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## How to Properly Diagnose a Water Valve: Single, Triple, and Quadruple Solenoid Valves

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When water is not supplied to the water dispenser or ice maker, the water valve is frequently suspected to be defective. This procedure is intended to provide a quick method to determine if the water valve is indeed defective and to avoid unnecessary replacement.

This procedure does not constitute a comprehensive ice and water troubleshooting guide. In addition to diagnosing the water valve, the entire system must be diagnosed to determine the root cause of ice and water issues. Refer to the Service Manual for additional information.

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### **Diagnostic Procedure for Single Water Valve**

#### **Before You Begin**

- ✓ Prepare to contain water dispensed, dripped, or spilled during the test.
- ✓ The ice maker mechanism is used to initiate water flow through the valve during this diagnostic procedure.

### **Quick Method To Determine If The Valve Is Defective**

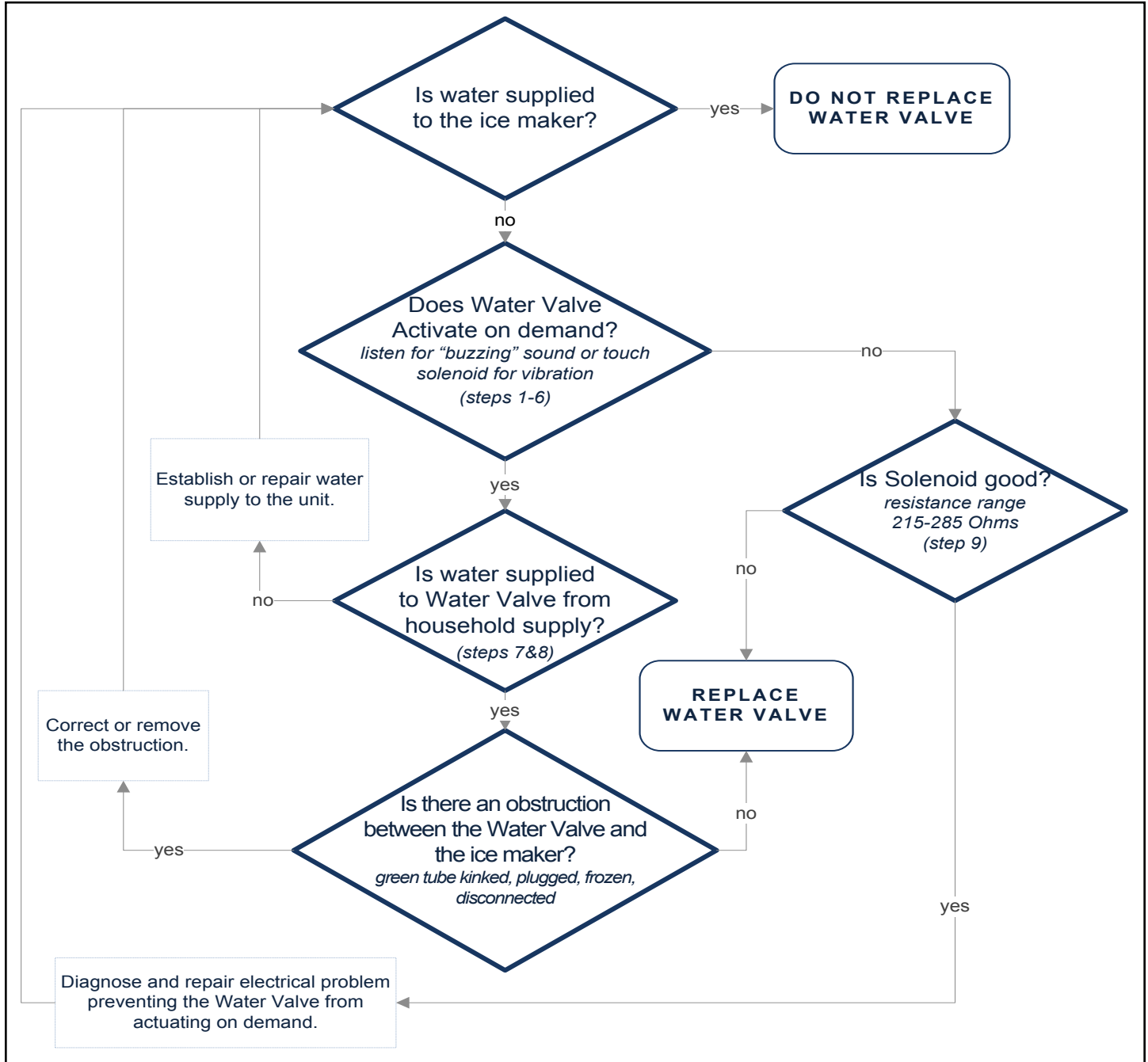
The following procedure allows for quick diagnosis to determine if the water valve is defective. If water valve is found to be good, do not replace. Instead, focus on other potential root causes preventing the valve from operating correctly, such as kinked water lines, clogged or poorly inserted water filter, frozen tubes or water tank, electrical connections, diodes, dispenser module, ice maker, controls, etc.



