# Top Load Washer Technical Information FAV9800A\*, FAV7500A\*

- 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 16022808 for detailed installation, operating, testing, troubleshooting, and disassembly instructions.

### **CAUTION**

All safety information must be followed as provided in Service Manual 16022808.



### **WARNING**

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#### MAYTAG NEPTUNE® TL MODEL FAV9800A



Color Availability	W, Q
Controls	LCD
Trilingual Touchscreen	English/French/Spanish
StainBrain™	60 Plus Preset Stains
Favorites	24 Memory Locations
Cycle Library™	24 Preset Cycles
Hints & Tips	•
Before You Call	•
Control Panel Lock-Out	•
Time Remaining Indicator	•
Start/Pause Keypad	•
Graphics	Neptune® TL
Washtub	301-Grade Stainless Steel
Capacity	3.5 cu. ft.
Tumblers	2
Speed Combinations	Infinite
TumbleClean™ Wash System w/Tumblers	•
Super Wash Fabric Cycle	•
Normal Wash Fabric Cycle	•
Whites Fabric Cycle	•
Wrinkle Control Fabric Cycle	•
Colors/Jeans Fabric Cycle	•
Delicates Fabric Cycle	•
Bulky Items Fabric Cycle	•
Handwash Fabric Cycle	•
Enviro Plus Fabric Cycle	•
Quick Wash Cycle	•
Spin Only Cycle	•
Delay Wash Option	1-12 Hours
Presoak Cycle Option	•
Stain Treat Option	•
Extra Rinse Option	•
Warm Rinse Option	•
MaxExtract™ Plus Spin Option	•
Water Level Control	IntelliFill™
Water Temperature Combos	8
	/arm-105°/Hot-Hot/Hot-115°
AutoTemp™ Internal Water Heater	1200 Watt
	t/Heavy/Medium/Light/Freshen

End-of-Cycle Chime	Variable
Showering Dispenser System	•
Automatic Detergent Dispenser	Timed
Automatic Bleach Dispenser	Timed
Automatic Fabric Softener Dispenser	Timed
Suspension	4 Struts
Top/Lid	Porcelain
Cabinet	QuadCoat™
Rear Leveling Legs	Stationary
Sound System	Ultra EQ Plus™
Spin Speeds	
MaxExtract™	1000 (extended)
High/Flat Dry	850
Medium	650
Low/Hang Dry	550

**Dimensions** 

Width: 27"
Depth: 28"
Height: 44<sup>3</sup>/<sub>4</sub>"

Height w/lid open: 55<sup>3</sup>/<sub>4</sub>"



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#### Will Not Start

- Plug cord into live electrical outlet.
- Check fuse or reset circuit breaker to outlet.
- Close lid and push the START/PAUSE button to start washer. The START/PAUSE LED should change from flashing to on continuously.
- Check to see if the washer is in a pause or soak period of the cycle. Wait briefly for cycle to advance.
- · Check for restricted drain system.
- Check the lid, lid latch mechanism, and circuitry (see Will Not Lock).

#### Leaking

- Make sure supply hose connections are not leaking. Check for rubber gasket damage due to over-tightening.
- Make sure end of drain hose is correctly inserted and secured to drain facility.
- Check bottom of tub around the pulley. See special instructions page 11.
- Check internal hose connections (fill & drain systems, hoses & clamps).
- Check tub cover. Remove, reposition and reinstall the tub cover seal. Seal seam must be at the top of the tub cover.
- Make sure water dispensing system on inner lid is securely attached to lid.
- Make sure dispenser valve is securely attached to mounting bracket.
- Check standpipe for leak. Wrap a dry rag around the standpipe opening. If rag becomes wet leak is fault of home plumbing. Be sure the standpipe is capable of accepting the flow of water from the washer.
- Check the lid hinges if water is coming out behind the lid
- Check for bowing of lid where water enters detergent dispenser.

#### Display Lights Up When Lid is Opened or Closed

This is normal behavior.

#### No Tumble

- Start normal cycle with an empty machine and allow a fill to check tumble.
- Fabric cycles such as NORMAL, DELICATES, HAND WASH, & WRINKLE CONTROL only tumble periodically, every 60 seconds.
- Check for loose connections at machine control board, motor control board and motor.
- Perform Motor and Motor Control Test.

