Technical Information – Top Load Washer

MAT12PDBA*, MAT12PDCB*, MAT12PRBA* MAT12PSBA* MAT12PDDA*, MAT12PDDB*, MAT12PSDA*, MAT12PRDA*

- 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 16022842 for detailed installation, operating, testing, troubleshooting, and disassembly instructions.

⚠ CAUTION

All safety information must be followed as provided in Service Manual 16022842.

⚠ WARNING

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Models	**MAT12PDBA*, MAT12PDCB*, MAT12PRBA*, MAT12PSBA*, MAT12PDDA*, MAT12PDDB*, MAT12PSDA*, MAT12PRDA***
Power Source	
Voltage AC	120 VAC
Fuse Requirement	15 Amp
Frequency	60 Hz
Motor HP (single-phase, reversible)	1/2 HP
Cabinet Dimensions	
Height Overall (including lid open)	52” (132.1 cm)
Height of Machine	44-7/8” (114 cm)
Width	25-1/2” (64.8 cm)
Depth	26-3/4” (67.9 cm)
Weight	
Crated (lbs/kg)	224-lbs (102-kg)
Uncrated (lbs/kg)	198-lbs (90-kg)
Water Temperatures	3
Water Levels	2
Overall Gallons (liters)	31.5 (119.2)
Adjustable Gallons (liters)	29 (109.0)
Inlet Hose Length	4 feet (1.22 m.)
Drain Hose Length	4 feet (1.22 m.)
Tub Capacity cubic feet (cubic meters)	2.5 cu.ft (0.07 cu.m.)
Inner Tub (spin speed)	618 r.p.m.
Agitation Speed (oscillations per minute)	150 o.p.m.

Component Testing Procedures

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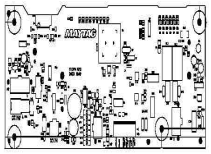
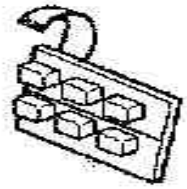
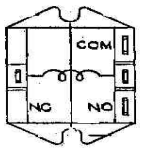
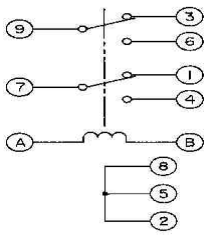
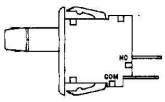
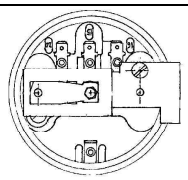
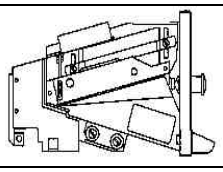
Illustration	Component	Test Procedure	Results
	Control Board	Proper grounding is necessary when handling microprocessor board to prevent damage from static electricity.	**See Control Board Connections Section.**
	Touch Pad	Depress the proper button, checking for continuity. Whites Colors Bright colors Permanent Press Wool Delicate & Knits	Continuity, if not replace. 1 to 3 1 to 2 1 to 4 5 to 3 5 to 2 5 to 4
	Motor Relay	Relay Coil: Grey to Orange/Black ------ Switch Terminals: Common to N.O.---- Relay Coil Energized----------	Approx 350 – 450 Ω Internal switch circuit is open. If switch is welded closed, replace switch. 24VDC. Check for signal from control board if not present.
1 WH | 2 L2 | 3 RD 4 RD | 5 RD | 6 WH 7 YL | 8 BR | 9 BU A PU | | B GY	Reversing Relay 	Relay coil: Purple and Gray (A to B)---- Terminals and Wires: Agitate (1) White to (7) Yellow---------- (3) Red to (9) Blue---------- (7) Yellow to (4) Red---------- (9) Blue to (6) White----------	Approximately 350 – 450 Ω Closed circuit Closed circuit Open circuit Open circuit
	Vault and Service Switch	Disconnect wire terminals from switch. Check for continuity between terminals: Common to N.O.	Circuit is open until switch plunger is depressed. If not, replace switch.
	Pressure Switch	Disconnect wire terminals from switch. Measure resistance across the following terminals: Empty (Filling) 20 to 15---------- Full (Run) 20 to 15 ----------	Resistance above 2 Ω indicates dirty switch contacts. Closed circuit Open circuit
	Coin Drop	Check for coin Movement. Diameter of Coin---------- Thickness of Coin---------- Rear of Chute (Penny Window)----------	Restricted: Clean and adjust if necessary. Adjust guide rail if necessary. Examine Pinch adjustment. Bend two deflector scoops if necessary.

Component Testing Procedures

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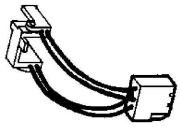
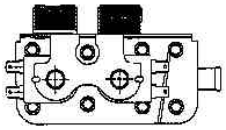
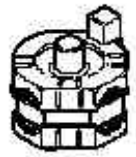
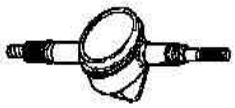
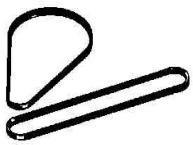
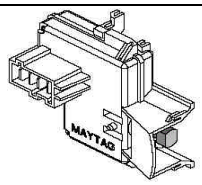
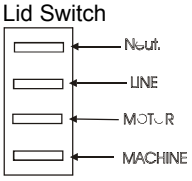
Illustration	Component	Test Procedure	Results
	Step -Down Transformer	Check voltage. Primary Side:---------- Secondary Side: AA6-1 to AA6-2---------- AA6-1to AA6-5 ---------- AA6-2 to AA6-5---------- AA6-3 to AA6-6----------	 120 VAC 2.65 VAC 2.65 VAC 5.3 VAC 22.5 VAC
	Coin Sensor	Check for coin registering. Coin Sensor Voltage Checks: 1) Blocked- White to Red---------- 2) Unblocked- White to Red---------- 3) Continuously- Blue to White /Blue---	Display flashes an "*" in "Service Mode" when coin is inserted. 23 VDC 0.6 VDC 1.5VDC Note**:** Replace sensor if voltage is 23VDC (Open Diode),or 0 VDC (Shorted Diode).
	Water Valve	Measure resistance across the terminals of each coil on the valve.	Approximately 850-950 Ω
	Motor	Type of Motor: Single speed (Split phase).	**See "Motor Testing" section for correct wiring contact.**
	Pump	Verify drain pump is not clogged or damaged.	1) Remove clog and verify proper operation. 2) Replace drain pump if damaged.
	Transmission	Type of transmission (orbital): 618 r.p.m. Spin 150 o.p.m. Agitate Check wattage with full tub of water only (Use Wattage Meter).	**Refer to section on "Transmission" Disassembly Procedures in base manual.** 380 to 420 watts
	Belts	Check belt for excessive wear or being burnt and cracking.	Replace if belt if damaged.
	Lid Switch 	Check for Continuity between the following terminals: Line to Machine (Lid Open) ---------- Line to Motor (Lid Closed)---------- Line to Machine (Lid open or Closed)--	 Closed Circuit Closed Circuit Closed Circuit, If not replace lid switch.