## How to Properly Diagnose a Water Valve: Single, Triple, and Quadruple Solenoid Valves

### (Single Valve Procedure Cont'd)

The procedure provides detailed instruction on how to perform steps outlined in the following chart.





## How to Properly Diagnose a Water Valve: Single, Triple, and Quadruple Solenoid Valves

### (Single Valve Procedure Cont'd)

1. Gain access to the water valve (**Fig. 1**).
2. Unplug and remove IM from the unit.
3. Run warm water over the mold for approximately 1-2 minutes to remove ice and warm up the mold.
  - Mold must reach 47°F in order for the mold thermostat to open and allow water fill.
  - Use caution not to submerge or wet electrical components during this procedure.
4. Pull the fill tube from the back of the unit and insert the end of it into a container.
5. Position ice ejector fingers in 7 o'clock position to allow time to observe water fill into the container (**Fig. 2 & 3**).
6. Reconnect the IM to the unit and be ready to collect water from the fill tube.
  - The IM mechanism will provide power to the valve about 15 seconds before it returns back to the home/off position (9 o'clock).

♦ ***If the valve activates and water flows, DO NOT REPLACE THE VALVE.*** The valve is good.

♦ ***If the valve activates but no water flows, DO NOT REPLACE THE VALVE*** yet. First verify that water is supplied to the unit.

7. Disconnect the supply line from the valve and run water directly from it into a container (**Fig. 1**).
8. If there is water from the supply line to the valve, verify that the water line to the IM is not kinked, nor the IM Fill Tube is blocked with ice.

**Figure 1**



Single Water Valve  
(supply line, green connector, and solenoid shown)

**Figure 2**



IM ejector fingers at 7 o'clock position  
(viewed from front of IM)



## How to Properly Diagnose a Water Valve: Single, Triple, and Quadruple Solenoid Valves

### (Single Valve Procedure Cont'd)

◆ **If the valve activates**, and water is supplied to the unit, and water line is not obstructed, but no water flows, then **REPLACE THE VALVE**.

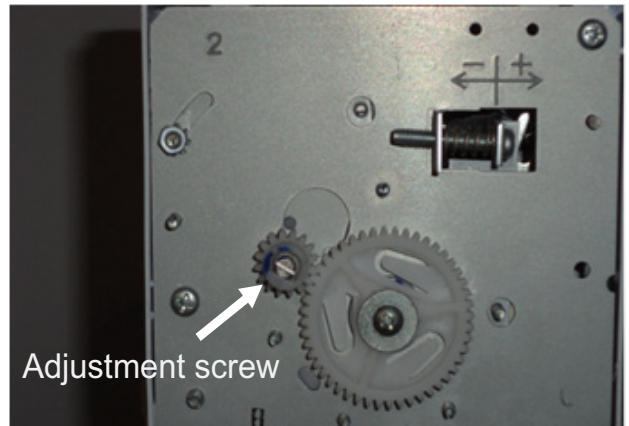
**Note:** *The problem could be that the internal screen in the valve is clogged. The foreign material in the customer's water supply clogged the screen and may eventually clog the new valve as well. Suggest that an inline filter be added in front of the valve.*

◆ If the valve **does not** activate, then there are several possibilities: the valve solenoid could be bad, the valve may not be getting power due to an electrical connection issue between the IM and the valve, a problem with the switch inside the IM, etc.