- Washer does not tumble during most fills or during presoak.
- Washer with heat option does not tumble while heating.
- Check belt.

#### Will Not Spin

- During fill cycle If machine tumbles and spins simultaneously replace clutch assembly.
- During spin cycle If machine tumbles and spins simultaneously replace clutch assembly.
- Perform Motor and Motor Control Test.
- Check belt.
- Check that the machine control correctly senses that all 3 water levels are empty. See *Board Input Test*.
- Tub Displacement Sensor disconnected, or loose wire.

#### No Water Fill

- Go to No Fill Test.
- Check to make sure water supply is turned on fully.
- Normal water level is 1 to 7 inches inside the spinner.
- Check electrical circuit and connections at the water valve, and pressure switch.
- · Check for kinks in inlet hoses.
- Check for clogged inlet screens.
- Visually check hot and cold separately for fill.
- Check for low water pressure. May be dependent on pressure entering home. Variations may occur due to usage in the home at the time machine is used.
- Check for frozen pipes and hoses.

#### **Tub Full of Suds**

- Check for restricted drain system.
- Check for loose wire connections at control board and pump.
- Perform Motor and Motor Control Test.
- Use high efficiency or low sudsing detergent specially formulated for front load washers.
- Run the clothes washer through another complete cycle using the coldest water and no detergent.
- Reduce detergent amount for that specific load size and soil level. Towel loads have a minimal amount of soil present and typically create more suds
- Check to see if belt is off motor and pulley.

#### **Wet Clothes**

 Very small clothes loads can cause unbalanced loads - add additional towels.



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- Excessive suds may have been present.
- Check Tub Displacement Sensor connection and main harness connector at machine control board.
- Check Tub Displacement Sensor for 0 to 3.0 Volts DC output voltage between ground and the board input. Check for 12 Volts DC input voltage between the ground and the board output. Only check for voltage at the Tub Displacement Sensor. Do not perform a continuity check. See Tub Displacement Sensor Diagnostics (pg 10).
- Excessive motion was detected in spin (dc or LL)
  Run Quick Spin Test with an empty tub to check
  Tub Displacement Sensor and Machine Control
  Board.
- · Check for restricted drain system.
- Perform Motor and Motor Control Test.

#### Will Not Lock

- Lid not all the way closed or not properly aligned.
- Check electrical connections at lock assemblies, machine control board, and Motor Control Board.
- Magnet missing. (Located on the back side of dispenser assembly inner lid, front Left corner).
- · Laundry load is too large to close lid.
- Check system relay for welded contacts.
   (Diagnostic code 34) Disconnect power.
   Continuity between p.6 pin 1 to p.8. pin 1 at the Machine Control Board connector.
- Go to Lid Lock Test.
- Make sure inner lid is properly assembled to lid.
- Make sure door lock bumpers are fully seated to top cover.

#### Will Not Unlock

- Press Off. The motor control is not responding if it takes 4 minutes to unlock. The motor control is either bad or disconnected.
- Unplug and reconnect power cord. Wait 20 seconds for machine to unlock.
- Check lid locked switch circuit. Circuit should be closed at machine control. (See board input/output chart)
- Check for loose electrical connections at lid lock and at machine control board.
- Push lid closed to make sure nothing from inside is pressing against it, which may keep it from unlocking.
- Perform Motor and Motor Control Test. (see Motor and Motor Control Test section).
- If necessary, remove clothes by disconnecting power to washer, and open top cover with a putty knife.

#### Will Not Drain

- · Check for restricted drain system.
- Check low, medium, and high water fill completion.
   Go to No Fill Test
- Check for 120 VAC at the pump when a spin cycle is selected < 550 rpm.
- Go to Board Output Test and perform pump out test.
- In cold climates check for frozen Drain Hose.

