjustment



Water Fill Adjustment

Many of compact icemakers used today are equipped with a water fill adjustment. Turning the fill adjustment screw changes the alignment between the cam and switch and alters the amount of time the fill switch is energized. One full turn of the screw in either direction changes the fill ± 13 cc's (approximate).

To Start a Harvest Cycle



Manual Cycle Initiation

The icemaker ejection cycle is initiated by the thermostat. If, however, the icemaker is not ejecting, it will be necessary to manually initiate an ice ejection cycle.

After removing the front cover, turn the motor shaft (small gear) $\frac{1}{2}$ turn in the counterclockwise direction. This will rotate the cam enough to transfer the hold switch and provide power to the motor. If the thermostat is closed at this time, the heater will likewise be energized and the icemaker will complete the cycle.

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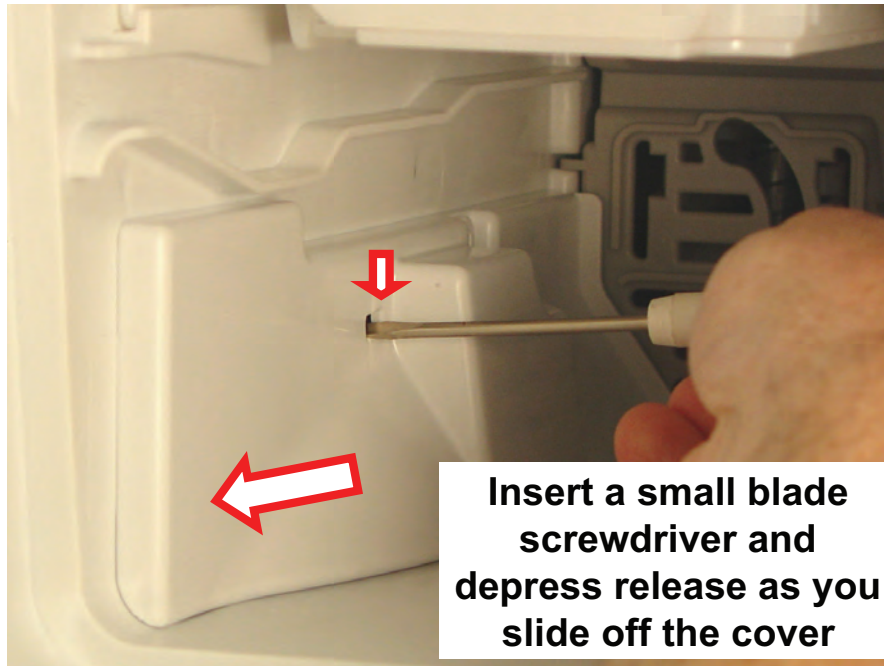
Any position other than the 9 or 4 o'clock positions may indicate motor problems or broken, stripped or missing parts in the housing.

Starting A Harvest Cycle



To begin harvest turn drive gear counterclockwise – do not use ejector blade to start cycle.

Releasing Wire Harness Cover



Mid-South

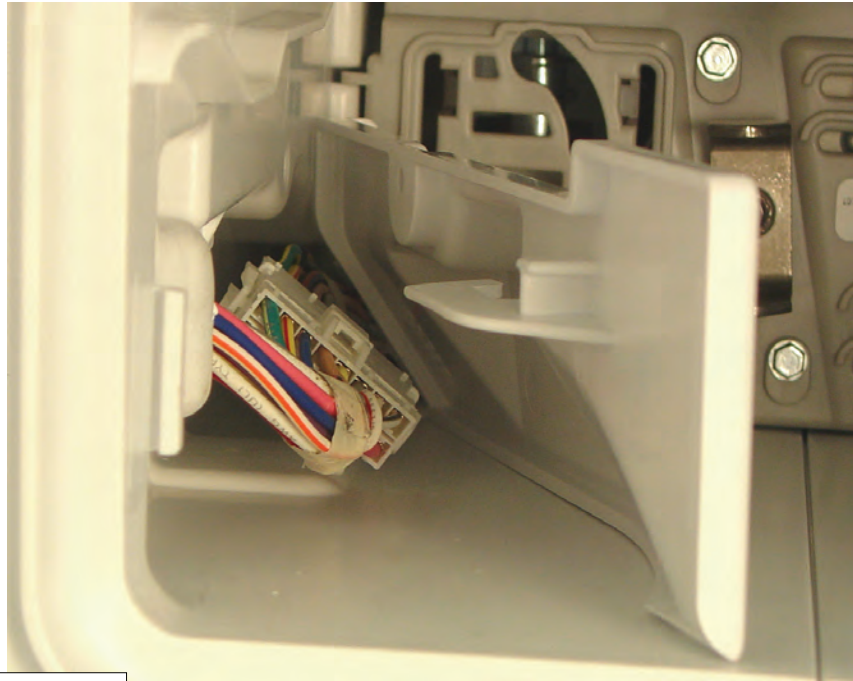
To remove the ice maker, begin by removing the wire harness cover. This is accomplished by using a small blade screwdriver to depress the “hidden” catch that secures the cover to the cabinet. With the release depressed, pull the cover forward and away from cabinet wall.

