

Dishwasher — Technical Information

MDC4650AW*

- Due to possibility of personal injury or property damage, always contact an authorized technician for servicing or repair of this unit.
- Refer to Service Manual 16026945 for detailed installation, operating, testing, troubleshooting, and disassembly instructions



CAUTION

All safety information must be followed as provided in Service Manual 16026945.



WARNING

To avoid risk of electrical shock, personal injury, or death, disconnect power to dishwasher before servicing.

Model	MDC4650AW*
Benefits	
Wash cycles	4
Heavy Wash	X
Normal Wash	X
Light Wash	X
Rinse Only	X
Features	
Sound package	QuietSeries™ 100
High Temp Wash	X
Electronic Controls	X
Sanitizer	X
Sensor clean	X
Water Filtration	Micro-Fine Plus Filtration
Delay Start	2,4 or 6 Hour Delay Start
Energy Star	X
Hard Food Disposer	X
Touch Pad Controls	6
Silverware Location	Wash Compartment
Low rinse aid indicator	X

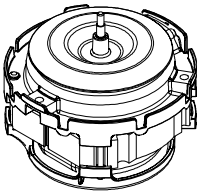
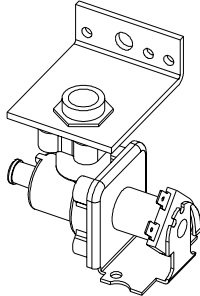
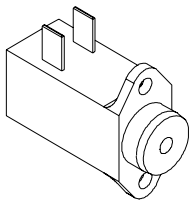
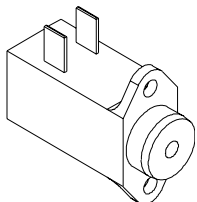
Specifications	Value
Power Source	
Voltage AC	120 VAC
Amperage (Single Unit)	15 A
Frequency	60 Hz
Motor horsepower	1/3
Dimensions (all models)	
Height—overall	36"
Weight (crated)	155 lbs.

Component Specifications



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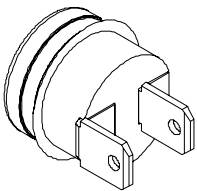
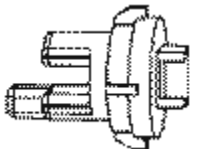
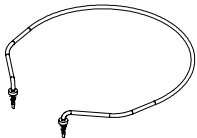
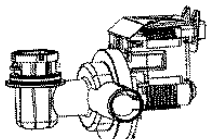
Illustration	Component	Test Procedure	Results
	Dishwasher Motor CCW rotation only viewed from shaft end. 1/3 HP 120 V / 60 Hz, 3.2 amps, 3250 RPM Main Wattage, 285 watts Start Wattage, 1115 watts	Measure resistance from ST5 (Motor Common – blue) to ST8 (Motor Main - yellow)..... See Component Specifications/Motor Connections for details.	3 to 4 Ω
	Control Panel	See Component Specifications/ Membrane Readings for troubleshooting/pin-out instructions.	
	Water valve 120 V / 60 Hz, 7 watts 1.13 $\pm$.10 gpm at 20-120 psi	Measure resistance from J6 Pin 4 Aqua (Float switch) to ST4 Black (Common)	1.1 k Ω (This value assumes the float switch is closed).
	Vent wax motor 120 V with 1/4" actuation stroke within 90 seconds	Measure resistance from J6 Pin 1 Purple (Vent) to ST4 Black (Common)	1.2 k Ω
	Dispenser wax motor 120 V with 1/4" actuation stroke within 90 seconds	Measure resistance from J6 Pin 3 Tan (Dispenser) to ST4 Black (Common)	2 k Ω

Component Specifications



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Illustration	Component	Test Procedure	Results
	Limit Thermostat	Close on Temperature drop @ 149° F ±7° F (Temp) Open on Temperature drop @ 164° F ±4° F (Temp)	0 Ω = Closed Infinite Ω = Open
	Sensor/Thermistor	10 kΩ ±3% at 77° F and 2.4 kΩ ±6.5% at 140° F J5 pin 1 - Orange (Temp) to J5 Pin 4 - Red (Neutral)	Infinite Ω = Open 0 Ω = Closed
	Heater/Heating Element 120 V / 60 Hz, 650 watts ±5% in air, 830 watts ±5% in 90° F water	Measure resistance from ST1 Red/Black (Heater) to ST11 White (Common)	16 Ω (This value assumes the high limit thermostat is closed).
	Drain Motor 120 V / 60 Hz 45 watts	Measure resistance from ST6 Gray (Drain) to ST4 Black (Common) See section "Motor Connections and Diagram" for wiring contacts.	25 Ω

Component Readings/Testing



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Manual Function Test

A Manual Function Test may be started by pressing the **Heated Dry** key 5 times followed by the **Start** key within 8 seconds.