Component Testing Procedures

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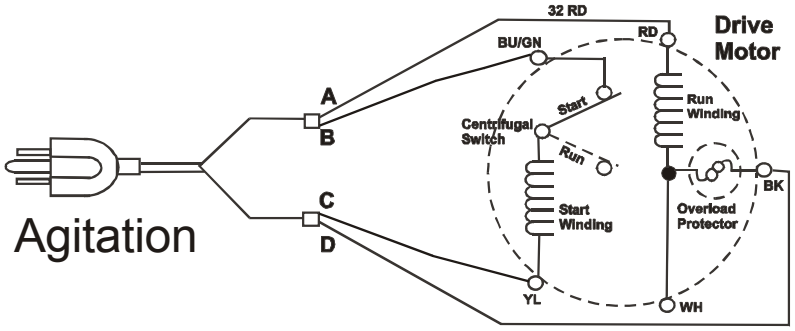
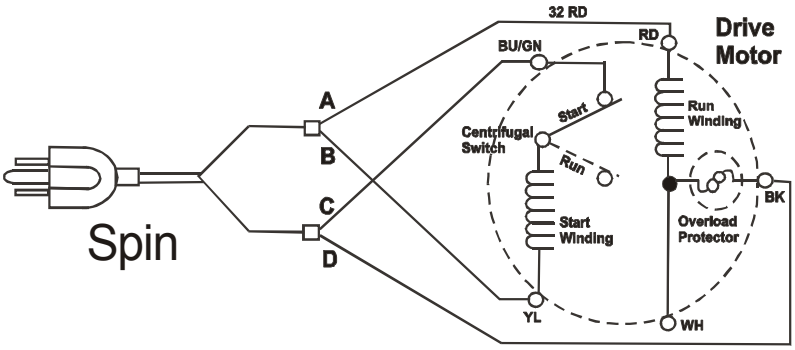
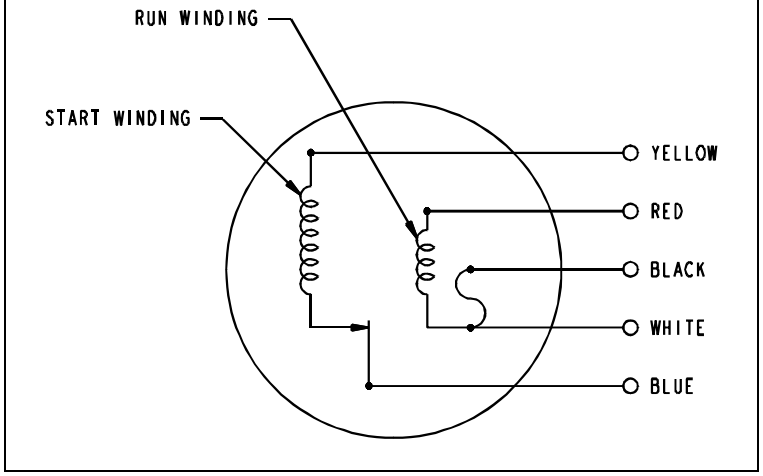
MOTOR TESTING

All four leads of the test cord are required to test the washer drive motor. The following drawings show installation of the test cord on the drive motor. Reversing the motor to agitate or spin is accomplished by reversing wires B and C.





Windings	Wiring Harness Connections	Readings
Run Winding	Red to White or Black	1.5Ω
Start Winding	Yellow to Blue	3Ω
Over-load	White to Black	0 Ω



Component Testing Procedures

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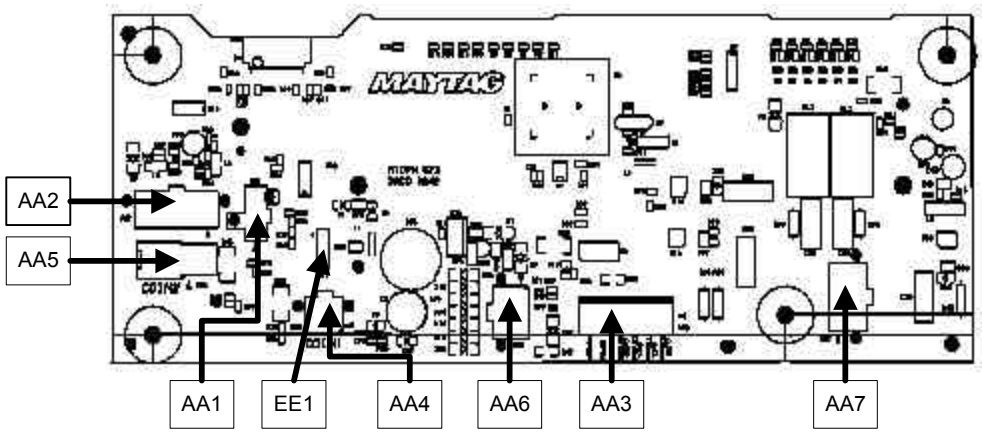
Control Board



Connector-Pin	Wire Color	Description	Connector-Pin	Wire Color	Description
Service and Vault Switch			**Coin Sensor #2**		
AA1-1	Black	Vault Switch	AA5-1	Blue	Anode coin #1 L.E.D.
AA1-2	Yellow	Service switch	AA5-2	Red	Collector Photo transistor
AA1-3	Orange	Common (AA1-1 to AA1-2)	AA5-3	White	Emitter Photo transistor
			AA5-4	White/Blue	Cathode L.E.D.
Relays					
AA2-1	--	--			
AA2-2	--	--	**Board Power Source**		
AA2-3	--	--	AA6-1	--	Center Tap
AA2-4	--	--	AA6-2	--	5.3 VAC (AA6-2 to AA6-5)
AA2-5	Purple	24 VDC Reversing Relay	AA6-3	--	22.5 VAC (AA6-3 to AA6-6)
AA2-6	--	--	AA6-4	--	--
AA2-7	--	--	AA6-5	--	5.3 VAC (AA6-5 to AA6-2)
AA2-8	--	--	AA6-6	--	22.5 VAC (AA6-6 to AA6-3)
AA2-9	--	--		--	
AA2-10	Pink	Power for off board relay	**Power and Main Components**		
			AA7-1	--	--
Debit Card Connections			AA7-2	Grey #20	120 Line/ Lid Switch
AA3-1	--	Available 2	AA7-3	Orange	Hot Water Valve Coil
AA3-2	--	Available 1	AA7-4	Brown #15	Pressure Switch
AA3-3	--	Enable 1	AA7-5	Red	120 Neutral
AA3-4	--	Enable 2	AA7-6	Black	Motor Sense
AA3-5	--	Debit Power	AA7-7	Purple	24 VDC Motor Relay1
AA3-6	--	Debit Ground	AA7-8	Blue	Cold Water Valve Coil
Coin Sensor #1			**Battery**		
AA4-1	Blue	Anode coin #1 L.E.D.	EE1-1	+	Positive Side
AA4-2	Red	Collector Photo transistor	EE1-2		--
AA4-3	White	Emitter Photo transistor	EE1-3		--
AA4-4	White/Blue	Cathode L.E.D.	EE1-4	-	Negative Side

Component Testing Procedures

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PROGRAMMING PROCEDURES

CODE	DISPLAY	EXPLANATION
607	6	REGULAR CYCLE PRICE
	07	Represents the number of coins. See value of Coin 1 and Coin 2. Adjustable from 0-39 coins by pressing the *Permanent Press* keypad. NOTE: PS MODELS ONLY- Represent the number of push-in actuations of the coin slide. Press *Woolens* keypad once to advance to next code.
710	7	WASH & AGITATION CYCLE
	10	This is the number of minutes for *Wash*. Adjustable from 8-15 minutes by pressing the *Permanent Press* keypad. Press *Woolens* keypad once to advance to next code.
811	8	RINSE CYCLES Represents the length and number of rinses (except “woolens” and “delicates”). The middle digit is length of rinse agitation (1 to 4 minutes) and the last digit is number of rinses (1or 2). Advance rinse option by pressing *Permanent Press* keypad. Press *Woolens* keypad once to advance to next code.
900	9	CYCLE COUNTER OPTION
	00	“OFF."
	OC	ON." Press *Delicates & Knits* keypad three consecutive times to select "OC" and three consecutive times to turn “OFF” ("00"). Reset counter by going from "OC" to "00." Press *Woolens* keypad once to advance to next code.
1.00	1.	MONEY COUNTER OPTION
	00	“OFF”
	0C	“ON”. Press *Delicates & Knits* keypad three consecutive times to select "OC". Counter resets by going from “OFF” to “ON”.
	C0	To select “On” and not turn off. First select “ON”, then within two seconds press *Delicates & Knits* twice, *Permanent Press* Once, and exit the setup mode.
2.00	2.	SPECIAL PRICING OPTION.
	00	"OFF."
	SP	"ON." Press *Delicates & Knits* keypad once to select "SP." Steps "3." thru "9." codes are skipped if mode "2.00" is selected. Press *Woolens* keypad once to advance to next code.
3.07	3.	SPECIAL CYCLE PRICE
	07	Represents the number of coins. Adjustable from 0 - 99 by pressing the *Permanent Press* keypad. Press *Woolens* keypad once to advance to next code.
5.00	5.	MINUTES
	00	This is the selection "MINUTES" of the time of day clock. Adjustable from 0 to 59 by pressing the *Permanent Press* keypad. Press *Woolens* keypad once to advance to next code.
6.00	6.	HOUR
	00	This is the selection "HOUR" of the time of day clock using military time (24 hour clock). Adjustable from 0 to 23 by pressing the *Permanent Press* keypad. Press *Woolens* keypad once to advance to next code.
7.00	7.	SPECIAL PRICING STARTING HOUR
	00	This is the selection of the hour using military time (24 hour clock) that the Special Pricing will "begin “. Adjustable from 0 to 23 by pressing the *Permanent Press* keypad. Press *Woolens* keypad once to advance to next code.