Cover Release



Mid-South

Removing Icemaker



Mid-South

Removing the cover exposes the icemaker wiring harness.

Disconnect Electrical



Mid-South

Disconnect the icemaker wiring harness.

Slide Out Assembly



With the harness disconnected, the icemaker can be removed, there is enough harness available to connect the icemaker when removed from the cabinet to initiate a water fill or harvest if necessary.

Whirlpool Modular Ice Maker

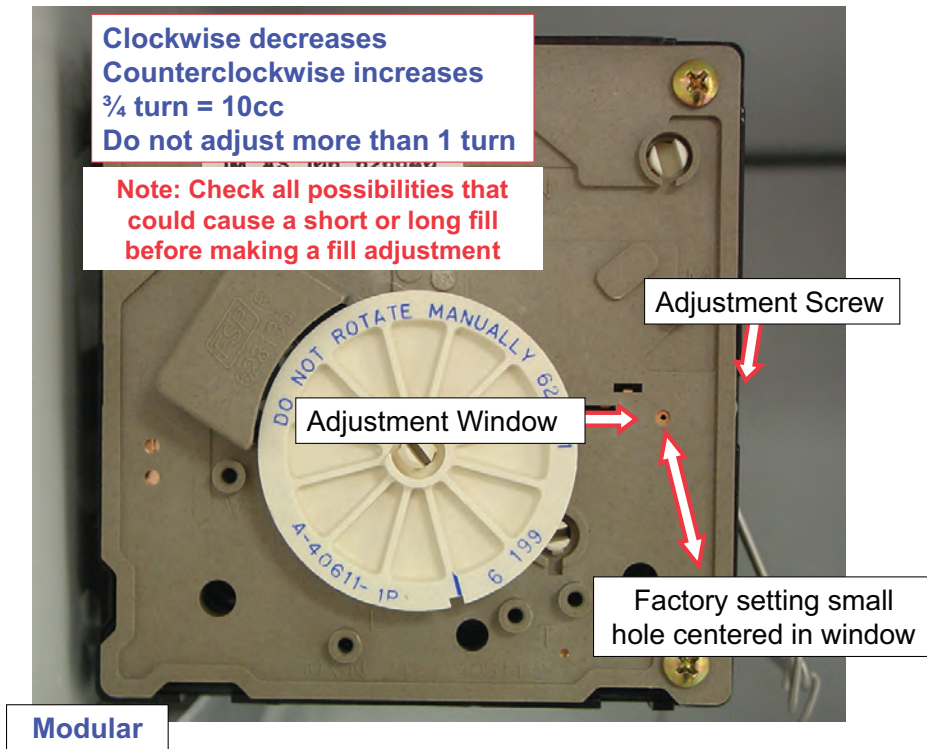
Modular Ice Maker



Whirlpool Modular Ice Maker –

The front cover pops off, a bladed screwdriver may be necessary to release cover.

Water Adjustment

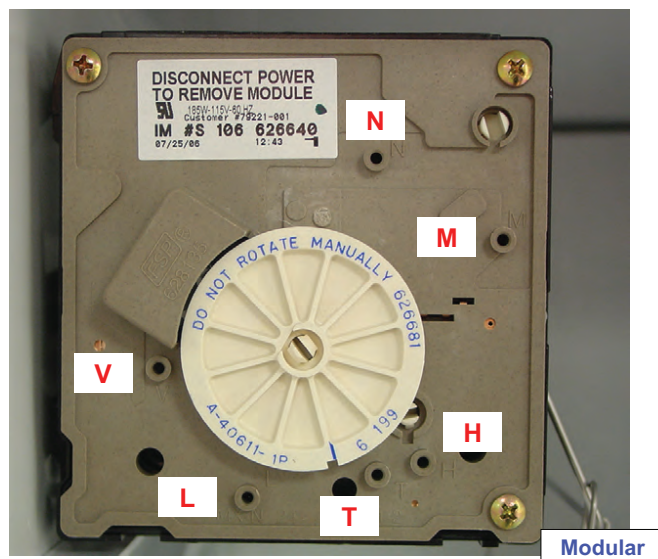


Water Fill Adjustment

The fill level is adjustable by turning a screw (or knob on some models) on the side of the icemaker module. Turning the screw clockwise reduces the fill; turning the screw counter-clockwise will increase the fill.

Do not turn the screw (or knob) more than one full revolution in either direction or damage to module could occur!