The **Normal Wash** LED will **Flash** 3 times indicating manual test mode is active. Specific keypads will turn on or off a component as follows:

KEY	Function	LED
Hi Temp Wash/Extra Rinse	Wash Motor	Hi Temp Wash/Extra Rinse
Delay	Water Inlet Valve	Delay
Heated Dry	Heating Element	Heated Dry
Cycles Select / Normal		
First Press	Vent	Heavy Wash
Second Press	Dispenser	Normal Wash
Third Press	Drain Pump	Light Wash / China Crystal

The test will cancel 120 seconds after the last keypad is pressed. The display (if available) will show '99' until the remaining timeout period is less than 99 seconds. At this point it will countdown until the modes times out, is cancelled, or another key is pressed. To cancel test, press the **Start / Cancel** keypad.

Diagnostic Tips

To check control, LED's and components, enter **Field Service Test**. If control fails to perform sequence as described, and a fault is detected, determine failure as described in the **Field Service Test**. If a load component failure has been diagnosed, proceed to the **Manual Function Test**. To check individual load components for proper operation, enter **Manual Function Test**. Follow test procedure as described. Repair or replace component as needed.

Note: The **High Current** or **Low Current Motor Error** may be detected during a wash cycle selected by a consumer. If this happens, the control will go into a 30 second auto restart mode and shut down if the unit is not able to restart the motor.

Optimized Wash Cycle

The Optimized Wash Mode is a special service mode that is designed to alter the Normal Wash cycle to improve wash performance. Once the Optimized Wash Mode is enabled, it cannot be disabled. To enable the Optimized Wash Mode on front and top display models, press Normal Wash and Heated Dry for 3 seconds. For all other display models, press Heated Dry and Hi Temp Wash / Extra Rinse for 3 seconds. All the display lights will illuminate momentarily to confirm the mode is enabled.

Membrane Readings (All Models)

	Connector	Measure Between
Heavy Wash *	J1	Pin 9 - Pin 5
Normal Wash *	J1	Pin 9 - Pin 6
Light Wash / China Crystal / Gentle Wash / Quick Wash (Models with Hi Temp Wash) *	J1	Pin 9 - Pin 7
Rinse Only *	J1	Pin 9 - Pin 8
Auto Clean / Sensor Clean *	J1	Pin 10 - Pin 5
Heated Dry	J1	Pin 11 - Pin 5
Sanitize *	J1	Pin 11 - Pin 6
Hi Temp Wash/Extra Rinse	J1	Pin 11 - Pin 8

(Front Only Controls)

	Connector	Measure Between
Cycle Select *	J1	Pin 9 - Pin 5
Start / Cancel	J1	Pin 10 - Pin 6
Delay	J1	Pin 10 - Pin 7
Tough Scrub Plus / Super Scrub / Power Scrub *	J1	Pin 10 - Pin 8
Tough Scrub / Extra Wash / Hi Temp *	J1	Pin 11 - Pin 7
Insta Wash/Quick (Models with Extra Rinse) *	J1	Pin 12 - Pin 5
Model ID Jumper *	J1	Pin 12 - Pin 7

An unpressed switch will read as an open circuit.

A pressed switch will read as 10k Ω .

* On select models

Field Service Test

A Field Service Test may be started by pressing the **Heated Dry** key 6 times followed by the **Start** key within 8 seconds. This test must be performed with clean water to insure proper sensor performance.

"88" will appear in the display (if available*) and the following sequence of events will occur:

SECONDS	FUNCTIONS / ACTIVE LOADS
106	Vent Wax Motor / Water Valve
5	Thermistor check / Turbidity Sensor check & calibration - no loads active.
120	Wash Motor / Vent Wax Motor / Dispenser Wax Motor
180	Wash Motor / Heater / Vent Wax Motor
120	Drain Pump
4	Water Valve

The time for the Thermistor check / Turbidity Sensor check & calibration may vary slightly.