#### Wrong Water Temperature

- Too Hot/Too Cold: This washer uses a reduced amount of water, while the control board meters the incoming flow to regulate the actual temperature of the water in the tub. This may appear to be significantly warmer/cooler than expected.
- Check that both faucets are on fully.
- Make sure the temperature selection is correct.
- This washer will compensate for reversed fill hoses. See **Hose Reversal Detection**.
- Make sure water heater is set to deliver a minimum of 120°F (49°C) hot water at the tap. Also check water heater capacity and recovery rate.
- If the water heater is located a long distance from washer, the water line may need to be purged prior to starting wash cycle.
- · Disconnect inlet hoses and clean screens.
- The washer will need to go through a Hot / Cold cycle if the fill hoses were previously installed incorrectly and then corrected.
- Check Water Valve Thermistor. Resistance at room temperature is 61700 ohms. (See board input/output chart)

#### **Noise / Cabinet Hits**

- · Level the machine.
- Check sensor (refer to Tub Sensor Test).
- Check Strut and Strut Isolator for proper operation.
- Check for Diagnostic Code "10".



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#### **Remove A Favorite Cycle**

If the consumer wants a favorite cycle removed, see below:

cycle favorite cycles

stain set your own cycle



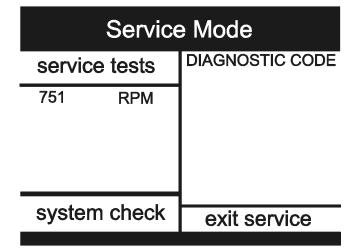
#### **Service Mode**

Service Mode enables service personnel to verify the operation of the washing machine and diagnose problems. Service Mode can be entered in the middle of any wash cycle without interrupting the cycle. While in Service Mode, the technician can cancel the current cycle, set a continuous running mode, start a variety of special service tests and view diagnostic displays.

#### **Enter / Exit Service Mode**

To enter Service Mode press the *Help* and *Back* keys for three seconds or until the control beeps. The motor speed will be displayed when started (motor not running display will be 0). Diagnostic codes will be shown and the *System Check* or *Service* utility can be 16023174

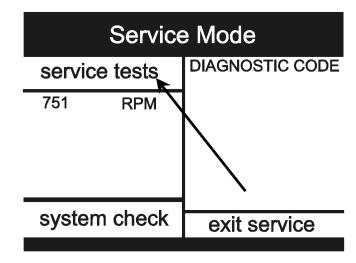
started. The present state of the machine will not be changed. (i.e., the current cycle in progress will not be interrupted and only the display will change).



To exit: 1) Press *exit service mode*, or 2) press *Off*, or 3) unplug the machine.

The following steps summarize special tests and features available in Service Mode, along with methods of activation and cancellation.

Accessing Service Tests and Diagnostic Features while in Service Mode.





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#### **User Interface**

Enter User Interface and follow the directions on screen. This test will check the Membrane Pads and Touch Screen. The Membrane Pad and Touch Screen Test must be completed in approximately 10 seconds or a failure will be shown on the display.

Service Tests			
user service cycle			
quick spin test	advance to next step		
system check	exit service tests		

#### **Quick Spin Test**

While in Service Mode, select the *Quick Spin Test* option.

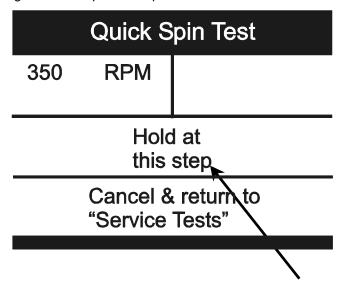
Quick Spin test steps are as follows:

- 1) Lock the lid.
- 2) Spin to index speed 90 rpm and hold for 60 seconds. Pump drains machine.
- 3) Spin to index speed 150 rpm and hold for 6 seconds.
- 4) Spin to index speed 350 rpm and hold for 6 seconds.
- Spin to index speed 550 rpm and hold for 6 seconds.
- 6) Spin to index speed 700 rpm and hold for 6 seconds.
- Spin to index speed 850 rpm and hold for 6 seconds.
- 8) Spin to index speed 1000 rpm and hold for 6 seconds.
- 9) Coast down to 0 rpm.
- 10) Unlock lid.

Service Tests			
user service cycle			
quick spin test advance to next step			
system check	exit service tests		

**Hold Quick Spin Test** 

If the *Hold at this step* option is selected during the Quick Spin test, the machine will hold at the next highest index speed for up to 30 minutes.