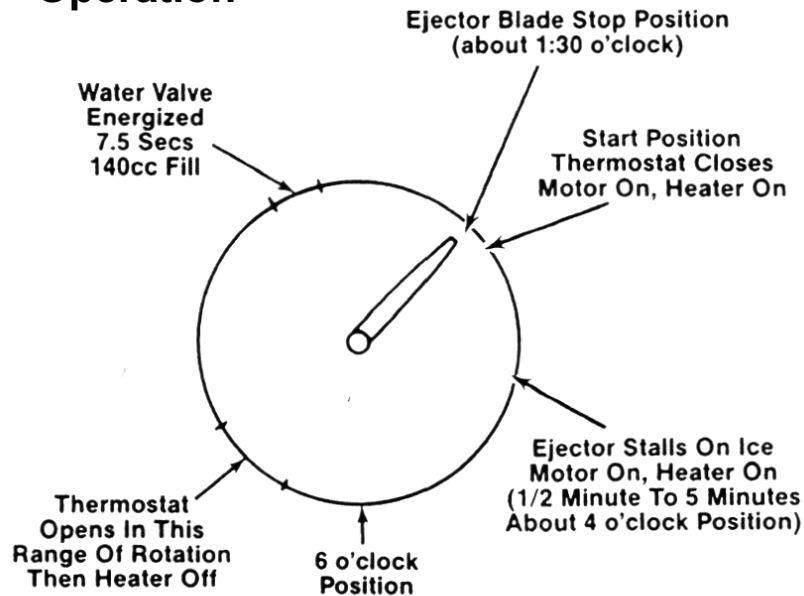
Test Points



There are test points identified by embossments on the front.

Modular Ice Maker

Operation



Modular

Switching

Switching in the modular icemaker is accomplished by wiper contacts which ride on copper strips located behind the drive gear. As the gear rotates, the wiper contacts open and close the circuit to the individual components.

The Modular Icemaker Cycle

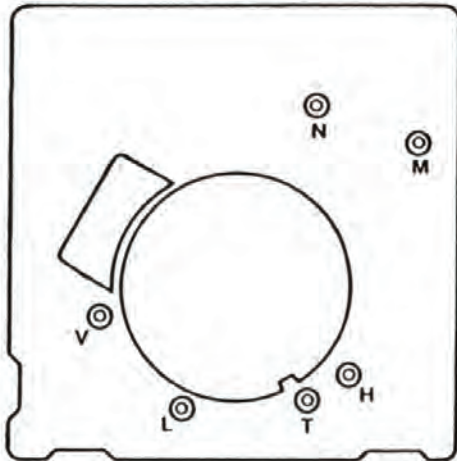
As with the Compact Icemaker, harvesting of the ice is initiated with the closing of the thermostat. The motor and heater are energized, the feeler arm raises and the ejector blades rotate until they come in contact with the ice (about the 4 o'clock position). The motor stalls until the heater frees the ice from the mold.

Once the ice is dislodged from the mold, the ejector arm continues its sweep. Between the 7 and 8 o'clock positions, the thermostat opens.

When the ejector blades reach the 10:30 position, the ice dumps into the bucket. As with the compact icemaker, the feeler arm will turn off the icemaker if it comes in contact with ice on its way back down.

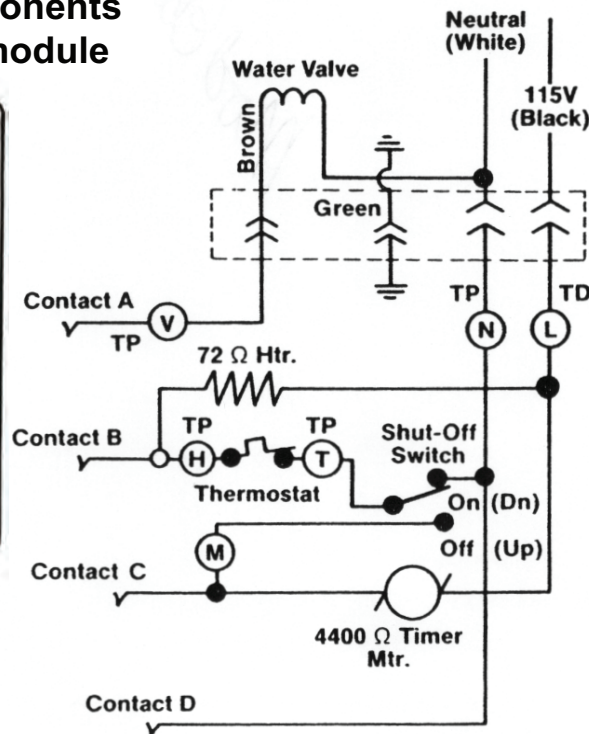
Resistance Checking

A resistance check can be performed on all components from the front of the module



Test points
(cover removed)

Modular



Resistance Checking of Components

The icemaker components can also be resistance checked through the front of the module.

Inserting the ohmmeter leads between test points L and H will check the resistance of the heater (72 ohms, $\pm 10\%$)

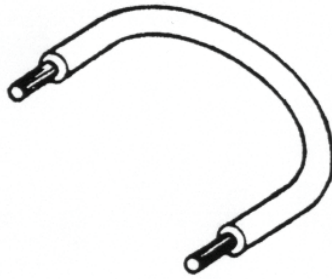
Inserting the leads between L and M will check the motor resistance (approximately 4400 ohms)

Test points V and N will check the resistance of the water valve coil (approximately 300 ohms). This check is especially helpful since it allows you to check the continuity of the water valve without having to pull the refrigerator away from the wall.

