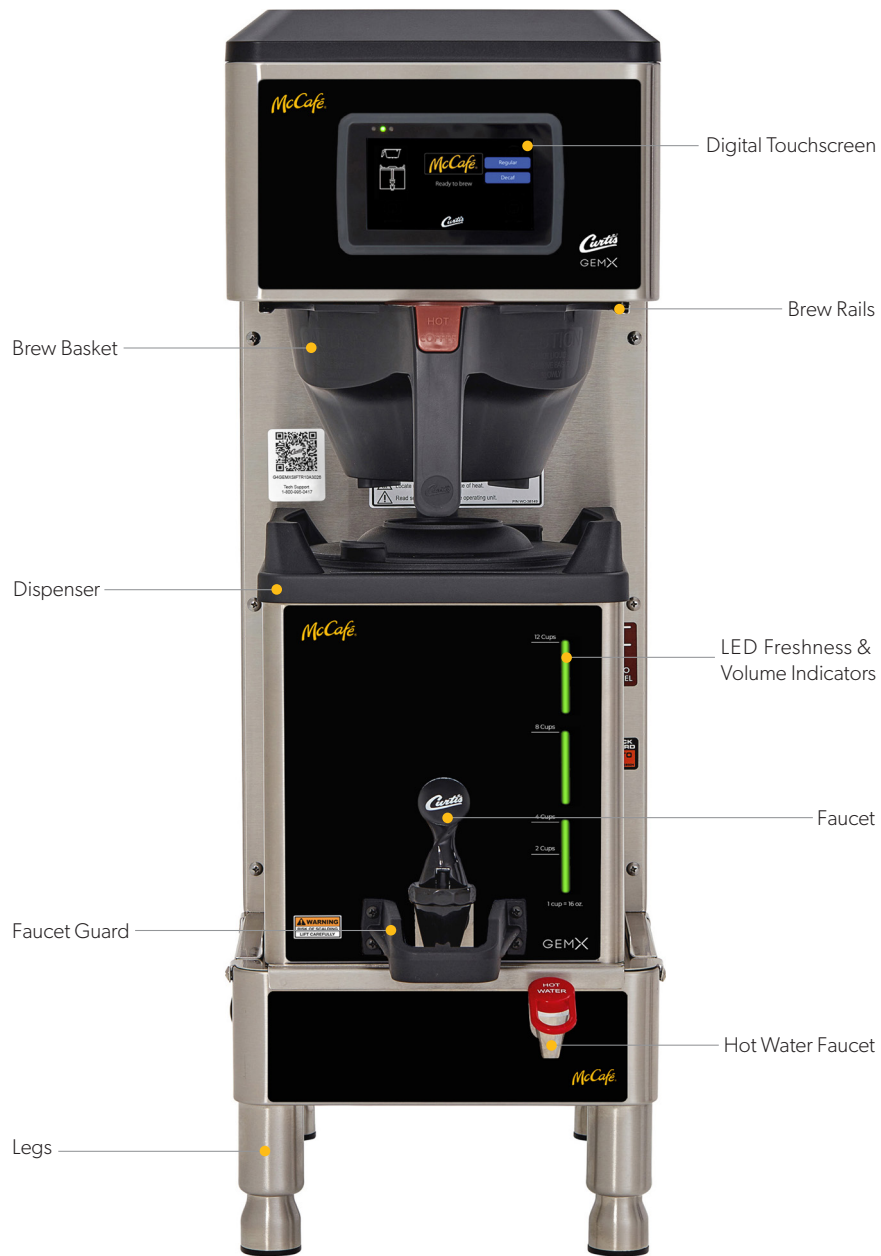




Troubleshooting Instructions



G4GEMXSIFTR10A3026
Single G4GemX 1.5 Gallon Brewer
IntelliFresh® and FreshTrac® Technology

**WARNING:**

Electric Shock Hazard - the following procedures are to be performed only by a qualified service technician. Turn off power when replacing components. Neither Wilbur Curtis Co., Inc. nor the seller can be held responsible for the interpretation of this information, or any liability in connection with its use.