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#### **System Check**

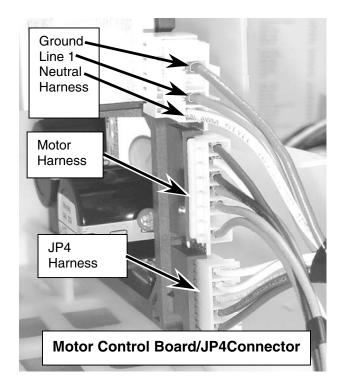
Select the desired output to test. The system relay must be on to test components. The highlighted area indicates the state of each output.

Service Tests			
user service cycle			
quick spin test	advance to next step		
system check	exit service tests		

•		
OUTPL	n Check INPUT STATUS	
Syst. Rly. on off	motor ctrl. on off	lid closed lid unlocked
hot on off	cold on off	no unbalance low fill empty medium fill empty
bleach on off	fab. soft. on off	high fill empty fill tmp. (°F) <70
drain on off	heater on off	sump tmp. (°F) 16 RPM 775
pulse lid lock	pulse lid unlock	exit system check

Note: When the Neptune TL is plugged in, the Machine Control Board will check the lid latch mechanism every 20 seconds. If found to be locked with no cycle running, the Control Board will send a signal to the switch to unlock the lid.

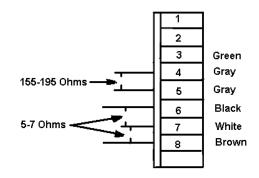
If motor does not run; Check for 120 VAC at the motor control board harness between L1 and Neutral. **See Illustration** 



**If voltage is present**, then problem exists with the motor and motor control system.

- Check for loose electrical connections at motor, and motor control board.
- Check phase windings of the motor. **See Illustration**. If motor windings are good, replace the motor control board.

Diagram - Motor Harness



#### If voltage is not present;

 Check for loose electrical connections at Machine Control Board or broken wires in harness.



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#### **Service Cycle**

This will be a quick check of all systems.

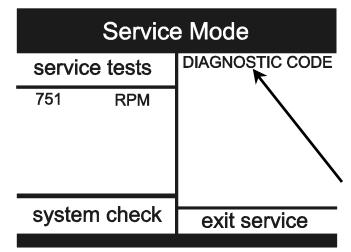
- 1. Lid locks.
- 2. Press Start\Pause.
- 3. Lid unlocks.
- 4. Open lid.
- 5. Close lid.
- 6. Press Start\Pause.
- 7. Lid locks.
- 8. Cold water bleach fill.
- Bleach fill. Advance to next step if water is not connected to machine.
- 10. Tumble using 48 rpm tumble for 10 seconds.
- 11. Hot fill.
- 12. Fabric softener fill. Advance to next step if water is not connected to machine.
- 13. Drain.
- 14. Spin to 150 rpm.
- 15. Spin to 350 rpm.
- 16. Spin to 850 rpm.
- 17. Pump cycles on and off.
- 18. Coast to 0 rpm.
- 19. Lid unlocks.

Service Tests		
user service cycle		
quick spin test	advance to next step	
system check	exit service tests	

If a failure occurs during the test, an error screen will appear. Select **OK** to continue. The test will continue depending on the nature of the failure.

#### **Display Diagnostic Codes**

Enter **Service Mode** to display diagnostic codes. Diagnostic codes will be shown in the right pane as shown.



#### **Access Other Features**

To view details about the software version and the total cycle count, select the diagnostic code portion of the screen. You will also be able to view details about the number of cycles since a diagnostic code occurred, if a code is logged.

Diagnostic Codes cycle count 70000	
8-W. Level fault	65520 cycles ago
10-Low RPM unbal	65524 cycles ago
40-Wedged load	65527 cycles ago