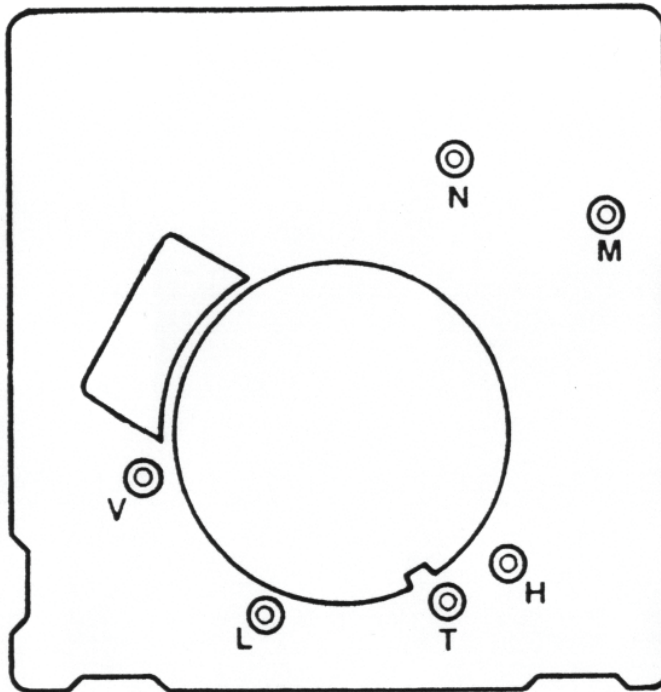
The refrigerator must be unplugged from source voltage before any resistance readings can be attempted. A resistance check can be performed on all components from the front of the module

Jumper Wire

A jumper wire can be used to start a harvest cycle or energize specific electrical loads

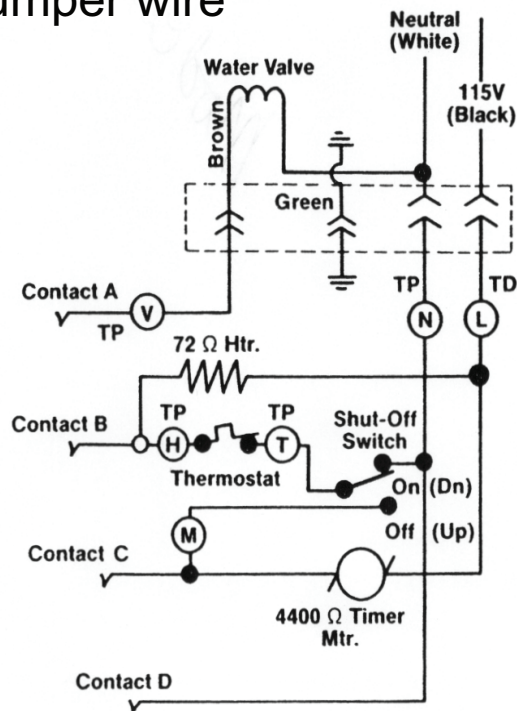


14 gauge wire



Energizing components using a jumper wire

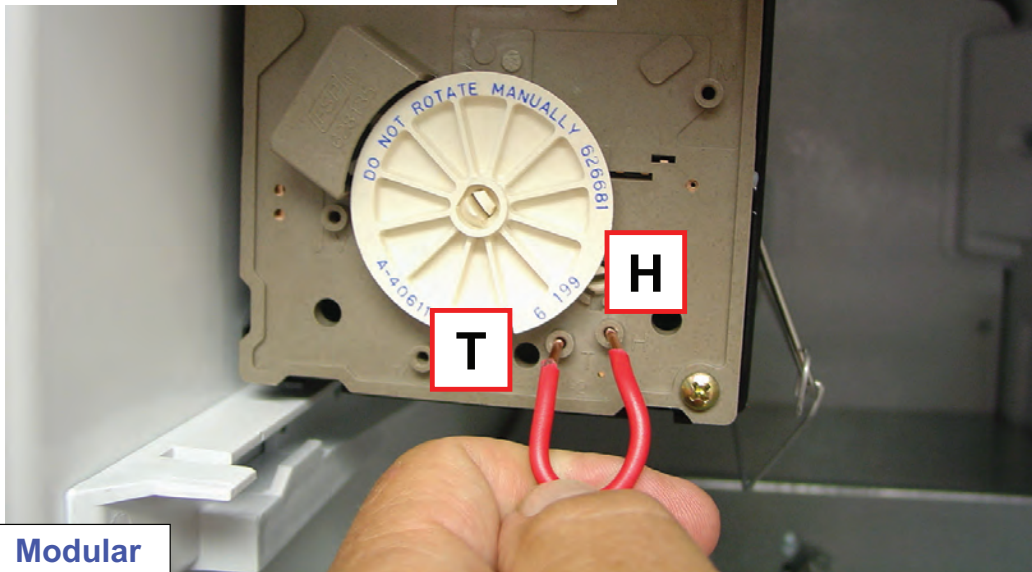
Thermostat - T to H
Starts Harvest Cycle
 Timer Motor - M to N
 Water Valve - L to V
 Heater - H to N



Modular

Initiating a Harvest Cycle

Jump Across T and H Remove jumper after about 3 seconds, before the blades reach the 10 o'clock position



Initiating a Test Cycle

Removing the front cover of the icemaker will expose the test points on the module. These test points can be used to test components and to initiate an ice harvest cycle. Checking between test points L and N with a Voltmeter set to the appropriate AC scale will confirm the presence of 120 VAC to the icemaker. If the source voltage is present and the ice is down to temperature, the icemaker should be cycling.