Scald and Burn Hazard - keep body parts clear of hot surfaces during troubleshooting.



IMPORTANT: If it is necessary to replace the G4 universal power module (UPM), always check all inlet, dump (brew), bypass* and dilution* valve coils for a short and replace the valve as necessary, before replacing the module. See the **Valve Test Procedure**, below to test for defective valves. *Some units do not have this function, see the ELECTRICAL SCHEMATIC.

Troubleshooting Guidelines

- If an error message appears on the display, consult the ERROR CODES section before troubleshooting.
- A brewer that is not level may not function properly. Make sure the brewer is properly leveled before proceeding.
- This troubleshooting guide identifies some, but not all, of the possible causes for common problems that can occur.
- Use this troubleshooting guide along with the appropriate ELECTRICAL SCHEMATIC.

Valve Test Procedure

Use a digital multi-meter to measure the resistance of valve coils.

Measure the resistance across the valve coil terminals with the wiring harness disconnected. Reverse the meter leads on the terminals and measure the resistance in the opposite direction. A resistance of less than 100 ohms, in either direction, indicates a shorted coil. The valve must be replaced.

If a shorted coil is not detected, test for an open coil:

- 1 Reconnect the valve terminals to the wiring harness.
- 2 Power up the brewer and test the valve using the diagnostics in section TG11.

Water Not Hot Enough

- 1 If the water heats, but is not hot enough, first check for the correct temperature setting on the control panel. Reprogram as necessary.
- 2 If the temperature setting is OK, and the actual water temperature does not match setting on the control panel, replace the temperature sensor.

Water Heats More Slowly Than Usual

- 1 Check for power across the terminals of the heating element(s). If power is being supplied, disconnect the heating element(s) and check for continuity. Replace a heating element if the resistance is too high (nominal resistance is 13 Ohms).
- 2 If there is no power to the heating element(s), check the wiring to any element that does not have the proper voltage across it. Also check for corroded connections anywhere between the power cord and the heating element(s).

Dispenser Overflows During Brewing

- 1 Check to make sure the control module (UCM) brew, bypass* and dilution* levels are set properly.
- 2 Check for a missing spray head. Replace as needed.
- 3 Make sure the dispenser is empty before starting the brew cycle. If not, empty it before brewing.

*Some units do not have this function, see the ELECTRICAL SCHEMATIC.

No Power - Display Not Lit

- 1 Make sure the circuit breaker to the circuit supplying power to the brewer is not tripped and is turned on.
- 2 On brewers with a power plug, make sure it is connected to the power receptacle.
- 3 Make sure that the main power toggle switch on the back panel is turned ON.
- 4 Verify that all wires from the power cord are properly connected inside the unit. Check to make sure the wires are not burned/overheated. Check chassis ground.
- 5 Check the low voltage input to the universal control module (UCM) from the transformer (see the ELECTRICAL SCHEMATIC). If there is power into the UCM, but the display is blank, the UCM is probably bad.
- 6 If there is no power into the UCM, trace the circuit back (using the wiring diagram) to the power cord to find out where power is lost. If there is power into the thermostat reset switch, but not out, see step 7.
- 7 If there is power into the thermostat reset switch, but not out, check to make sure that the water tank is not empty. If the tank is empty, the reset switch has probably opened up due to a low water level, go to **Water Tank Does Not Fill**. If there is water in the tank, but no power out, push in on the reset switch button to see if it restores power. If power is restored, check to make sure that the switch is not opening up at the wrong temperature (the switch should not open up at normal water temperatures). If there is still no power through the switch after pushing the button, replace the thermostat reset switch.

Brewer Does Not Start When Brew Button is Pressed

- 1 If **Brewing** appears on the display, check for faulty wiring and connections between the universal power module (UPM) and the valves.
- 2 If **Brewing** does not appear on the display, check for a faulty universal control module (UCM) or universal power module (UPM).

Sensor Error Message

This error indicates a malfunction (open circuit) in the temperature sensor system. Once the malfunction is corrected, the error message must be cleared. To reset the brewer and return to normal operation, turn the toggle switch on the back of the brewer to the OFF position for 5 seconds, then back ON.