Component Testing Procedures

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CODE	DISPLAY	EXPLANATION
8.00	8.	SPECIAL PRICING STOPPING HOUR
	00	This is the selection of the hour using military time (24 hour clock) that the *Special Pricing will "stop."* Adjustable from 0 to 23 by pressing the *Permanent Press* keypad. Press *Woolens* keypad once to advance to next code.
9.10	9.	SPECIAL PRICE DAYS Represents the day of the week and if special pricing is to occur on that day of the week. The last digit is "0" for *OFF* or "S" for *ON*.
	10	Press the *Delicates & Knits* keypad once to select "0" and once for "S." Press *Permanent Press* keypad to advance to next day of the week. Press *Woolens* keypad once to advance to next code.
A.00	A.	VAULT VIEWING
	00	"OFF."
	SC	"ON." Press *Delicates & Knits* keypad once to select "SC." The money and/or cycle counter will be viewable when the vault is opened. If "00" is selected, the service door will need to be opened to activate, to view the money and/or cycle counter. Press *Woolens* keypad once to advance to next code.
b.05	b.	VALUE OF COIN 1 (QUARTER DROP) Represents the number of nickels given to the *value of each coin* in code 607 "regular cycle price" or "special cycle price." For example: b.05 equals five nickels or one quarter. Press *Permanent Press* keypad to advance from 1 to 99 in nickels. Press *Woolens* keypad once to advance to next code.
	05	
C.20	C.	VALUE OF COIN 2 (DOLLAR DROP) Represents the number of nickels given to the *value of each* Dollar dropped in the dollar coin slot. For example: C.20 equals twenty nickels or one dollar. Press *Permanent Press* keypad to advance from 1 to 99 in nickels. Press *Woolens* keypad once to advance to next code.
	20	
d.00	d.	COIN SLIDE OPTION
	00	"OFF"
	CS	"ON". Press *Delicates & Knits* keypad once to select "00" when coin drop is used, and "CS" for models *not* using coin drops. Press *Woolens* keypad once to advance to the next code.
E.00	E.	ADD COINS OPTION This option causes the customer display to show the number of coins (coin 1) to enter, rather than the dollar and cents amount.
	00	"OFF"
	AC	"ON". Press *Delicates & Knits* keypad 3 consecutive times for this selection. Press *Woolens* keypad once to advance to the next code.
F.00	F.	ENHANCED PRICING OPTION
	00	"OFF"
	CP	Cycle Based Pricing-- Allows configuration of different prices for cold, warm and hot water cycles.
	Su	Super Cycle Pricing-- This allows customers to upgrade cycles by depositing extra money. Setup codes "H" and "h" will only display when this option is turned "ON". Press *Delicates & Knits* keypad 3 consecutive times for this selection. Press *Woolens* keypad once to advance to the next code.
H.01	H.	SUPER CYCLE UPGRADE PRICE (Skipped unless super cycle pricing is selected "F.Su".) This represents the number of coin 1 required to upgrade a base cycle to super cycle. Advance from 0-39 by pressing *Permanent Press* keypad. Press *Woolens* keypad once to advance to the next code.
	01	

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CODE	DISPLAY	EXPLANATION
h.01	h.	SUPER CYCLE TYPE (Skipped unless super cycle pricing is selected "F.Su".) This represents the super cycle upgrade option. Press *Permanent Press* keypad to step through upgrade option 1 through 3 as follows:
	01	01-enhanced wash, extra 3 minutes of wash tumble in addition to programmed wash time. 02- extra rinse for all cycles, final warm rinse for WHITES, COLORS, and DELICATE & KNITS. 03- both 01 and 02. Press *Woolens* keypad once to advance to the next code.
J.Cd	J.	COIN/DEBIT OPTION Press *Delicates & Knits* keypad 3 consecutive times for this selection
	Cd	Both coin and debit turned "ON".
	C_	Coins selected, debit disabled.
	_d	Debit card selected and coins disabled.
	Ed	Enhanced debit is self-selected when a Generations 2 card reader is installed in the washer. The "Ed" option cannot be manually turned "ON" and "OFF". Press *Woolens* keypad once to advance to the next code.
L.00	L.	PRICE SUPRESSION OPTION This option causes the customer display to show "ADD or "AVAILABLE" rather than the amount of money to add (Used mainly in debit installation). Press *Delicates & Knits* once to turn "ON" or "OFF".
	00	"OFF"
	PS	"ON" Press *Woolens* keypad once to advance to the next code.
n.CE	n.	CLEAR ESCROW OPTION When elected, money held in escrow for 30 minutes without further escrow or cycle activity will be cleared. Press *Delicates & Knits* once to turn "ON" or "OFF".
	00	"OFF"
	CE	"ON" Press *Woolens* keypad once to advance to the next code.
U.00	U.	PENNY INCREMENT OFFSET This represents the penny increment price offset used un Generation 2 (enhanced Debit) PR
	00	models. Choose from 0-4 pennies by pressing the *Permanent Press* keypad. Press *Woolens* keypad once to advance to the next code.

WASHER DIAGNOSTIC CYCLE

The mode is entered by depressing ***Delicates & Knits*** keypad for one second while in any of the set-up modes one through six or with a diagnostic code present. Diagnostic codes are cleared on entry and all display segments should flash. If a diagnostic code persists, it must be corrected before the diagnostic cycle will start. With all segments flashing, depressing the **Woolens** keypad starts the diagnostic cycle.

Display	Function	Time Length
C	Cold Fill	3 seconds
H	Hot Fill	3 seconds
CH	Warm Fill	3 seconds
A	Agitation	3 seconds
S	Spin	9 Seconds

Note: 1) Woolens keypad can be used to pause/resume the diagnostic cycle.
2) Delicate & Knits keypad will cancel the cycle and exit the diagnostic mode.
3) Permanent Press keypad, "CC"(Free cycle) will be displayed. When you exit the service mode "Select Cycle" will be displayed.

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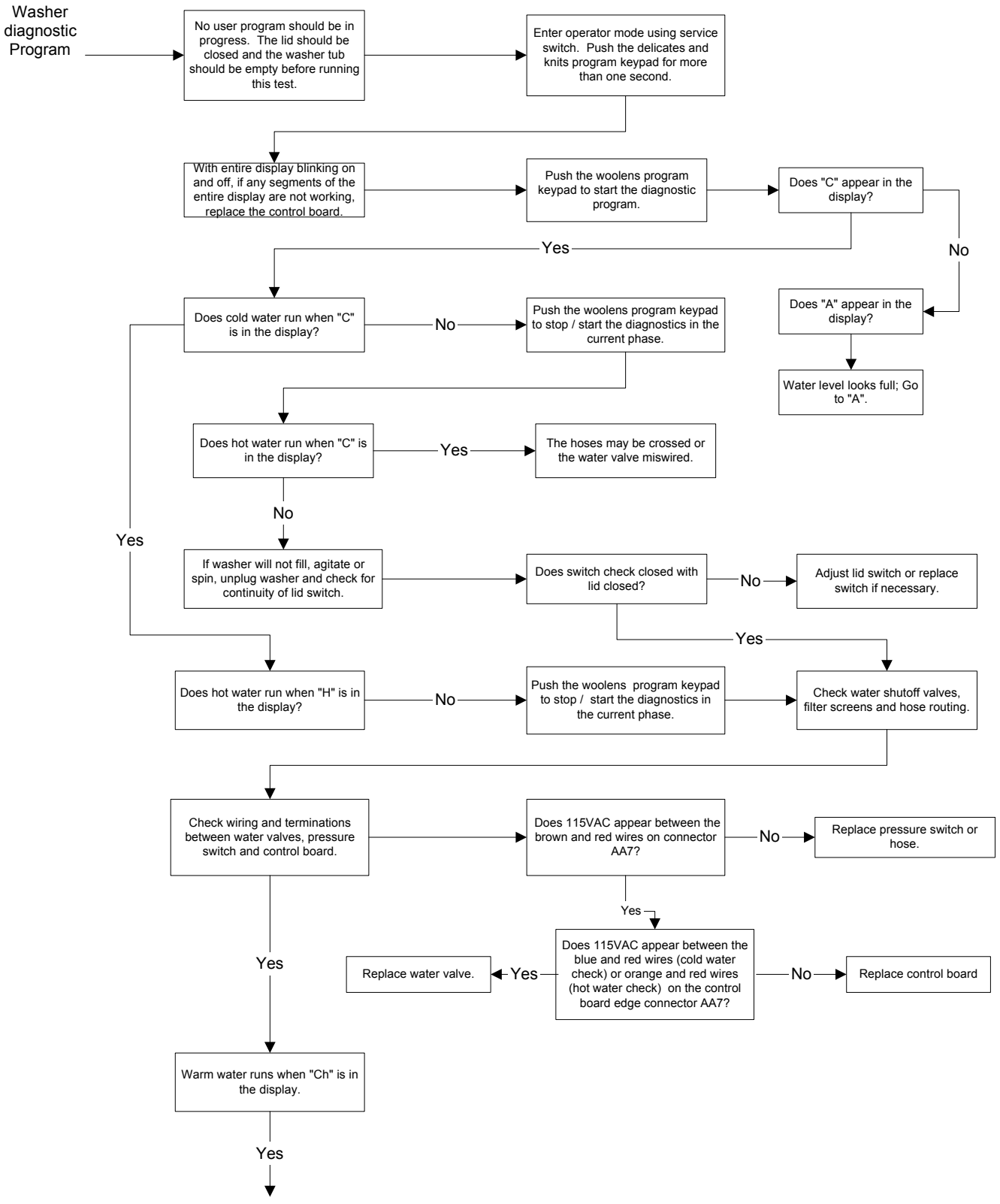