If the icemaker fails to initialize the harvest, a jumper wire (made from a short piece of 14 gauge electrical wire that has been stripped back ½ inch on both ends) can be used to start the cycle. Inserting the jumper between contacts T and H will simulate the closing of the thermostat and will energize the timer motor and the heater. Remove the jumper after 3 seconds. The icemaker should continue to run without the jumper in place.

If the jumper is not removed prior to the ejector blades reaching the 10:00 o'clock position, the water valve will not energize.

Rotating the ejector blades or drive gears manually will destroy the module assembly. Always use the jumper to cycle the icemaker.

Never jump any test points other than those specified.

If the icemaker starts when the jumper is inserted, the thermostat is defective. If the icemaker doesn't start and there is power to the unit, the problem is in the module. In either case, replace the icemaker. Jump Across T and H Remove jumper after about 3 seconds, before the blades reach the 10 o'clock position.

Troubleshooting

- No Ice Production
- Low Ice Production

Most Common Problems:

- Bail Arm in off position
- No water or Insufficient water charge

Diagnosis of any icemaker begins with a visual inspection of the entire ice making system.

Check under the refrigerator. Water on the floor indicates a leak at the water valve or connections and could contribute to no ice or small ice.

Check the freezer temperature. Temperature is critical to the operation of any icemaker. If the freezer temperature is too warm (above 3°F), the icemaker will fail to cycle as often as it should and the customer may complain of low ice production. Too cold a temperature (below -3°F) may cause ice cubes to crack or ice shells (hollow ice) to form (caused by harvesting the ice before the water is totally frozen).

Check icemaker connections. Poor contact between the icemaker harness and the icemaker could cause intermittent operation or a complete interruption of ice production.

Check for ice cubes out of bucket. Cubes not in the ice bucket could indicate a bent feeler arm or an inoperative shut-off switch.

Examine the ice. Over or undersized cubes indicate incorrect water fill quantities. Partially frozen cubes (liquid centers) indicate premature cycling. Fused cubes normally indicate that the freezer temperature has climbed above 32 °F for some time. This allows the ice to melt. Upon refreezing, the ice cubes are fused together. Ice sheeting (over filling of the mold) could be caused by too long a fill or the water valve not closing completely.

Check the fill tube and fill cup. Ice in the fill tube may indicate that the water valve is not closing fully (weeping).

Check for water or ice in the mold. Too low a level may indicate improper water fill due to plugged or restricted water lines.

Examine the ejector. The ejector should be at the “home” position (9 o’clock position for the Compact Icemaker or the 1:30 position for the Modular icemaker). An ejector at any position other than “home” indicates that the icemaker started but was unable to complete the ejection cycle

Compact icemaker:

If the ejector is at the 9 o'clock position and the freezer and ice are down to the required temperature but the icemaker won't advance into a harvest cycle, the thermostat is at fault.

If the freezer and ice are down to temperature but the ejector has not advanced much past the 9 o'clock position, the hold switch is not making.

An ejector stopped at the 4 o'clock position indicates an open heater or defective heater circuit.

An ejector stopped at any position other than 9 or 4 o'clock may indicate motor problems, stripped gears or broken or missing parts.

Modular Icemaker

If the ejector is at the 1:30 o'clock position and the freezer and ice are down to the required temperature but the icemaker won't advance into a harvest cycle, the thermostat is at fault.

An ejector stalled at the 4 o'clock position indicates heater circuit problems.

An ejector stopped at any position other than 1:30 or 4 o'clock may indicate motor problems or bad wiper contacts on the icemaker gear.

Check the feeler arm. The arm should move freely and a click should be heard when the arm is moved to its upper most position. A binding arm can cause the motor to stall. A bent or distorted arm can cause the ice bucket to overflow or prematurely turn the icemaker off before the bucket is full.

Troubleshoot system. Once the visual inspection is completed, verify your diagnosis before replacing the icemaker.

