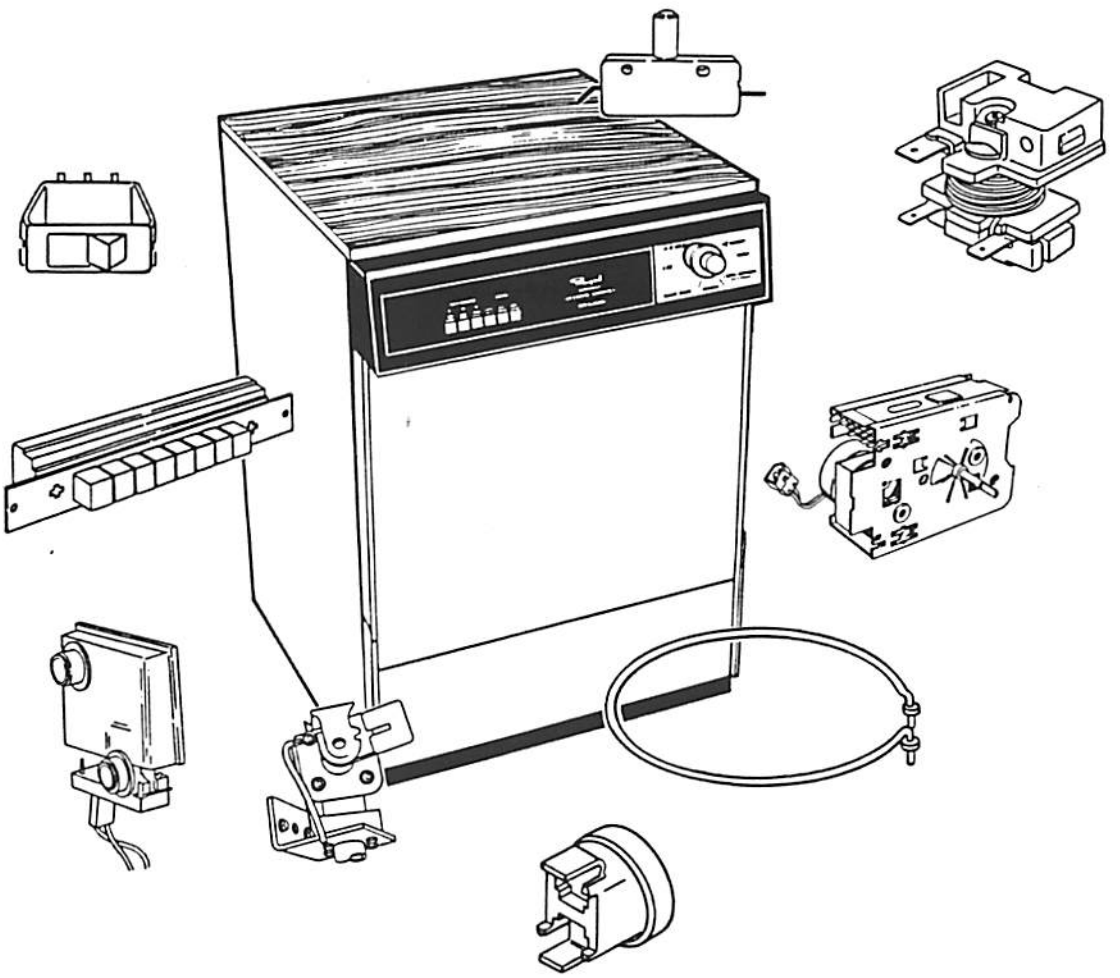
DISHWASHER & COMPACTOR

STUDY COURSE

UNDERSTANDING DISHWASHER:

- ELECTRICAL COMPONENTS and CHECKING PROCEDURES



MODULE 2

LIT4314190

INTRODUCTION

The material presented in this module is intended to provide you with an understanding of the fundamentals of dishwasher and trash masher® compactor servicing.

Major appliances have become more sophisticated, taking them out of the screwdriver and pliers category. Their electrical circuits include several different types of automatic controls, switches, heaters, valves, etc.. Semiconductors, solid-state controls, and other components usually associated with radio and television electronic circuits are being engineered into automatic washers, dryers, dishwashers and refrigerators.

The appliance technician is emerging into a professional status of his own. He must prepare himself now to be able to perform his duties today as well as to retain his professionalism in the future.

No longer is on-the-job training sufficient to prepare technicians for the complicated procedures required for todays sophisticated appliances. This training can best be obtained through organized classroom study and application. However, much of the knowledge necessary to service todays appliances can be obtained through study courses. Completion of this and other courses will provide you with sufficient understanding of appliances and their operation to enable you to do minor service. It will also serve as a valuable stepping stone to more advanced study and on-the-job training to improve your servicing skills.

Information contained in this module is used on WHIRLPOOL® appliances.