The Field Service Test will not repeat. The **Heavy Wash** LED will **Flash** during the test mode. All Indicator lights (except **Heavy Wash**) will illuminate. If the dishwasher door is opened during the test, the test sequence will pause, and resume when the door is closed. To the cancel test, press the **Start / Cancel** keypad.

The control has been designed to test the Sensor, Memory, and Motor. During the Field Service Test, if a fault has been detected, the test will abort any time after the motor current has been checked and 2 or more LED's will begin to **Flash**. A **Memory / Software Check** will occur immediately after the test is started. The (**Delay / Delay 2 hr**) LED and one of the following:

Turbidity Sensor - failure - **Hi Temp Wash LED/Extra Rinse LED**
Thermistor - failure - **Heavy Wash LED**
Motor - high current - **Normal Wash LED**
Motor - low current - **Light Wash LED**
Memory Failure - **Heated Dry LED**

* On select models

Membrane Readings (Front & Top Controls)

	Connector	Measure Between
Insta Wash/Quick (Models with Extra Rinse) *	J1	Pin 10 - Pin 6
Tough Scrub Plus / Super Scrub / Power Scrub *	J1	Pin 10 - Pin 7
160° Wash *	J1	Pin 10 - Pin 8
Tough Scrub / Extra Wash / Hi Temp *	J1	Pin 11 - Pin 7
Model ID Jumper *	J1	Pin 12 - Pin 8
Start / Cancel	J3	Pin 9 - Pin 5
Delay	J3	Pin 9 - Pin 6

(Top Only Controls)

	Connector	Measure Between
Insta Wash/Quick (Models with Extra Rinse) *	J1	Pin 10 - Pin 6
Tough Scrub Plus / Super Scrub *	J1	Pin 10 - Pin 7
160° Option	J1	Pin 10 - Pin 8
Tough Scrub / Extra Wash / Hi Temp *	J1	Pin 11 - Pin 7
Model ID Jumper *	J1	Pin 12 - Pin 6
Start Cancel	J1	Pin 13 - Pin 12
Delay	J1	Pin 13 - Pin 14

* On select models

Load Readings

	Measure Between	Result
Heater ¹	ST1 (Heater) - ST11 (Dlb Neutral)	16 Ω
Wash Motor	ST5 (Motor Common) - ST8 (Motor Main)	3 to 4 Ω
Drain Motor	ST6 (Drain) - ST4 (Dlb Line)	25 Ω
Vent Wax Motor	J6 Pin 1 (Vent) - ST4 (Dlb Line)	1.2k Ω
Dispenser Wax Motor	J6 Pin 3 (Disp) - ST4 (Dlb Line)	2k Ω
Water Valve ²	J6 Pin 4 (Init) - ST4 (Dlb Line)	1.1k Ω
Thermistor	J5 Pin 1 (Temp) - J5 Pin 4 (Neutral)	See Component Info

Notes:

1. This value assumes the high limit thermostat is closed.
2. This value assumes the float switch is closed.

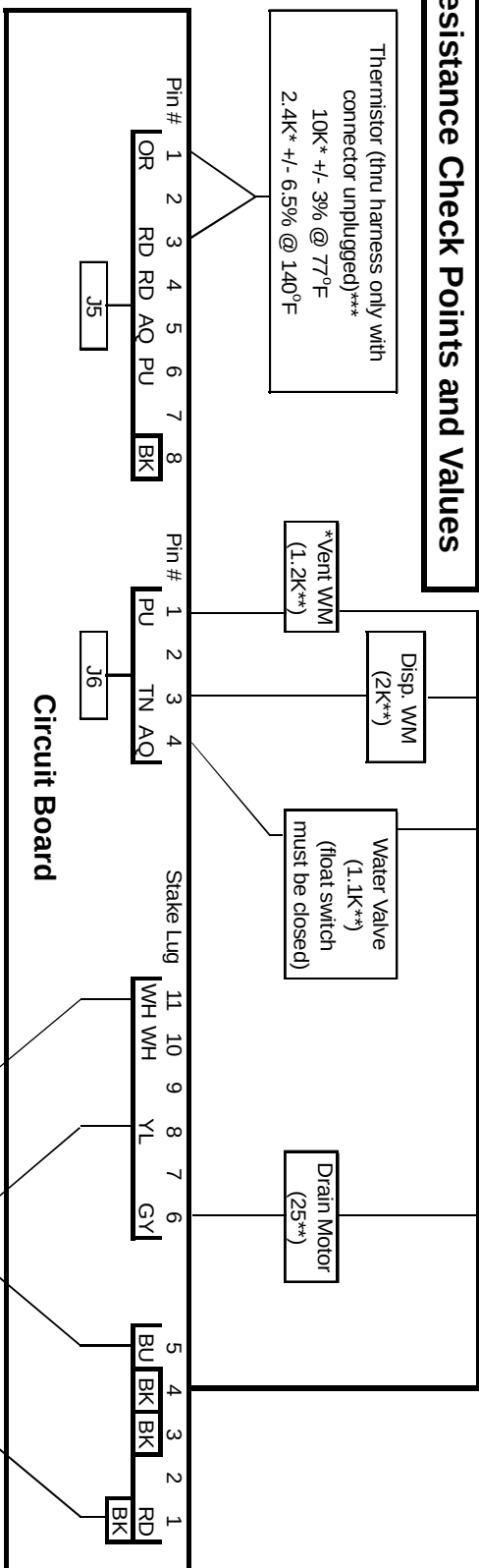
Electrical Diagnostics



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Resistance Check Points and Values



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1 Use the "Manual Function Test" as described on the electrical schematic sheet to check components before opening the door to perform continuity testing or replacing parts.

2 To check continuity from ends of power leads to control board through door switches:

- (A white plastic latch must be inserted in the latch assembly for this test.)
- > With one ohm meter lead connected to the white (neutral) power lead, you should have continuity at stake lugs 10 & 11.
- > With one ohm meter lead connected to the black (line) power lead, you should have continuity at stake lugs 3 & 4, and pin # 8 on connector J5.

3 Perform the resistance checks on the component(s) in question at the locations shown on the chart.

* Select Models Only.

** Nominal value for ohms of electrical resistance of component only. These values will vary slightly due to the additional resistance of the wire harness. Greater variation can occur if the component is still warm from being energized during testing.

*** A resistor in the control board wired in parallel will result in an approximate reading of 4.0 k ohms with connector J5 plugged in.

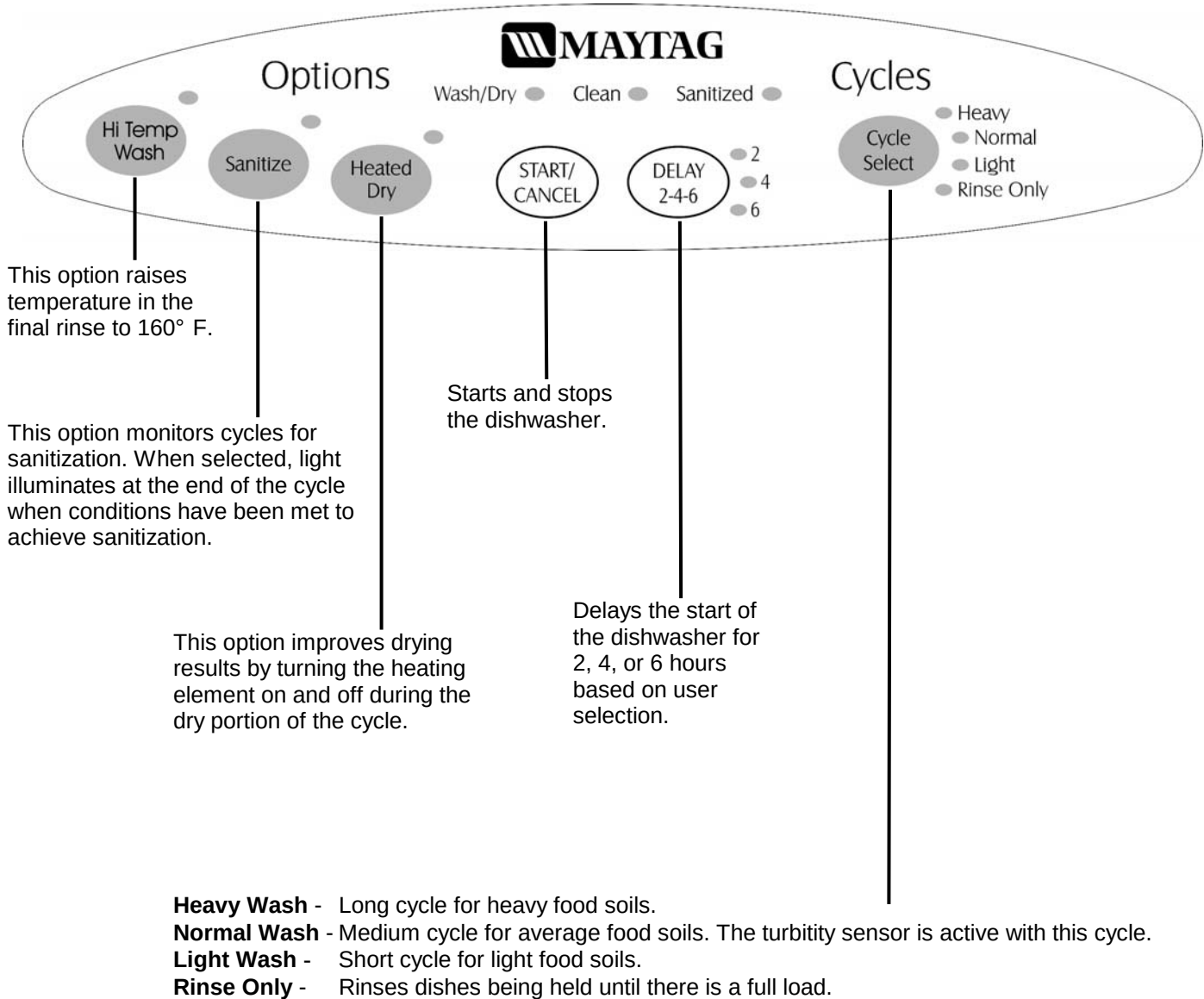
Always remove power to the unit before performing any resistance or continuity checks.