Whirlpool Ice Production

Whirlpool manufactured refrigerators:

- 8 or 5 cubes per harvest depending on style of ice maker
- Average time of ice production...
- **In-Door-Ice** ~1 hr, 10 min, roughly 22 harvests in a 24 hour period - 192 cubes
- **Side-by-Side** ~ 1 hr, 45 min (22 c.f. is faster than the 25 c.f.), roughly 16 harvest in a 24 hour period - 128 cubes
- **Top Mount** ~ 2 hours, roughly 12 harvests in a 24 hour period - 96 cubes

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In-Door-Ice ~1 hr, 10 min, roughly 22 harvests in a 24 hour period - 192 cubes

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Top Mount ~ 2 hours, roughly 12 harvests in a 24 hour period - 96 cubes

Amana Iceland Refrigerators

Average time of ice production:

- **New Generation Compact (Mid South)**
~ 1 harvest per hour (22+ per day). ~ 176 cubes
- **Modular (Whirlpool)** ~ 1 harvest per 50 minutes
(26+ per day). ~ 208 cubes

Reason: The faster ice rate with the Whirlpool icemaker is due to the new centrifugal blower system that will be incorporated at the same time the Whirlpool IM is implemented.

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Low Ice Production

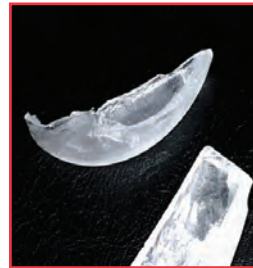
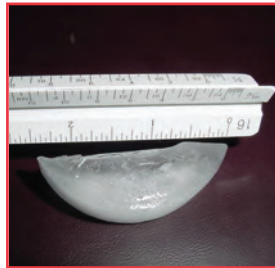
- *Step 1: Check Freezer temperature (optimal 0°F, ±3°F)*
 - Adjust Freezer temperature as needed
 - Lower Temp for More Ice

Note: The average temperature of the Iceland ice maker compartment is 15 degrees F. (The set point of the ice maker compartment is 25 degrees if the icemaker switch is turned "off").

Step 1: Check Freezer temperature (optimal 0°F, ±3°F)
Adjust Freezer temperature as needed
Lower Temp for More Ice

Note: The average temperature of the Iceland ice maker compartment is 15 degrees F. (The set point of the ice maker compartment is 25 degrees if the icemaker switch is turned "off").

- *Step 2: Check size and quality of cubes*



- If undersized, check and diagnose water supply
 - Plugged screen on water valve?
 - Frozen or partially plugged fill tube?
 - Water pressure too low?
 - Refrigerator hooked up to Reverse Osmosis filter?
 - Water supply hooked up to Self-Piercing water valve?

Is enough water being supplied to the icemaker?

Small or undersized cubes are usually an indication that there's not enough water entering the icemaker. Cubes should all be about the same size (between 2³/₈ and 2⁵/₈ in length).

If the cubes vary in size, insure that the refrigerator is leveled properly. Uneven cubes may be caused by either the front of the icemaker being higher or lower than the back and most of the water collecting at the low end of the icemaker. Leveling the refrigerator will cure the problem.

If all the cubes are the same size but smaller than they should be, check for one of the following:

Kinked or crushed water line- Has the customer moved the refrigerator lately to clean under it? If so, it's possible that when the unit was pushed back the refrigerator rolled over the water line and kinked it.

Plugged filter- Most water filters are designed to be replaced about every six months or after filtering about 400 gallons of water (newer models are rated for 1 year or 800 gallons). Under certain water conditions, however, the filter may need replacement sooner than recommended. If the customer fails to change the filter at the required time, or if the filter is exposed to very harsh water conditions, the filter may get plugged.

If the refrigerator has a water dispenser, a quick way to check water volume is to dispense water into an 8 oz. glass. It should take 15 seconds or less to fill the glass. If this test fails, remove the filter and repeat the test with filter bypass in place. If the glass now fills in the correct time, the filter is plugged. If not, the problem is elsewhere in the water supply.

Plugged filter screen on water valve- Repair of a broken water main in the area may have introduced excessive debris (mud, sand) into the water. Water valves come equipped with a mesh screen at the inlet to prevent debris from entering the valve. If enough debris is introduced into the water, the screen could plug and reduce the water flow to the icemaker.

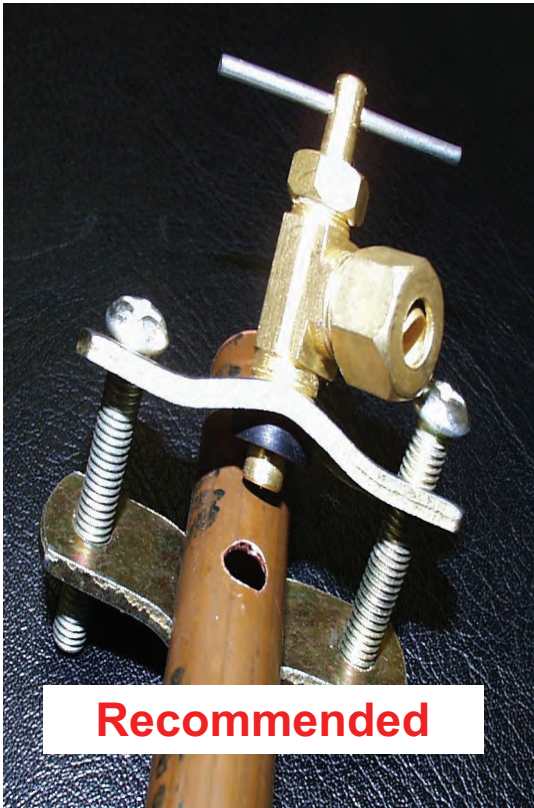
The refrigerator is hooked up to a Reverse Osmosis filter- With America's growing obsession for clean water, consumers are installing reverse osmosis (RO) filters in their homes. In a RO filter, water is forced through a membrane which traps all the impurities in the water. On the other side of the membrane, the water is free of minerals and chemicals and is as close to pure water as you can get without distilling.