- 1 Check the resistance across the leads of the temperature sensor while it is disconnected from the universal power module (UPM). If an open circuit is measured (resistance above 200 k), replace the sensor.
- 2 If the sensor resistance is less than 200 k check the sensor wires for corrosion and reconnect them to the UPM. Afterward, if the error message comes back after resetting the control and power modules, replace the UPM.

Water Tank Overfills

- 1 Turn the toggle switch on the back of the brewer ON and OFF. If water continues to flow when the switch is in both positions, replace the inlet valve.
- 2 If water stop flowing to the water tank when the toggle switch is turned OFF and continues when the switch is turned back ON, remove the orange wire from the water probe on the tank. While power is ON, short the end of the orange wire to the metal surface on the outside of the tank. If the water tank stops filling when the orange wire is shorted to the tank, check for a corroded connection at the water probe.
- 3 If water does not stop flowing when the orange wire is shorted to the tank, check the tank ground connection and the continuity of the orange wire connecting to the universal power module (UPM). If both are OK, replace the UPM.

Water Tank Does Not Fill



IMPORTANT: No water or low water in the tank can cause the tank to overheat, resulting in the thermostat reset switch opening. If after correcting a tank fill problem there is no power to the control panel, push the reset switch button to reset.

- 1 Check to make sure the water supply is turned on. Check for a plugged water supply line or plugged inlet valve.
- 2 If there are no plugs in the water supply line, check for power across the inlet valve terminals. If power is being supplied, but there is no water flow, replace the inlet valve.
- 3 If power is not being supplied to the inlet valve, check the wires between the universal power module (UPM) and the inlet valve. Check for corroded connections.
- 4 If the wiring between the UPM and the inlet valve is OK, but there is no power to the inlet valve, remove the orange wire from the water tank probe. If the water tank starts to fill, replace the water probe. If the water tank does not start to fill, replace the UPM.

Coffee/Tea Too Strong

See *Dispenser Not Filled To Normal Level During Brewing*.

Dispenser Not Filled To Normal Level During Brewing

- 1 Check to make sure that the universal control module (UCM) brew, bypass* and dilution* levels are set properly.
- 2 Check to make sure that the flow rate and water pressure from the water supply line meet the minimum specifications for the brewer. See the SPECIFICATIONS section.
- 3 Check to make sure that the spray head is clean and free of debris. Clean or replace as needed. Also make sure that the spray head is correctly aligned and that the tubing is routed properly to allow for maximum water flow (no kinks).
- 4 Remove the brew basket and place a large container under the dump (brew) and dilution outlet points. Run a brew cycle and confirm that the dump (brew) valve, bypass* valve and dilution* valve open during the brew cycle. Check for flow through any exit point that is slow or non-existent. Not all valves open at the same time. If flow is restricted, check for obstructions in the related tubing or valve. If there are no obstructions, but flow through one particular valve is slow, it can be assumed that the particular valve is not opening all the way and should be replaced. If water does not flow at all through a particular valve during the brew cycle, check to make sure that power is being supplied to the valve in question. Replace any valve that is not opening when power is applied to the terminals. If power is not being supplied to the valve, check the wiring between the valve and the universal power module (UPM). If the wiring is OK, replace the UPM.

*Some units do not have this function, see the ELECTRICAL SCHEMATIC.

Dispenser Overflows All Of The Time

- 1 Check to see if water continues to flow from the spray head, the bypass* outlet or the dilution* spout when the toggle switch is turned OFF. Replace any valve that is stuck open.
*Some units do not have this function, see the ELECTRICAL SCHEMATIC.
- 2 If one or more of the valves mentioned in step 1 turns on when the toggle switch on the back is ON and turns off when the switch is OFF, replace the universal power module (UPM).