Component Testing Procedures

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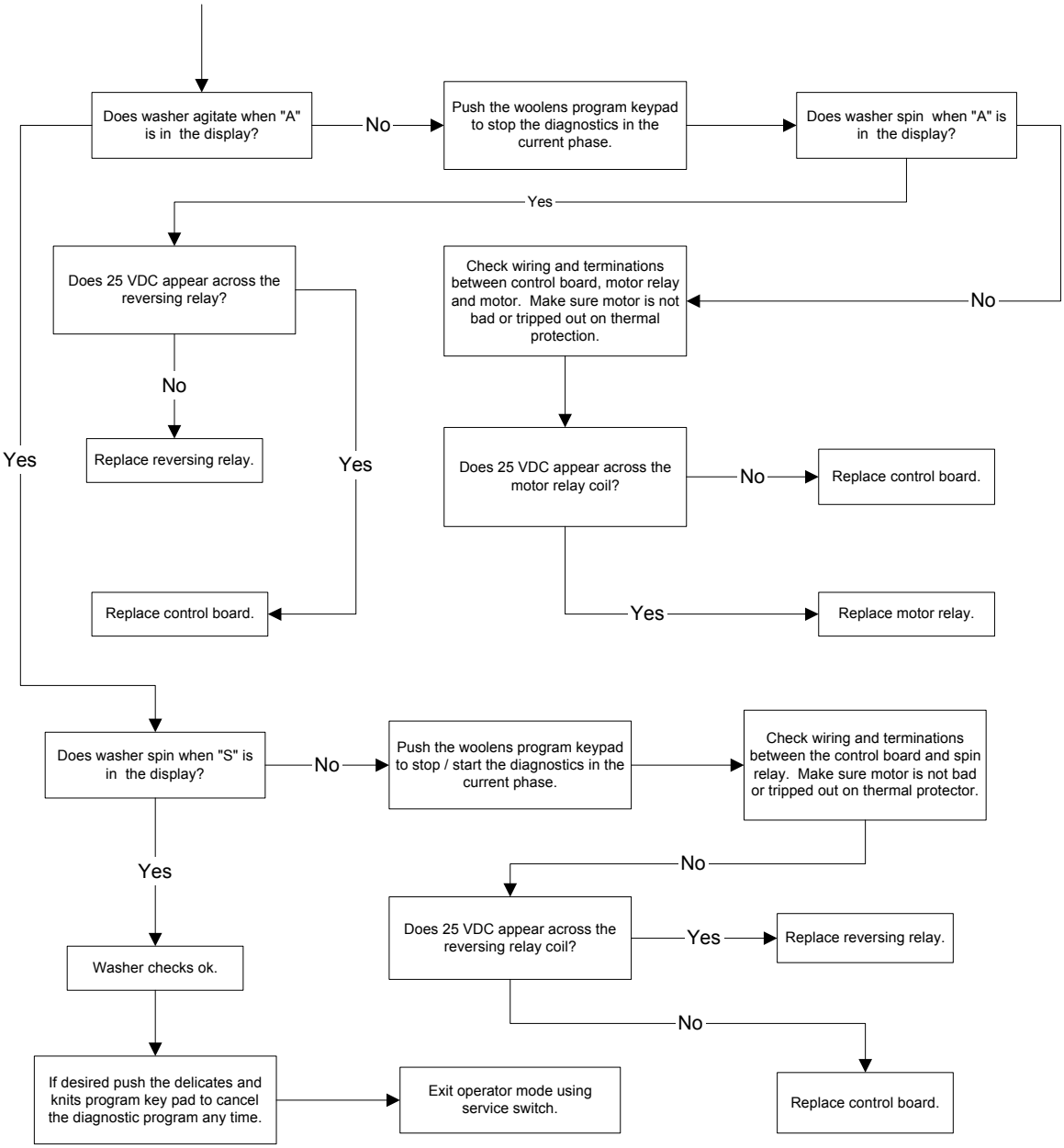

Component Testing Procedures

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WASHER HELP MODE

The mode is entered by depressing ***Permanent Press*** keypad while in special pricing option Step 2.XX(or while dAS displays if operation with Maytag Data Acquisition setup). In help mode , the ***Woolens*** keypad can be used to advance through three help codes(displayed as 1h.XX, 2h.XX, and 3h.XX). Pressing ***Delicates & Knits*** keypad while any of the help codes are displayed clears the three help codes.

Display Symbol	Inputs and Output Function
WASH	Water sensed at wash level
*	Low voltage present (below 90 VAC)
Circle above digit	Lid closed
OR	Motor sensed running
COLD	Cold water relay on
HOT	Hot water relay on
DETERGENT	Motor relay on
SPIN	Spin(reversing) relay on

WASHER HELP CODES

Code	Problem	Description
20	Filling too quickly during cycle	Pressure switch opens sooner then expected
21	Losing water during cycle (siphoning)	Added more water during agitation

DIAGNOSTIC CODES

Diagnostic Codes	Description
d1	Water level circuit failure on control board
d4	Lid switch circuit failure on control board
d5	Blocked coin 1 or coin drop control circuit failure
d7	Slow fill detected; fill time greater than 5 minutes
d8	Slow drain detected; drain time greater than 2 minutes
d9	Low voltage detected; less than 90 volts AC
d12	Motor sensor circuit failure on control board
d13	Blocked coin 2 or coin drop control circuit failure
d16	Control board not receiving communication from debit card reader