The purified water is stored in a small tank. Typically, the output of the tank is coupled to special drinking water faucets in kitchens and bathrooms. Sometimes customers hook them up to their refrigerators in hopes of getting better tasting water and ice. The problem is that the RO process results in a significant reduction in water pressure and the pressure supplied to refrigerator could drop below the minimum requirements for the water valve to operate properly.

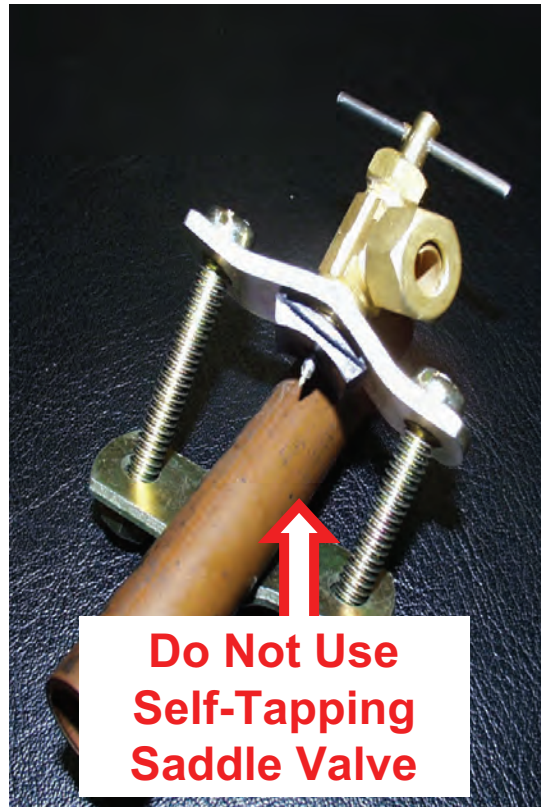
Solenoid operated water valves will operate properly within a pressure range of 20-120 PSI. Because the valve uses water pressure to help close it pressures below 20 PSI (30 PSI on filtered systems) could cause the valve to not close fully and allow water to seep into the icemaker.

Likewise, pressures above 120 PSI could prevent the valve from opening. Water pressure checks should be made while the system is under load. Take a static water pressure reading and, with the pressure gauge still in place, open a couple of faucets in the home. It's not uncommon for the static water pressure to be well above the minimum but drop below 20 PSI when the demand on the supply increases. hollow cubes indicate low water fill or defective thermostat

Saddle Valves



Drill Type Saddle Valve



Self Tapping Water Valve

Excessive mineral deposit build up at the saddle valve shut-off- Most icemaker water installations are done with a clamp-on saddle valve. Two types of saddle valves are available to installers and consumers:

The drill type saddle valve requires that the installer or consumer drill a hole in the water pipe before the valve is installed.

The second type, the self piercing saddle valve, requires no drilling and is the valve of choice for most consumers. The consumer clamps the valve around the pipe, tightens the valve down and turns the "T" shaped shut-off handle until the needle in the valve pierces the tubing.

The ease of installation of these valves unfortunately makes them very popular, even with professional installers. Because of the needle of a self-piercing valves is relatively narrow, the hole created by these self-tapping valves is much smaller than the drilled hole. Thus, the self piercing valve is more prone to plugging and should not be used in icemaker installations.

Checking Water Charge

- Remove Icemaker from mounting but leave connected to harness
- Start a Harvest Cycle
- Catch fill water in baby bottle

**Correct Water Charge ranges from
113 cc/ml. to 151 cc/ml.
(Approx 4 to 5 Ounces)**

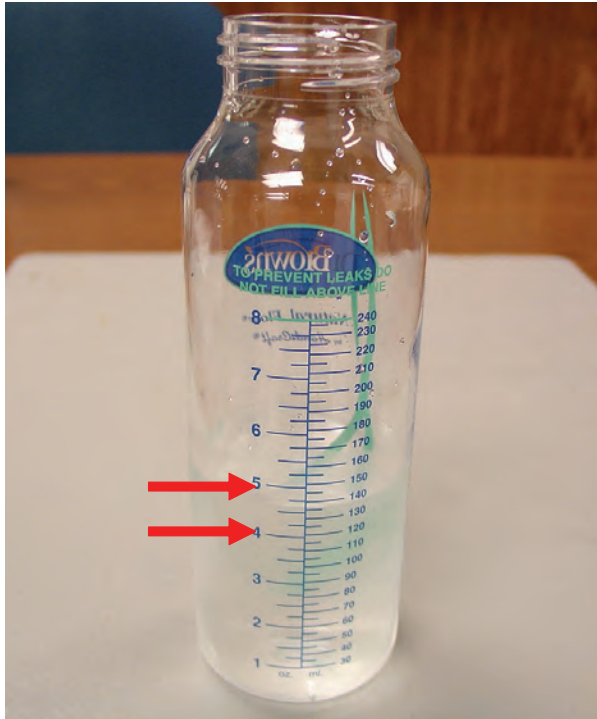
- Adjust Fill Volume as Needed
- Note: Check all possibilities that could cause a short or long fill before making a fill adjustment**