9. To verify the solenoid, disconnect the green connector from the valve (**Fig.1**). Check the resistance across the solenoid terminals. If the resistance is lower than 215 Ohms or higher than 285 Ohms (nominal 250 Ohms), then the coil is defective. **REPLACE THE VALVE**.

◆ If the resistance is in range, **DO NOT REPLACE THE VALVE**. The electrical problem is elsewhere. Diagnose and repair electrical issue.

**Figure 3**



Use adjustment screw to rotate ejector fingers into position.

**Figure 4**



Normal water flow from IM fill tube





## How to Properly Diagnose a Water Valve: Single, Triple, and Quadruple Solenoid Valves

### Diagnostic Procedure for Triple and Quadruple Water Valve

#### Before You Begin

- ✓ On models equipped with water dispenser, all solenoids can be diagnosed using the yellow dispenser connector. This connector will provide line voltage to the solenoid when dispenser paddle is depressed and “**WATER**” is selected on the UI.
- ✓ On models without a water dispenser the ice maker mechanism is used to initiate water flow through the valve. See steps 1-4 of the Single Valve Diagnostic Procedure.
- ✓ When performing valve test, PASS = valve flow water when energized and stops water flow when de-energized.
- ✓ Prepare to contain water dispensed, dripped or spilled.

#### Water System

In a system equipped with a Triple or Quadruple valve the water follows the path:

**Supply → Brown Valve → Water Filter → (Water Tank)  
→ Secondary Valve: Green, Yellow, or Blue**

**Brown** – Primary Valve

**Yellow** – to Dispenser (*Yellow solenoid present, but not used on Non-Dispenser French Door Models*).

**Green** – to Primary Ice Maker (*FFIM is primary when present. Otherwise, FZ IM is primary*).

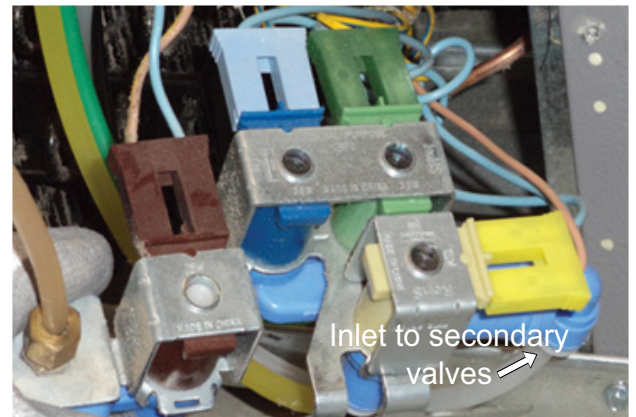
**Blue** – to Secondary Ice Maker (*FZ IM is secondary if FF IM is present*).