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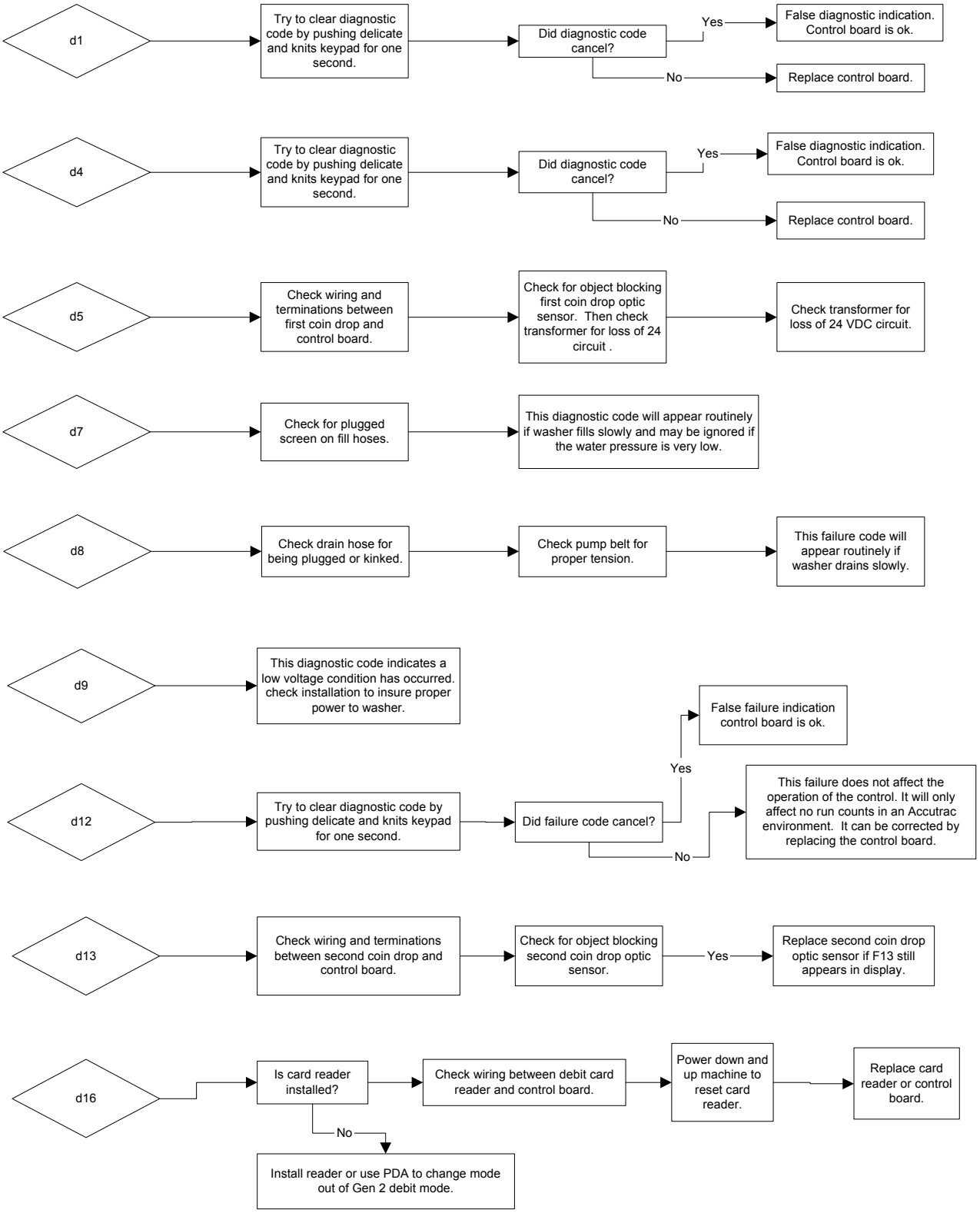
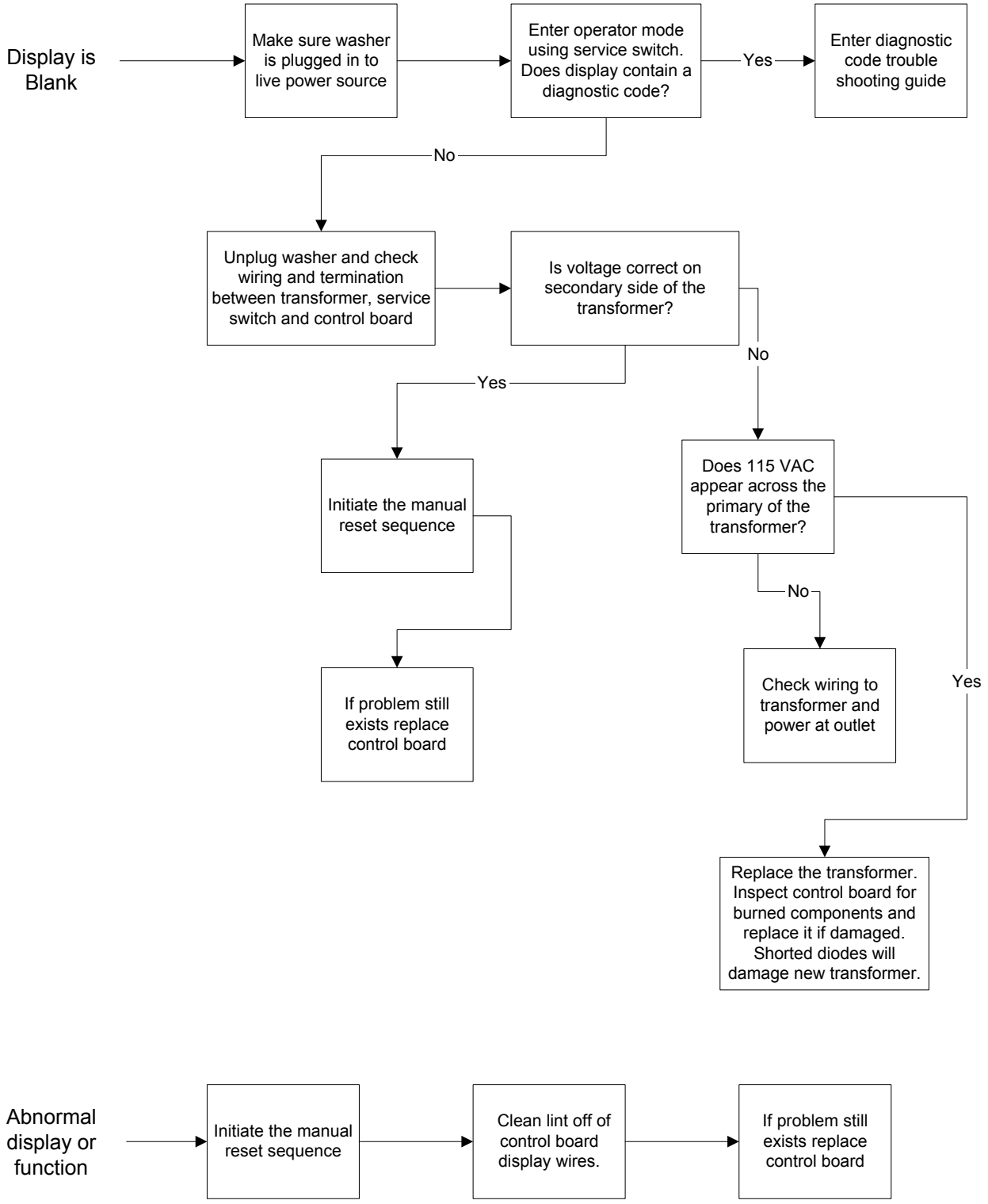


Component Testing Procedures

WARNING

To avoid risk of electrical shock, personal injury or death; disconnect power to washer before servicing, unless testing requires power.

TROUBLESHOOTING CONTROL BOARD FLOW CHART



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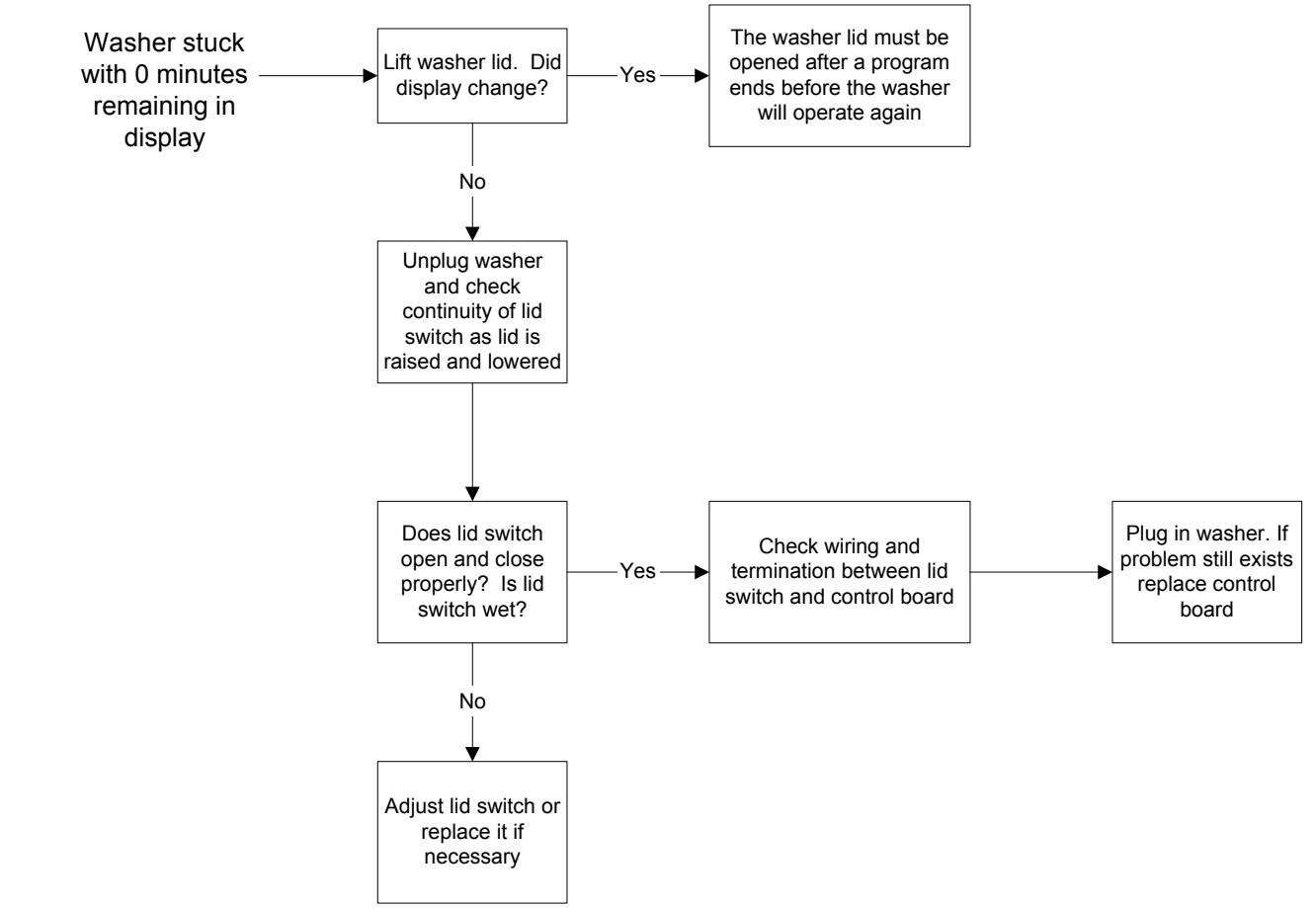