No Water/Tea Flows From Brewer During Brewing

- 1 Make sure that the water supply is turned on.
- 2 Check to see if the water in the tank is level with the water tank probe? If not, see *Water Tank Does Not Fill*.
- 3 If the water tank is full, the water is hot and power is on, but NO water flows during a brew cycle, the problem is usually a bad universal power module (UPM). Run a brew cycle and check for power from the UPM to the dump (brew), bypass* and dilution* valves. If there is no power output, replace the UPM.
*Some units do not have this function, see the ELECTRICAL SCHEMATIC.

Low Water Flow Warning

See *Water Level Error Message*.

Water Level Error Message

Water level fill error or overflow. This error message occurs when the inlet valve solenoid has been on too long during initial fill or tank refill, See the ERROR CODES section for the maximum times allowed. Once the malfunction is corrected, the error message must be cleared. To reset the unit and return to normal operation, turn the toggle switch on the back of the brewer to the OFF position for 5 seconds, then back ON.

- 1 Check to make sure that the flow rate from the water supply line meets the minimum flow rate specifications for the brewer. Also check the water pressure. See the SPECIFICATIONS section.
- 2 Check for blockage at the inlet valve inlet or outlet. Check for blockage in the tubing between the inlet valve and the water tank.
- 3 Check the water probe wire for an open condition or corroded connections.
- 4 If the probe connections are OK, cycle power to the unit by turning the rear toggle switch OFF, then ON. Check to see if power is applied to the inlet valve terminals. If power is applied to the terminals, but there is not water flow, replace the inlet valve.
- 5 Check for power from the universal power module (UPM) to the inlet valve. If the wiring is OK, replace the UPM.

“Internal Error 1” Message on Display

Check the wiring harness that connects from pins 4, 9 and 11 of the 14-pin connector on the universal power module (UPM) to pins 2, 3 and 6 of the 8-pin connector on the universal control module (UCM).

“Internal Error 2” Message on Display

The universal power module (UPM) and universal control module (UCM) have a mismatch in their settings. A firmware update is needed. See *PROGRAMMING GUIDE*.

Water Does Not Heat At All

Check to see if the water level in the tank is in contact with the water level probe. If not, see *Tank Does Not Fill*. The water will not heat unless it is in contact with the probe.

If the water heats, but is not hot enough, see *Water Not Hot Enough*.

If **Ready to brew** appears on the display, but the water is not hot, check the resistance across the leads of the temperature sensor. If the resistance is less than 10 k and the water is not hot, replace the temperature sensor. If the sensor resistance is above 10 k when the water is cool, replace the universal power module (UPM).

If **Heating...** appears on the display, but the water is not hot, follow the steps below. The following steps are performed with the rear toggle switch in the ON position.

- 1 Check for power across the terminals of the heating element(s). If power is being supplied, remove the wires and check for an open heating element.
- 2 If there is no power to the element(s), trace the circuit back (using the ELECTRICAL SCHEMATIC) to the power cord to find out where power is lost. If there is power into the solid state relay(s) (SSRs) but not out, see the following step. On units having two SSRs, be sure to check both.
- 3 If there is power into a SSR, but not out, check for 5 Vdc (nominal*) across the + and - pins of the SSR(s). If there is 5 Vdc across the + and - pins of the SSR(s), but no (or low) output voltage at a SSR output terminal, replace the SSR. If 5 Vdc is not being supplied from the UPM, but **Heating...** appears on the display, check the wiring from the UPM to the SSR(s). If the wiring is OK, replace the UPM.

Water Too Hot (Boiling or Excessive Steaming)



IMPORTANT: Before proceeding, make sure that the control panel temperature is adjusted to compensate for higher elevations. The factory setting is 200°F. Reduce the temperature setting two degrees for every 1000 feet of elevation above 4000 feet.

- 1 If **Over Temp Sensor** or **Ready to Brew** appears on the display and the water is too hot, go to *Over Temp Sensor Error Message*.
- 2 If the display reads **Heating** constantly, first check to make sure that the temperature sensor is attached tightly to the tank and that heat sink compound was used. A properly mounted sensor should have a resistance of around 7 k when the water is hot. If not, replace the sensor.
- 3 Check to see if the universal power module (UPM) constantly has +5 Vdc (nominal) output to the solid state relay (SSR), regardless of the resistance of the temperature sensor. If so, the UPM is probably bad.
- 4 If the UPM is working properly, check for a shorted SSR.