Checking Water Fill



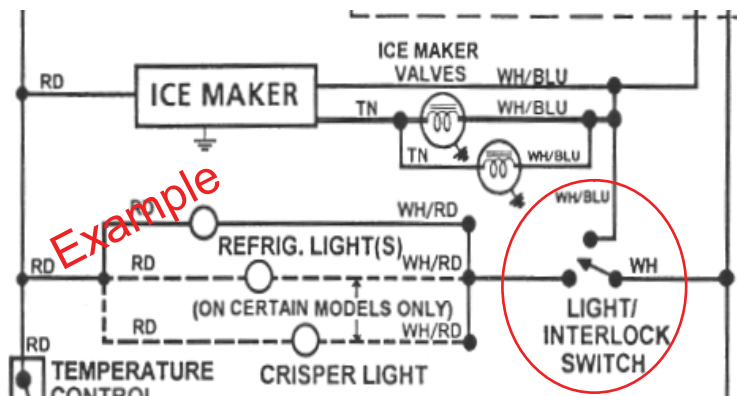
Use a baby bottle to catch a fill sample.

Range - 113 – 151 cc. 4-5 OZ



The range for all icemakers is 113 to 151 cc's or 4-5 ounces
Amana BM – 130 cc's
Whirlpool SXS 130cc
Whirlpool Top Mount 140cc

No Ice Production Safety Interlock



Freezer Door Open - Lights On - Icemaker Off
Freezer Door Closed - Lights Off - Icemaker On

Some refrigerator incorporate a icemaker/light switch as a safety. If the door is open the icemaker circuit is de-energized.

No Ice Production

- **Step 1: Visually inspect icemaker.**

Is the icemaker arm fully lowered to “ON” position?

If yes, go directly to step 2.

If no, check for free movement of the feeler arm. Remove any ice cubes that may be keeping the feeler from lowering to the “ON” position.

Is the fill tube frozen or blocked with ice.

If yes, thaw and call Tech Assist for additional instructions. Depending on the model, they may instruct you to replace the fill tube.

If no, go to step 2.

- **Step 2: Check for ice in the mold.**

If there is ice in mold, go directly to step 3

If mold is empty, either the icemaker has failed, the voltage to the icemaker is missing or there’s a problem with the water supply.

Open water valve.

Clogged water valve filter screen.

Water turned off.

Self-piercing water valve clogged.

Unit hooked up to failed Reverse Osmosis system.

If water supply OK, go to step 3.

- **Step 3: Initiate ice harvest.**

Compact icemaker- advance motor.

Modular Icemaker- jump out the icemaker thermostat by shorting test terminals H to T thermostat.

- **Step 4a: If icemaker fails to start, check voltage to icemaker.**

If voltage present, replace icemaker.

If voltage is missing, troubleshoot wiring harness.

- **Step 4b: If icemaker starts, check for heat at bottom of mold.**

No heat, replace icemaker.

If heat present but the mold is empty, allow icemaker to advance to fill cycle. If the water valve doesn’t energize, check voltage at water valve.

If no voltage to water valve, check the wire harness. If harness OK, replace the icemaker.

If water valve energizes but no water enters the icemaker, troubleshoot the water supply.

PRODUCT SPECIFICATIONS AND WARRANTY INFORMATION SOURCES

IN THE UNITED STATES:

FOR PRODUCT SPECIFICATIONS AND WARRANTY INFORMATION CALL:

FOR WHIRLPOOL PRODUCTS: 1-800-253-1301
FOR KITCHENAID PRODUCTS: 1-800-422-1230
FOR ROPER PRODUCTS: 1-800-447-6737

FOR TECHNICAL ASSISTANCE WHILE AT THE CUSTOMER'S HOME CALL:

THE TECHNICAL ASSISTANCE LINE: 1-800-832-7174

**HAVE YOUR STORE NUMBER READY TO IDENTIFY YOU AS AN
AUTHORIZED IN-HOME SERVICE PROFESSIONAL**

FOR LITERATURE ORDERS:

PHONE: 1-800-851-4605

FOR TECHNICAL INFORMATION AND SERVICE POINTERS:

www.servicematters.com

IN CANADA:

FOR PRODUCT SPECIFICATIONS AND WARRANTY INFORMATION CALL:

1-800-461-5681

FOR TECHNICAL ASSISTANCE WHILE AT THE CUSTOMER'S HOME CALL:

THE TECHNICAL ASSISTANCE LINE: 1-800-488-4791

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