Figure I



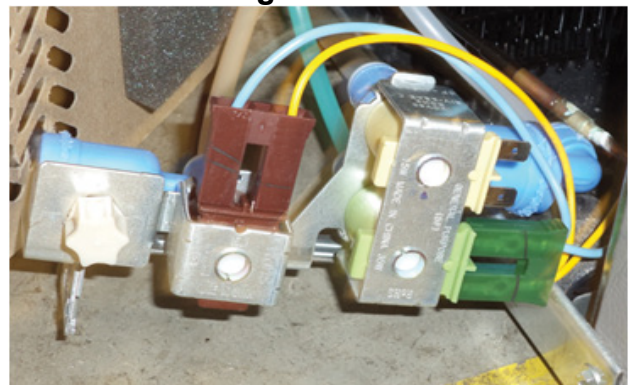
Triple Valve on Side-by-Side Model

Figure II



Quadruple Valve on French Door Dispenser Model

Figure III



Triple Valve on French Door Non-Dispenser Model



## How to Properly Diagnose a Water Valve: Single, Triple, and Quadruple Solenoid Valves

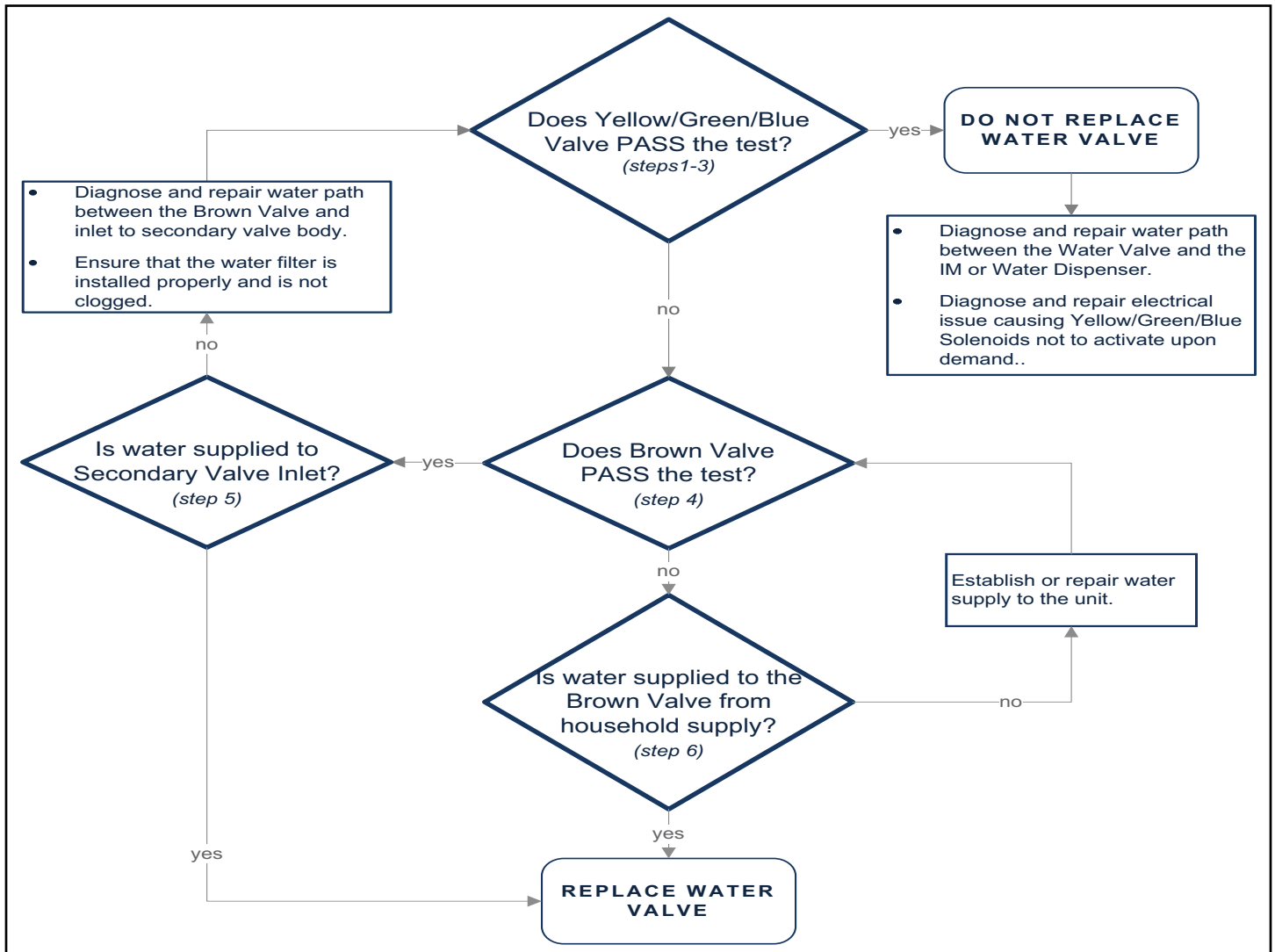
### (Triple and Quadruple Valve Procedure Cont'd)

◆ Water from the household connection flows from the BROWN solenoid to the filter, to water tank if equipped, and then back to the inlet of the secondary valve body. From there, the YELLOW solenoid sends water to the dispenser, the GREEN and BLUE solenoids send it to their respective ice makers.

### Quick Method To Determine If The Valve Is Defective

The following procedure allows for quick diagnosis to determine if the water valve is defective. If water valve is found to be good, do not replace. Instead, focus on other potential root causes preventing the valve from operating correctly, such as kinked water lines, clogged or poorly inserted water filter, frozen tubes or water tank, electrical connections, diodes, dispenser module, ice maker, controls, etc.