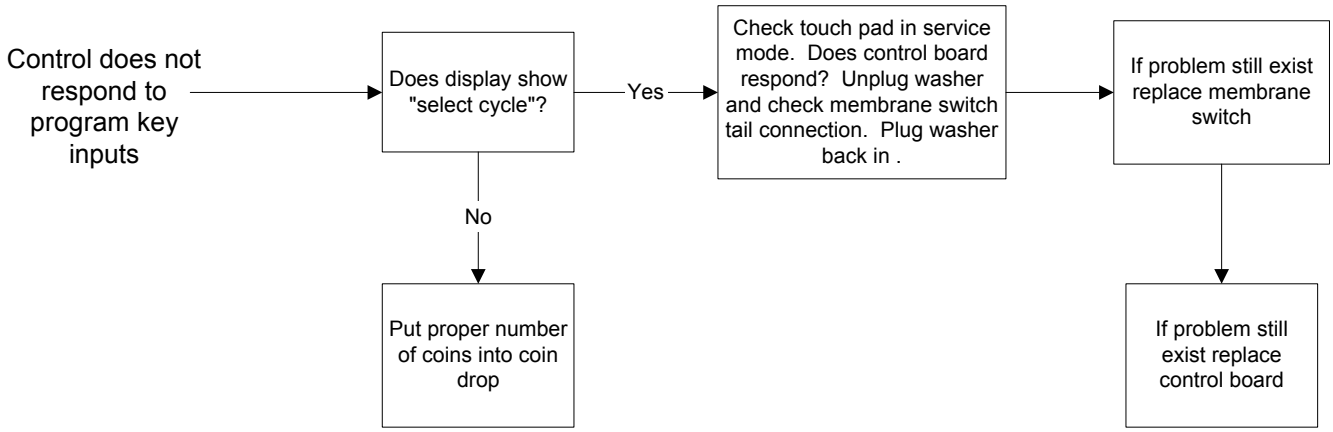

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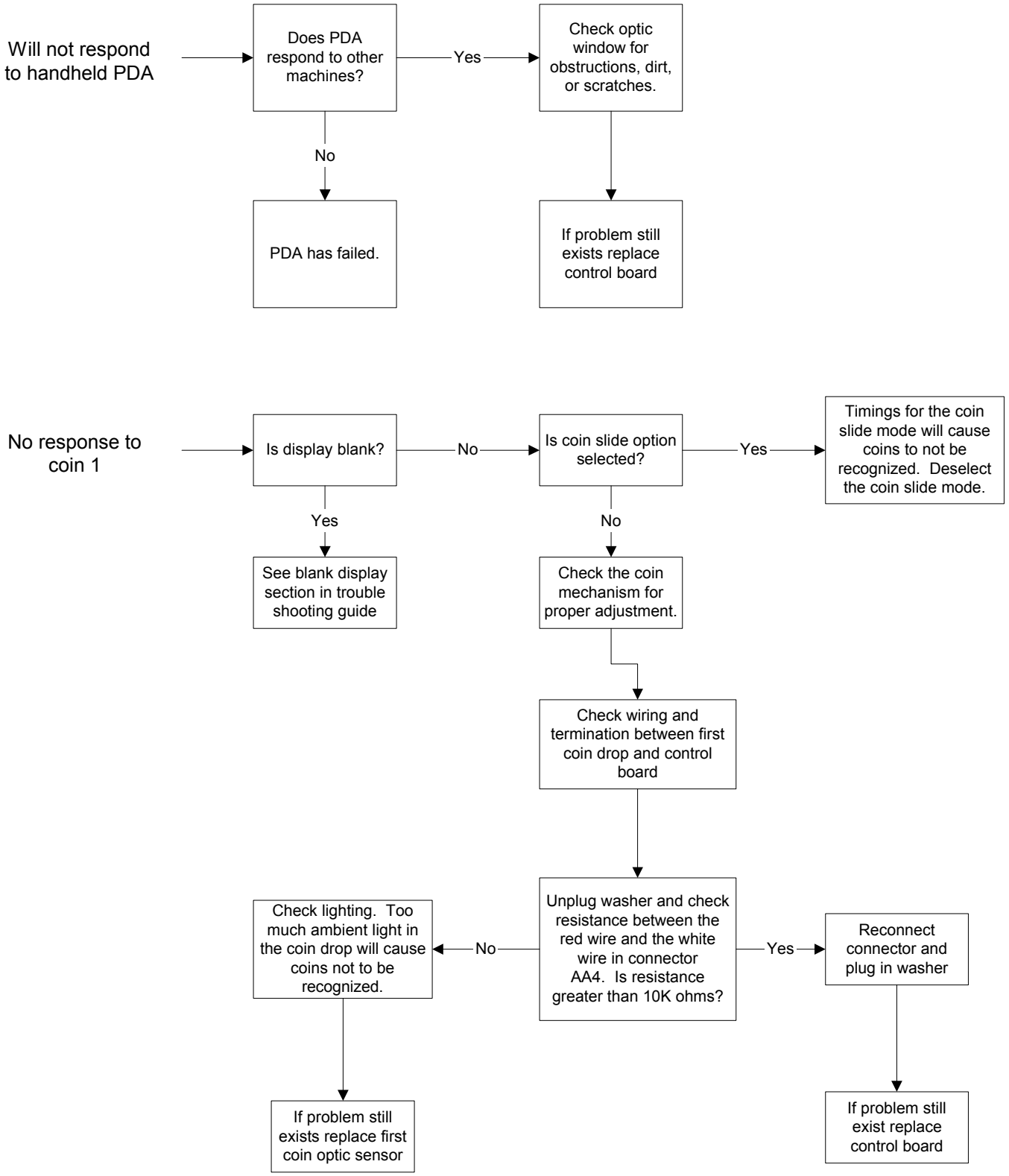