clear	I exit
	1
diagnostic codes	diagnostic codes



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### **Diagnostic Codes**

Diag. Code	Description	Trigger	Action to be taken
1	No Drain	The water level fails to drop below the Low level before a spin	Go to "Will Not Drain" Troubleshooting Section
2	The lid fails to unlock	Lid failed to unlock after multiple attempts	Go to "Will Not Unlock" Troubleshooting Section
3	No Fill	Total fill 14 minutes exceeded.	Go to "No Water Fill" Troubleshooting Section
4	The lid fails to lock	Lid failed to lock after 11 attempts	Go to "Will not unlock" Troubleshooting Section
5	Continuous unbalanced circuit. Out of balance circuit	See section for unbal. loads. (During spin only)	Go to "Wet Clothes" Troubleshooting Section
6	Locked Rotor forcing a shut down.	Locked rotor is still locked after 10 attempts.	Go to "Motor Control Board Output Test"
8	Water level sensor fault.	Input signal from water level Sensor is out of range, Washer will beep and pause the wash cycle.	Displays "LE" Go to "No water fill troubleshooting".
10	Unbalance or cabinet hit detected during final spin, which prevented the spinner from exceeding 500 rpm	Less than 500 rpm due to an unbalanced load.	

Diag. Code	Description	Trigger	Action to be taken
11	Will not remember machine settings	Difficulty in reading memory	Go to "Clear diagnostic codes" Disconnect and reconnect the washer power cord at power supply outlet. If condition still exists, replace machine control board.
15	Stuck Key	Detected a key pressed more than 75 seconds. The key is assumed to be stuck.	Go to "Membrane Pad Check" Check connection of keypad to control board. Replace console if necessary.
16	High speed not achieved due to torque.	Speed less than 400 rpm during a main wash cycle.	Go to "Wet Clothes" Troubleshooting Section"
17	The lid was not opened after completed wash cycles.	Did not sense lid open after the last three completed cycles.	Customer may have tried to repeat wash cycle without opening the lid. Go to "Lid Lock Test"
18	Detected lid lock switch open during cycle when not expected.	Open lid lock switch with motor running.	Check for loose wire connections. Clear the diagnostic code and recheck; if reoccurs, perform Diagnostic Motor/Motor Control Board test Check for faulty motor relay on the machine control board.
22	Detected lid switch open during cycle (when not paused).	Detected lid sensor switch open and the lid locked switch locked.	Go to "Lid Lock Test" Troubleshooting Section
23	Lid is locked at start of cycle	Lid lock is locked and a user tries to start a cycle.	Go to "Will Not Unlock" Troubleshooting Section



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Diag. Code	Description	Trigger	Action to be taken
24	Motor high RPM detected two times	Motor tach signal is seen at maximum speed.	Replace motor control board.
25	Motor tach signal exists without motor running	Tach signal exists without torque input. (Abnormal condition only)	Replace motor control board.
28	Water valve thermistor failure	Abnormal high/low temp or ohm resistance seen	Go to "Wrong Water Temperature" Troubleshooting Section
34	Welded system relay	Change of state of the relay	Disconnect power. Continuity between p.6 pin 1 to p.8. pin 1 at the Machine Control Board connector.
40	Washer not operating due to tumble not functioning	Load bound up.	The washer is unable to complete its cycle. The paddles cannot move. To continue, separate and redistribute the load, then press "start/pause".

**Exit Service Mode** 

To exit: 1) Press *exit service mode*, or 2) press *Off*, or 3) unplug the machine.

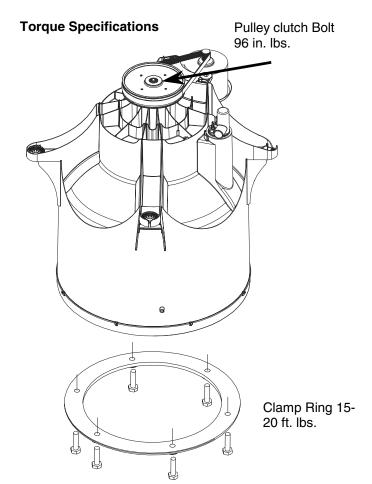
After five (5) minutes of inactivity (user key presses) in Service Mode, the machine will exit the Service Mode and resume normal operations. Pressing the Off key will completely exit Service Mode. If a cycle is running, cancel the cycle. Pressing the Start/Pause key while running a test will pause the individual test, while remaining in Service Mode. A power loss during Service Mode will cancel this mode.

#### **Hose Reversal Detection and Correction**

The washing machine has diagnostic features that determine if the hoses are reversed on the first complete cycle after power up. The control board monitors water temperatures during the wash cycle.

The control system is capable of detecting hot and cold water intake hose reversal and will change the fill temperature as necessary after the first cycle. The control system stores and retains hot and cold water intake hose reversal information through a power-down.