Over Temp Sensor Error Message

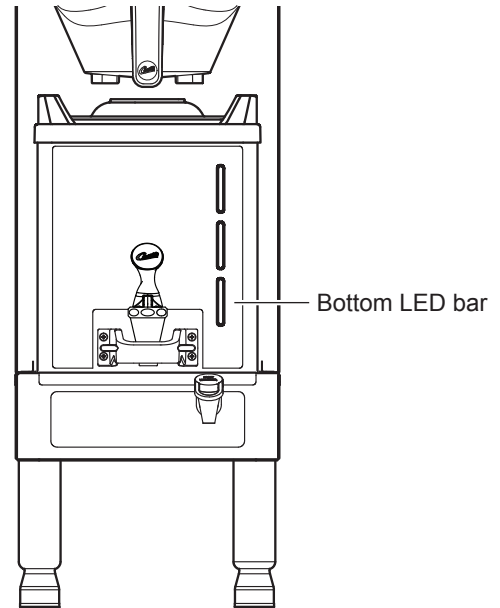
This error message indicates that the universal control module (UCM) has detected a water overheating problem. The universal power module (UPM) is reading a water temperature in the tank above 210°F. If the water temperature is too hot, but **Heating...** appears on the display, see *Water Too Hot*. Once the malfunction causing the error is corrected, the error message must be cleared. To reset the brewer and return to normal operation, turn the toggle switch on the back of the brewer to the OFF position for 5 seconds, then back on.

- 1 Check for 5 Vdc (nominal) across the + and - pins of the solid state relay (SSRs). If no power is applied to the SSR and the heating elements are always on, replace the SSR. On units having two SSRs, check both.
- 2 Turn off power to the brewer and allow the water tank to cool. Once cool, turn power back on while monitoring the voltage across the + and - pins of the SSR(s). During normal operation, the voltage should be 5 Vdc, until the water is hot, then drop to below 1 Vdc. The universal power module (UPM) should be replaced if the voltage reads 5 Vdc constantly even though **Ready to brew** or **Over Temp Sensor** appears on the display.
- 3 If the UPM is operating normally, check for a false over-temp error caused by the temperature sensor. Check the resistance across the leads of the temperature sensor. If the resistance is less than 10 k when the water is cool, replace the temperature sensor.

Dispenser Does Not Heat

NOTE: The dispenser heating element is designed to keep brewed coffee hot, but is not of sufficient wattage to reheat cold coffee.

- 1 First check to see if the bottom LED bar on the dispenser is flashing a "blue" error code.
 - Three long, one short = defect in heating element circuit.
 - Three long, two short = defect in controller sensor circuit (replace the controller).
- 2 Check to see if the IntelliFresh® LED on the front of the dispenser flashes green when docked with the unit (flashes red during brew cycle). If neither the LEDs nor the warmer come on, then it can be assumed that there is no power to the dispenser. Make sure that power is being supplied to the IntelliFresh (IF) connector on the brewer when the BREW button is pressed. The voltage varies based on the model, see the **ELECTRICAL SCHEMATIC**. If power is present at the connector, check the connector contacts. If power is not present at the IF connector, trace the circuit back to the control module to see if it is supplying power to the IF connector.
- 3 Check the contacts on the dispenser IF connector to make sure that they are making good contact with the connector on the brewer.
- 4 If the dispenser is receiving power from the IF connector and there are no dispenser error codes, suspect the dispenser controller.



None of the LED Bars Light, Regardless of Coffee Level (Warmer is Working OK)

NOTE: If the dispenser is empty, the LED bars will not light.

- 1 Check for chassis ground, UPM ground and UPM 5 Volts into the LED array (see LED pin assignment on dispenser schematic).
- 2 If power and ground are being supplied to the LED array and none of the LED sections come on when the dispenser is full, the LED array is probably bad.

Some LED Bars Do Not Light

Short the probe wire for the LED section that is not working to ground. If the section lights, check the probe connection. If the section does not light, the LED array is bad.