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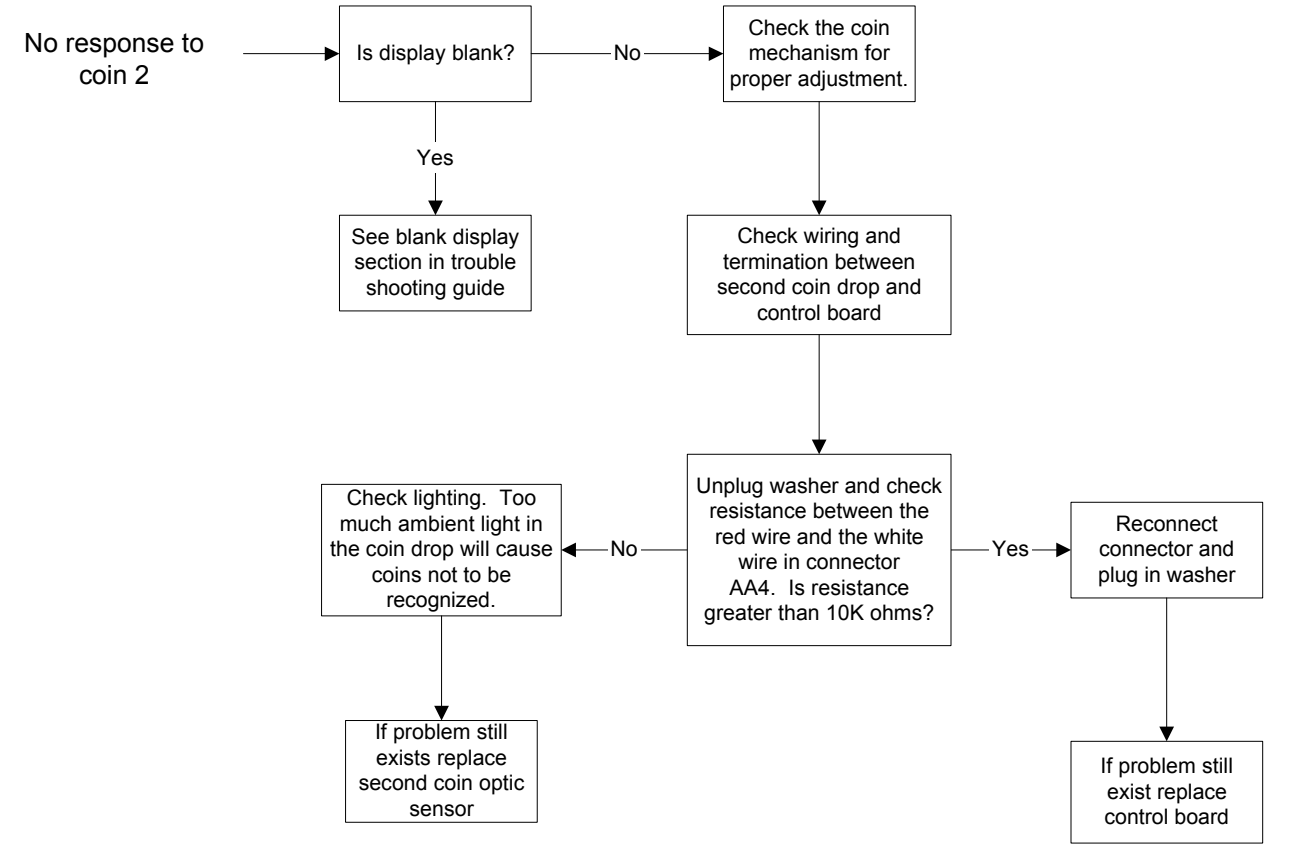

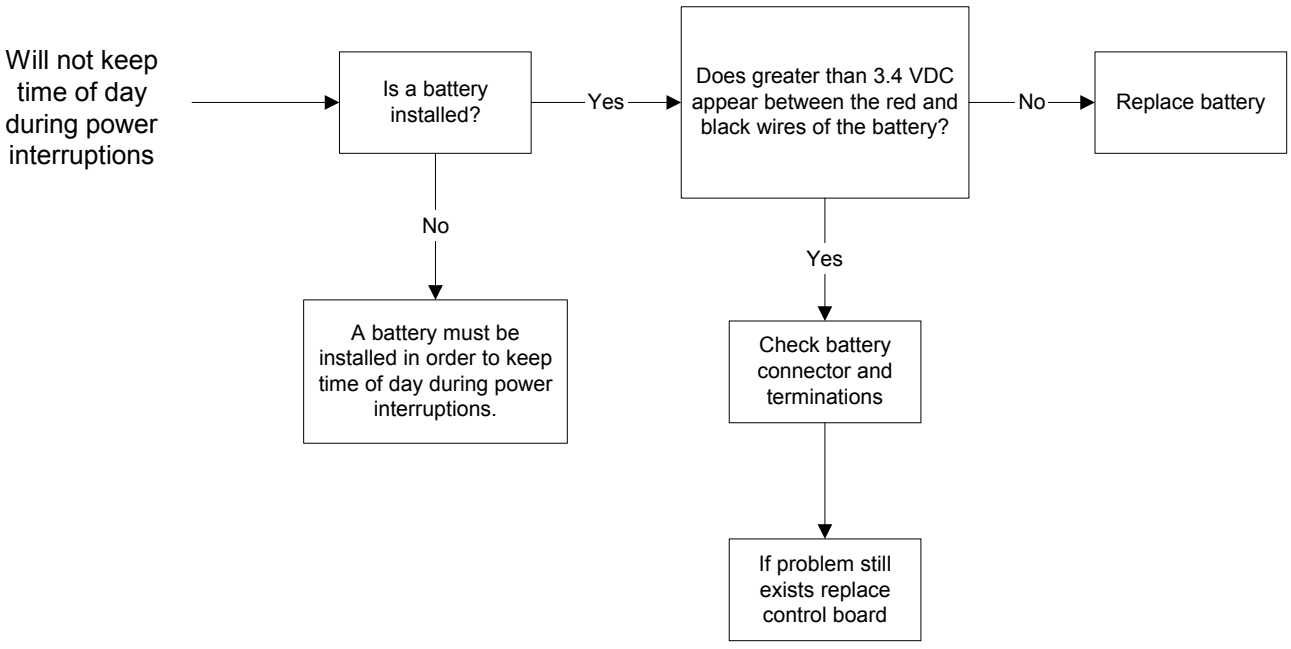

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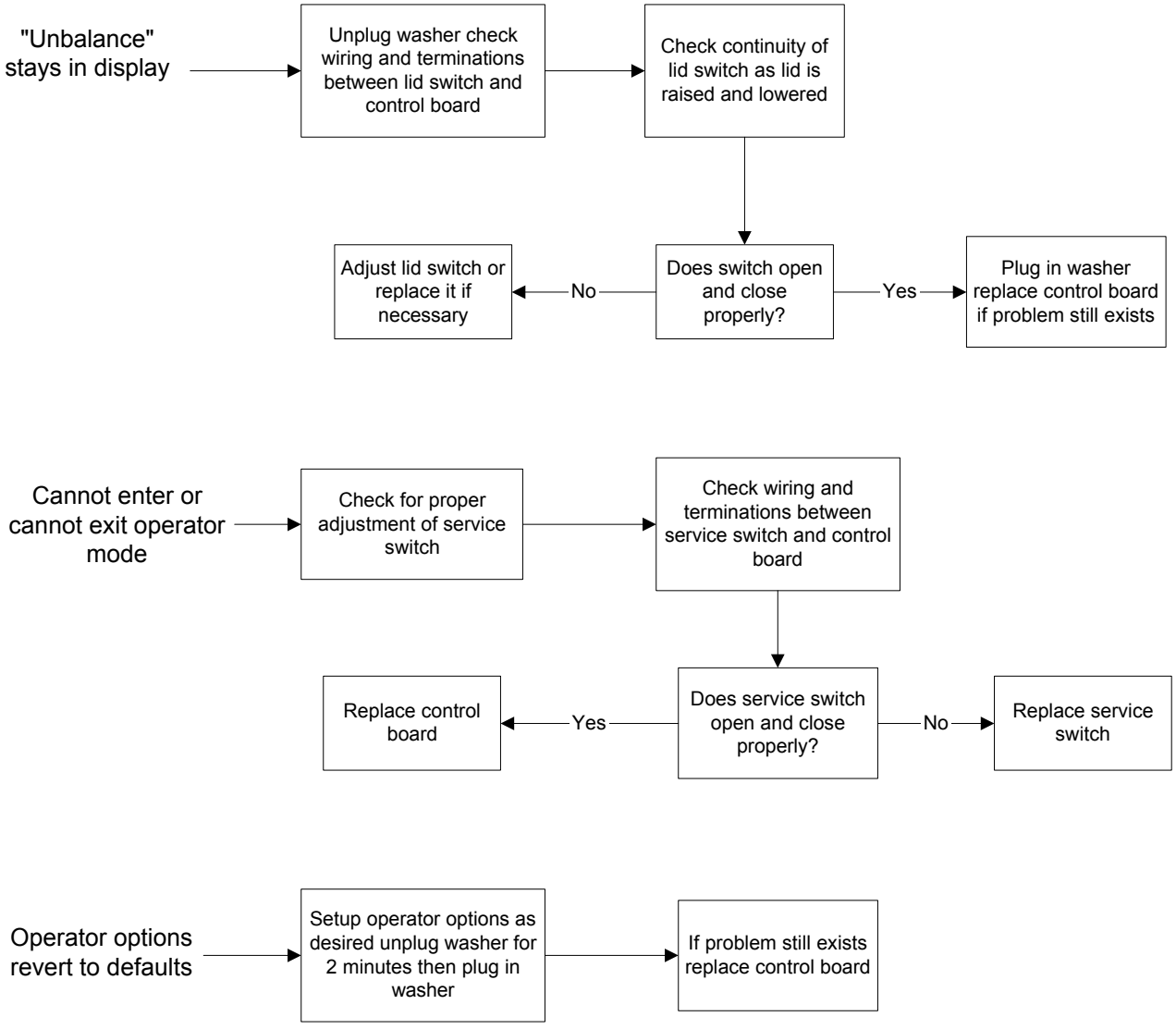