The system reverts to factory defaults for the cold and hot water valves and cancels hose reversal detection if a diagnostic code 28 has been logged in a cycle. See "Wrong Water Temperature" in the trouble shooting tips, at the beginning of this document for more information.

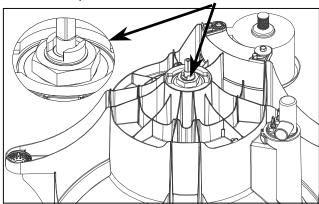




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Spinner Support Shaft Nut 64-80 ft. lbs. Special wrench required.

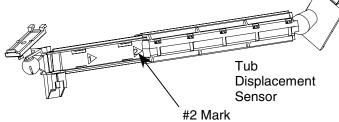


#### **Tub Displacement Sensor Diagnostics**

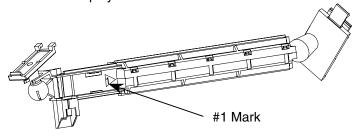
**CAUTION:** Do not perform continuity check directly on Displacement Sensor due to the potential for damaging the microprocessor chip in the sensor.

- Enter the Service Mode by pressing the *Help* and *Back* keys for three seconds.
- 2. Press System Check on the display

3. Push tub to back right corner so sensor extends beyond the #2 mark molded on slider. Display will show "tub unbalance".



4. Pull tub to front left corner and push down so sensor collapses to before the #1 mark molded on slider. Display will show "tub unbalance".



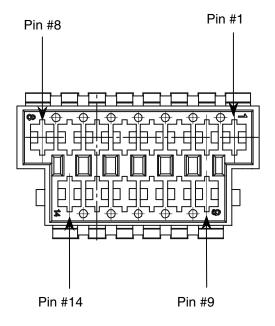
**NOTE:** Moving the sensor midway between mark #1 and mark #2 represents normal operation. Display will show "**no unbalance**".

#### **Component Diagnostics**

**NOTE:** Unplug lower harness connector under console and test from wire insertion side.

Component	Pin	Wire	Range
Check		Color	
Drain Pump	2 and 11	WH	0 to 30
		and	Ohms
		RD/BK	
Pressure	4 and 13	BR and	0 to 20
Switch Low		RD/W	Ohms (no
Level		Н	water in
			machine)
Pressure	13 and 14	PU and	0 to 20
Switch Med		RD/W	Ohms (no
Level		Н	water in
			machine)
Pressure	1 and 9	GY/BK	0 to 20
Switch High		and	Ohms (no
Level		YL/BL	water in
			machine)

Insertion Side Lower Harness Connector





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## Special Instructions Water Leak Around Pulley On Tub Bottom

Water leaking around the pulley on the bottom of the tub, check the following:

- Remove the Transmission. The Transmission should be approx. 1/3 full of oil. The oil in the Transmission should be thick, similar to a high viscosity motor oil. Tip the Transmission slightly, the oil should move slowly. If the Transmission is nearly full or if the fluid is very thin and moves quickly, the Transmission has water in it. Replace the Transmission, O-Ring, Spinner Support, Tub Seal and Outer Tub.
- If no water is inside the Transmission, check the integrity of the O-Ring. Look for signs of water or rust on and around the Input Shaft. If the O-Ring is bad or there are signs of water or rust around the input shaft, replace the spinner support, tub seal and the outer tub.

- If there was no water in the Transmission or around the top of the Input Shaft, it is likely the water was leaking through the Tub Seal. Replace the Outer Tub and Tub Seal. Inspect the Spinner Support for damage around the Tub Seal area. Replace the Spinner Support if it is damaged.
- The Clutch Assembly should be inspected for signs of water or oil contamination. Clean Clutch Assembly as needed. Replace Clutch Assembly when water or oil contaminates the roller clutches.

**Note:** Oil in a new Transmission is clear. During operation, the oil will turn a dark color caused by the special compounds in some of the bushings.