The procedure provides detailed instruction on how to perform steps outlined in the following chart.





## How to Properly Diagnose a Water Valve: Single, Triple, and Quadruple Solenoid Valves

### (Triple and Quadruple Valve Procedure Cont'd)

1. Gain access to the water valve (Fig. I, II, III).
2. Disconnect the YELLOW connector from the YELLOW solenoid. Measure the voltage at the YELLOW connector when the dispenser paddle is pressed (be sure that “WATER” is selected on the UI). It should be line voltage.

◆ If there is **NO** voltage to YELLOW connector when paddle is pressed and “WATER” is selected on the UI, diagnose and repair electrical issue (wiring, dispenser module, control board, UI board, etc.)

### 3. Test Secondary Valve – YELLOW, GREEN or BLUE.

- Connect the YELLOW connector to the SECONDARY valve, and remove the tube from the outlet port of the SECONDARY valve. Direct the outlet port into the container.
- Activate the solenoid briefly by pressing and releasing the dispenser paddle (be sure that “WATER” is selected on the UI).

◆ **If water flows from the suspect SECONDARY valve**, then the test passed. **DO NOT REPLACE THE VALVE.**

→ Diagnose other reasons why water is not delivered from the water valve outlet to the water dispenser or ice maker. Possibilities include kinked water line, ice in the tube, disconnected fitting, electrical issues preventing the valve from becoming energized, etc.

◆ **If NO water flows from the SECONDARY valve**, the test failed. **DO NOT REPLACE THE VALVE** yet. Continue to diagnose the water valve.

### 4. Test the Primary BROWN valve.

- Remove the BROWN electrical connector from the BROWN solenoid. Remove the BROWN water tube from the bottom of the BROWN solenoid. Be ready to collect water from the BROWN tube.
- Connect the YELLOW electrical connector to the BROWN solenoid and direct the outlet port of the solenoid into a cup.
- Activate the solenoid briefly by pressing and releasing the dispenser paddle (*be sure that “WATER” is selected on the UI*).

◆ **If water flows from the PRIMARY valve**, then the test passed. **DO NOT REPLACE THE VALVE** yet. Go to step 5.

◆ If water **DOES NOT** flow from the PRIMARY valve, then the test failed. **DO NOT REPLACE THE VALVE** yet. Go to step 6.

### 5. Check that there is flow from the BROWN valve to the inlet of the secondary valve body (Fig. II).

- Disconnect the white tube from the inlet to the secondary valve body. Place the end of the white tube into the cup.
- Activate the BROWN solenoid with the YELLOW connector by briefly pressing and releasing the dispenser paddle (be sure that “WATER” is selected on the UI).

◆ **If NO water flows out of the white tube**, then the issue has to do with the tubing, water tank or the filter between the valve bodies. **DO NOT REPLACE THE VALVE.**



## How to Properly Diagnose a Water Valve: Single, Triple, and Quadruple Solenoid Valves

### (Triple and Quadruple Valve Procedure Cont'd)

→ Make corrections to the water path obstruction between the BROWN valve and the supply to secondary valve inlet. Ensure that the water filter is installed properly and is not clogged.

**Note:** *The problem could be that the internal screen in the valve is clogged. The foreign material in the customer's water supply clogged the screen and may eventually clog the new valve as well. Suggest that an inline filter be added in front of the valve.*

◆ **If water flows out of the white tube into the SECONDARY valve body, but does not flow out of the SECONDARY valve in question, then the valve is defective. REPLACE THE WATER VALVE.**

7. If valve is proven to be good and need not be replaced, be sure that all the electrical connectors and tubes have been reconnected properly.

**6. Complete only if water does not flow from the Primary BROWN valve in step 4.**

**Check that water is supplied to the water valve from the household supply.**

If valve is proven defective, replace the valve.

- Disconnect the supply line from the valve and run water directly from it into the cup.

◆ **If NO water flows from the supply line, then DO NOT REPLACE THE VALVE.** The issue is with the water supply. Instruct consumer to establish or repair water supply.

◆ **If water flows from supply line, but does not flow from the Primary BROWN valve outlet, then REPLACE THE VALVE.**

#### CLAIM FILING

This is NOT a policy service flash. Claims related to this repair should be filed normally and will ONLY be covered during the warranty time period.