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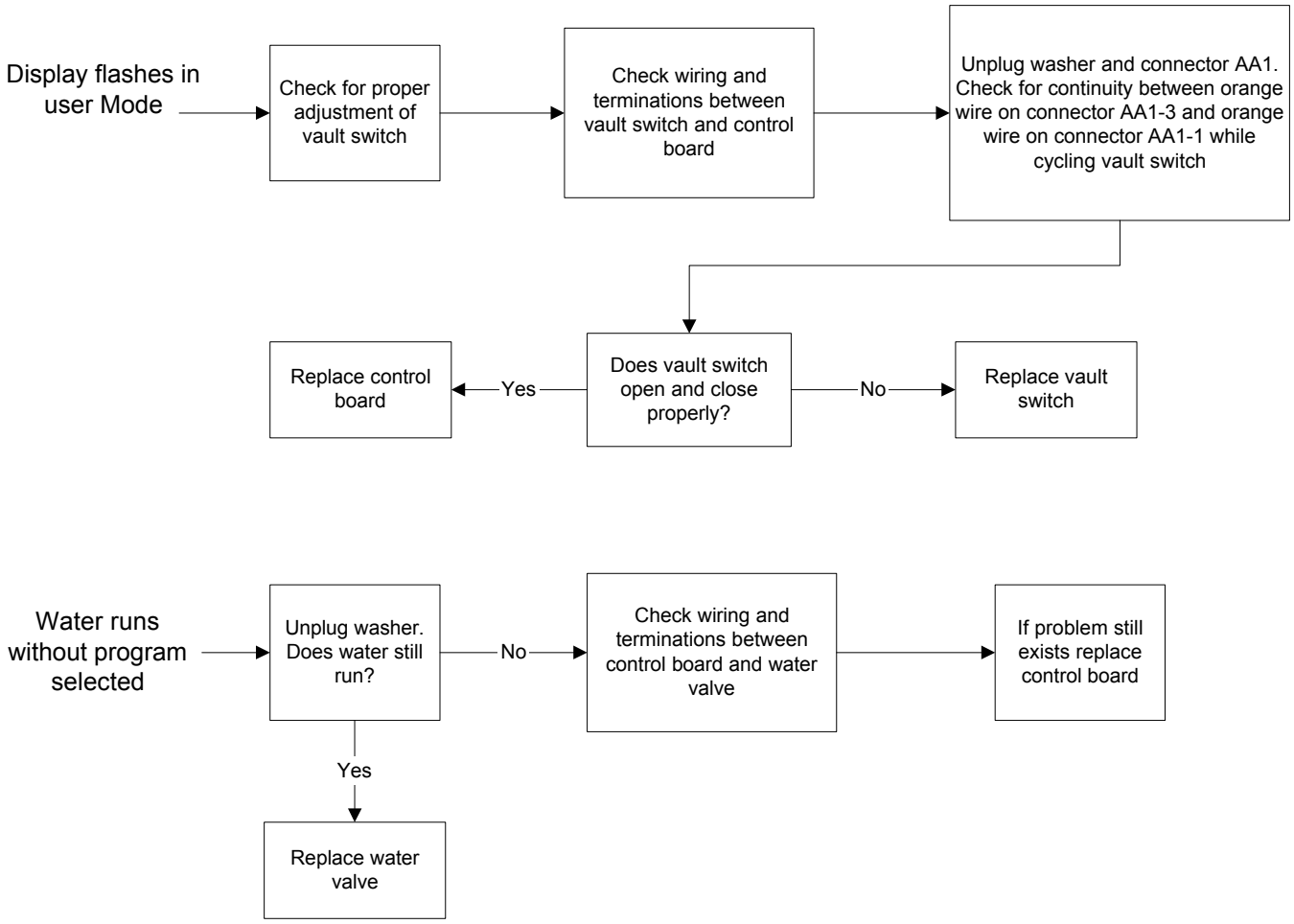

Wiring Diagram

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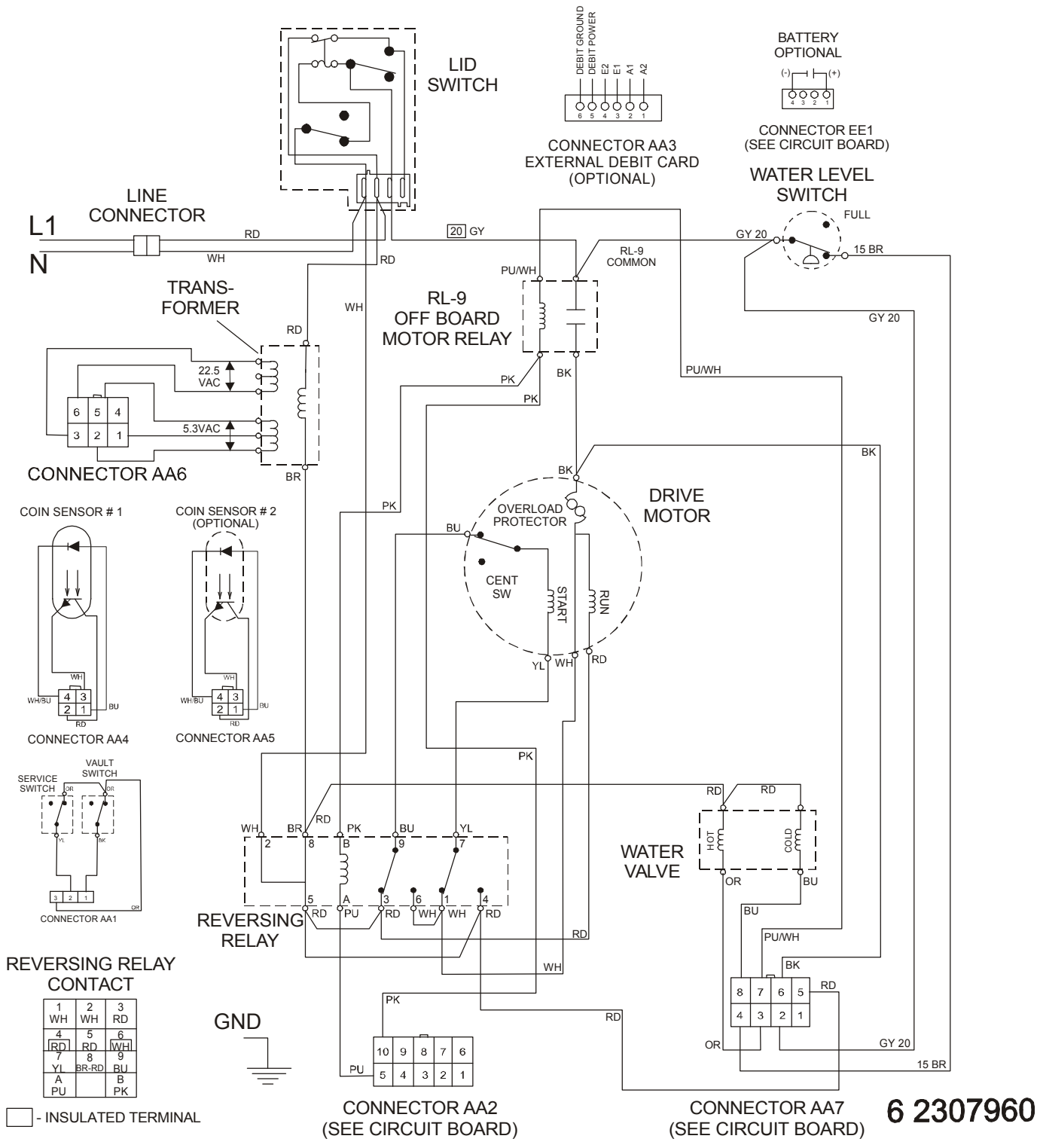
MAT12PDBA*, MAT12PDCB*, MAT12PSBA*, MAT12PDDA*, MAT12PDDB*, MAT12PSDA* SCHEMATIC



Wiring Diagram

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MAT12PRBA*, MAT12PRDA SCHEMATIC