Control Definition



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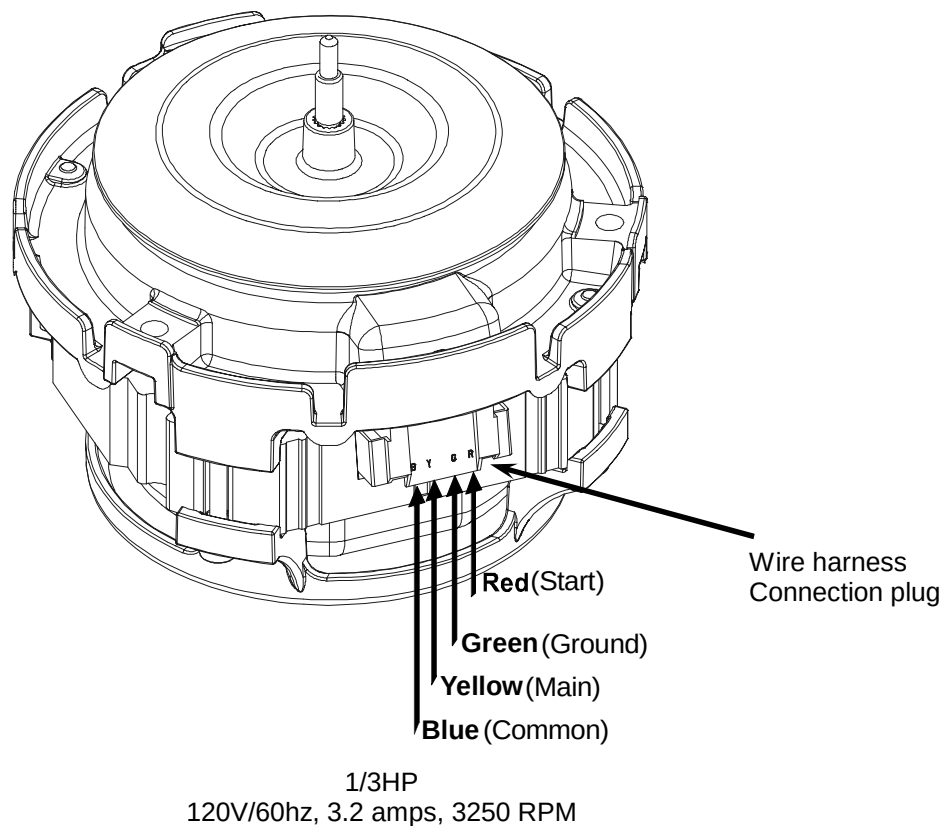


Motor Connectivity



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This represents the portion of a cycle that **MAY** be omitted. The determination of whether a segment is skipped or not is made by input from the sensor

Wiring Diagram



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