One or More LED Bars are Constantly On Regardless of Coffee Level

- 1 Clean the inside of the dispenser according to the **CLEANING INSTRUCTIONS** section to remove any residue build-up that may be causing a malfunction (especially around the sensors).
- 2 Check for a probe wire that is shorted to ground.
- 3 If the probe wires are OK, suspect the LED array.

IntelliFresh Feature Does Not Work (Warmer OK)

- 1 Check to make sure that the UCM IntelliFresh settings on the brewer are correct.
- 2 Check the continuity of the dispenser controller/LED communication wire.
- 3 Replace the LED module. If the IntelliFresh feature does not work properly after replacing the LED module, the dispenser control module is probably bad.

continued...

“DISPENSER LOCKOUT” Appears On Display

- 1 Check to make sure that the dispenser is empty, properly seated on the brew deck and has had time to warm up. These conditions can cause a DISPENSER LOCKOUT notification.
- 2 Place a different, known good, empty dispenser on the brew deck. Wait to make sure that the dispenser has warmed up. If “DISPENSER LOCKOUT” disappears when a properly seated dispenser is allowed to warm up, the first dispenser is defective; skip to step 4.
- 3 If “DISPENSER LOCKOUT” always appears on the display, regardless of the dispenser used, check the brewer IR sensor and wiring harness for continuity. If the IR sensor and harness are OK, suspect the brewer universal power module (UPM).

The following steps assume that the DISPENSER LOCKOUT message is being caused by a malfunction in a particular dispenser.

- 4 The problem can be caused by a defective coffee level sensor (the controller thinks there is coffee in the liner). Check for a shorted/defective sensor; see *One or More LED Bars are Constantly On Regardless of Coffee Level*.
- 5 The problem can be caused by a defective heating element circuit (dispenser never warms, which causes the lockout). See *Dispenser Does Not Heat*.
- 6 Check the IR sensor and wiring harness for continuity. If the IR sensor and harness are OK, suspect the dispenser controller.

G4 CONTROL MODULE

Overview

The G4 control module diagnostics can be used to detect electrical circuit failures in the brewer. When a circuit failure is identified, the individual components and wiring in the circuit must be checked to determine the exact cause of the failure using the ELECTRICAL SCHEMATIC. If a failure is not detected using the diagnostics, troubleshoot the problem according to the symptoms listed in other sections of this TROUBLESHOOTING GUIDE.

The diagnostics can also be used to help diagnose certain mechanical failures. See the following steps.

Using the Diagnostics

- 1 Enter programming mode by tapping the (white) Curtis logo on the touchscreen five (5) times.
- 2 Enter the access code, then press **OK** (the default code is 1 2 3 4).
- 3 The **MAIN MENU** screen will appear. Press **Control Settings**.
- 4 Press **Diagnostics**. When prompted, place an empty container under the brew basket, then press **OK**.
- 5 Press a button to test the desired circuit or **Auto Test** to test all circuits. If a button is highlighted green the circuit has passed the (electrical) test. If the button is highlighted red, the circuit has failed the test.

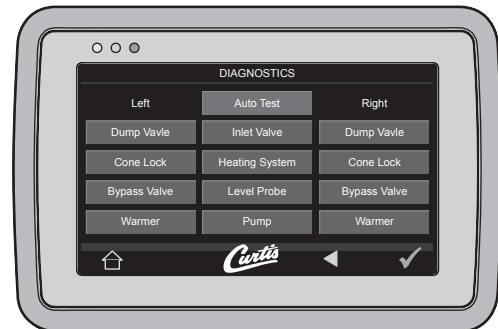
If the circuit tested fails, check to make sure that power is being supplied to the component during normal operation. If power is supplied, and it does not operate, replace the component. If power is not being supplied, check the wiring and the UPM.

If a valve circuit passes the test, check for a mechanical failure by listening for the valve to “click” when the test button is pressed. To check for a failed pump, run a brew cycle and check for fluid flow through the pump.

Display view varies with model



Curtis logo



Diagnostics Screen

Button layout varies based on model