#### **Titan LED Washer Control Board Inputs Table**

Item	Description	Voltage	Input type	Input to Where	Comments
Water Valve Thermistor		0 - 3.3 VDC	Analog	Input to Micro- processor	
Power Cord	Line	120 VAC		Input to some relays	
	Neutral	120 VAC		Input to some relays	
	Ground	Chassis ground			
Lid Lock Switch	This switch senses if the lid is locked	0 - 12 VDC	Digital	Input to Micro- processor and safety circuitry	Closed when lid is locked
Lid Closed Switch	This switch senses if the lid is closed	0 - 12 VDC	Digital	Input to Micro- processor and system relay coil	Closed when lid is closed
User Interface	Membrane switch key pad	0 - 12 VDC	Digital	Input to Micro- processor	Open when key is not pressed
Tach from Variable Speed Motor Control	Tach signal	0 - 12 VDC	Digital	Input to Micro- processor and safety circuitry	·
Pressure switch	Low water level	0 - 12 VDC	Digital	Input to Micro- processor	Closed when not satisfied
	Medium water level	0 - 12 VDC	Digital	Input to Micro- processor	Closed when not satisfied
	High water level	120 VAC		Input to Micro- processor and some relays	Closed when not satisfied

## **Component Testing Information**

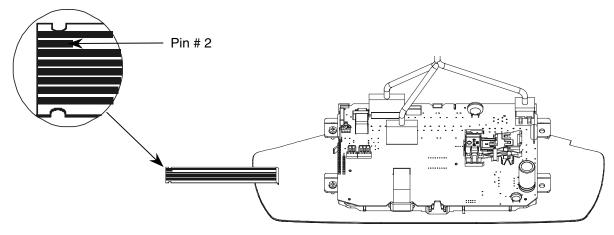


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#### **Membrane Pad Continuity Checks**

Unplug ribbon connector from display board. Touch probe of meter to the appropriate pin numbers listed in the chart. Meter will show infinite unless the appropriate key is pressed.



Button	Pin Number		
Home	5 & 3		
Favorites	6 & 3		
Back	5 & 4		
Off	5 & 7		
Start/Pause	6 & 7		
Help	6 & 4		
Stain Brain	5 & 8		
Cycle Library	6 & 8		

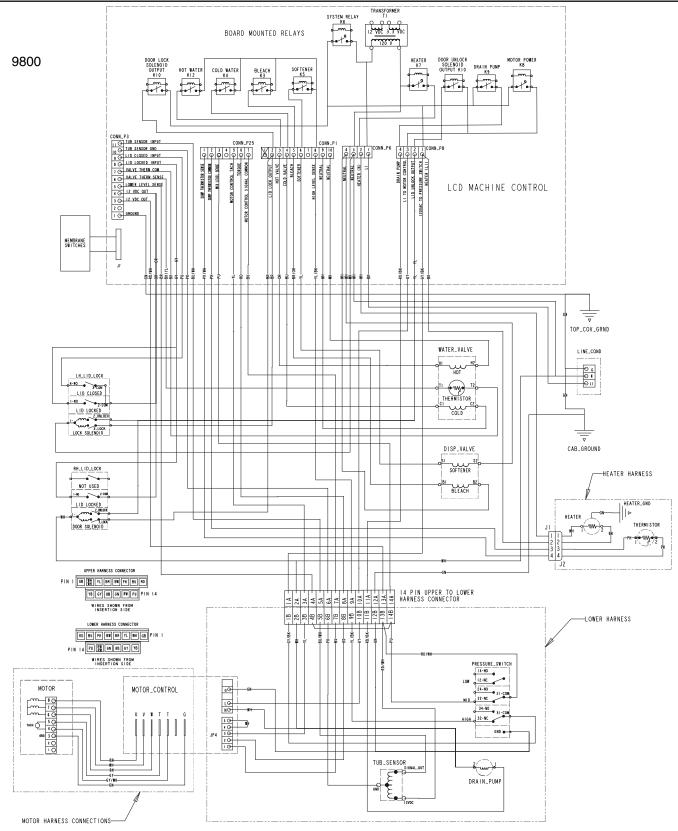
**Note:** When the Neptune TL is plugged in, the Machine Control Board will check the lid latch mechanism every 20 seconds. If found to be locked with no cycle running, the Control Board will send a signal to the switch to unlock the lid.

## **Wiring Schematic**

## $\overline{m{\Lambda}}$

### **WARNING**

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



## **Wiring Schematic**

## A

### **WARNING**

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