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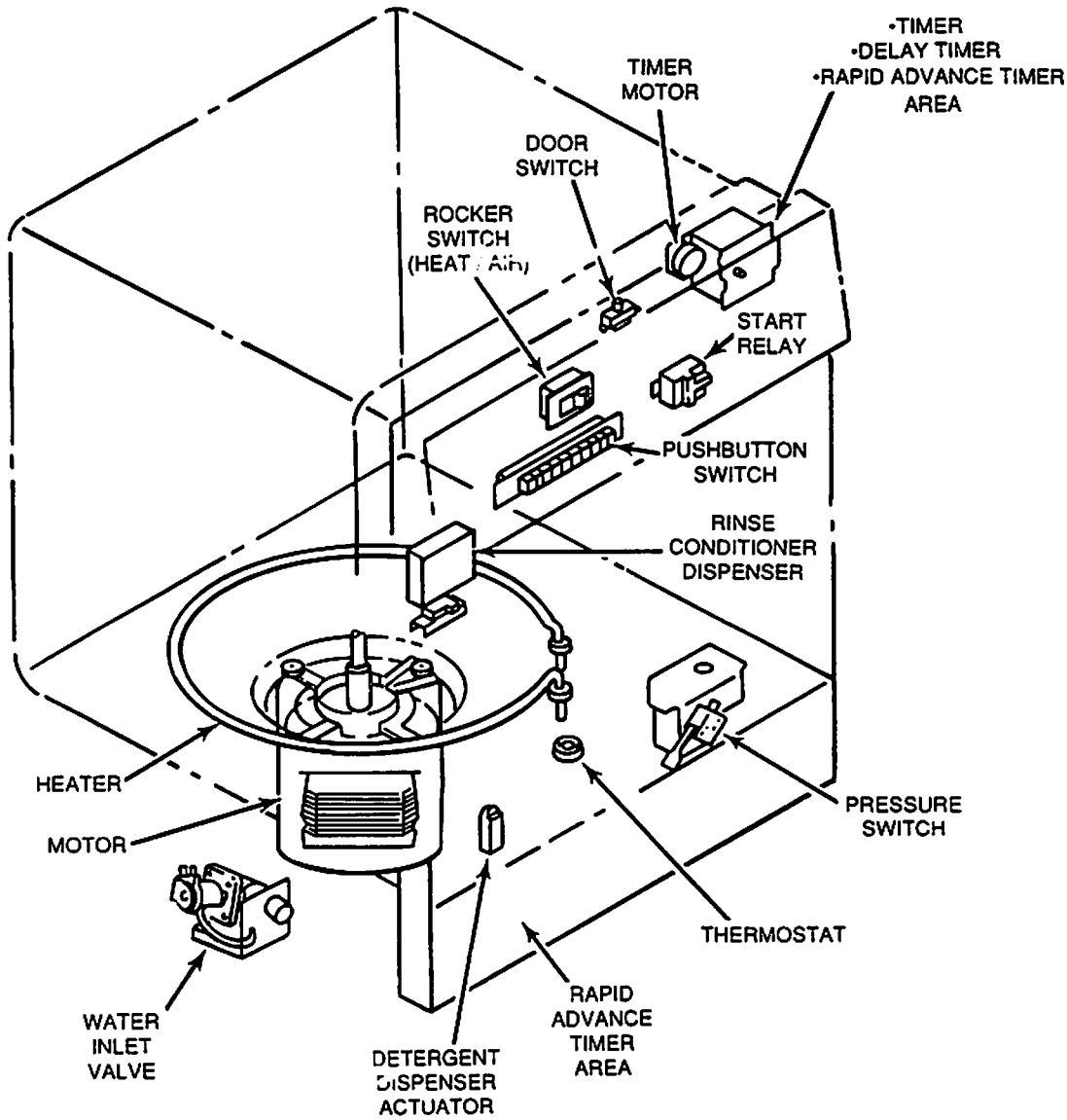
CHAPTER 1

ELECTRICAL COMPONENTS



TIMER

The timer is located in the console and is the heart of the dishwasher. Its function is to control the timing of the dishwasher.

All timers used on dishwashers operate the same but are somewhat different in looks. Due to functions or features of different models, some timers have more terminals and internal switches (contacts) than others.

The dash line represents the actual timer where as the bold lines indicate internal switches within the timer.

On quick-disconnect timers, the different colored harness wires are placed inside either a black or white block which plugs into the timer. These blocks are colored to match the words BLACK or WHITE stamped on the timer. The possibility of wiring the timer wrong is greatly reduced.

CHECKING PROCEDURE

Obtain a properly working ohmmeter from your local store. We will be doing RESISTANCE checks. This is the safest way because the dishwasher is unplugged from the power source and avoids the possibility of you receiving an electrical shock.

STEP 1 Set the ohmmeter scale to the lowest ohms setting and ZERO the meter. See the instructions that came with your ohmmeter.

STEP 2 See example in steps 7-10. Turn the timer knob to the point in the cycle you suspect is bad.

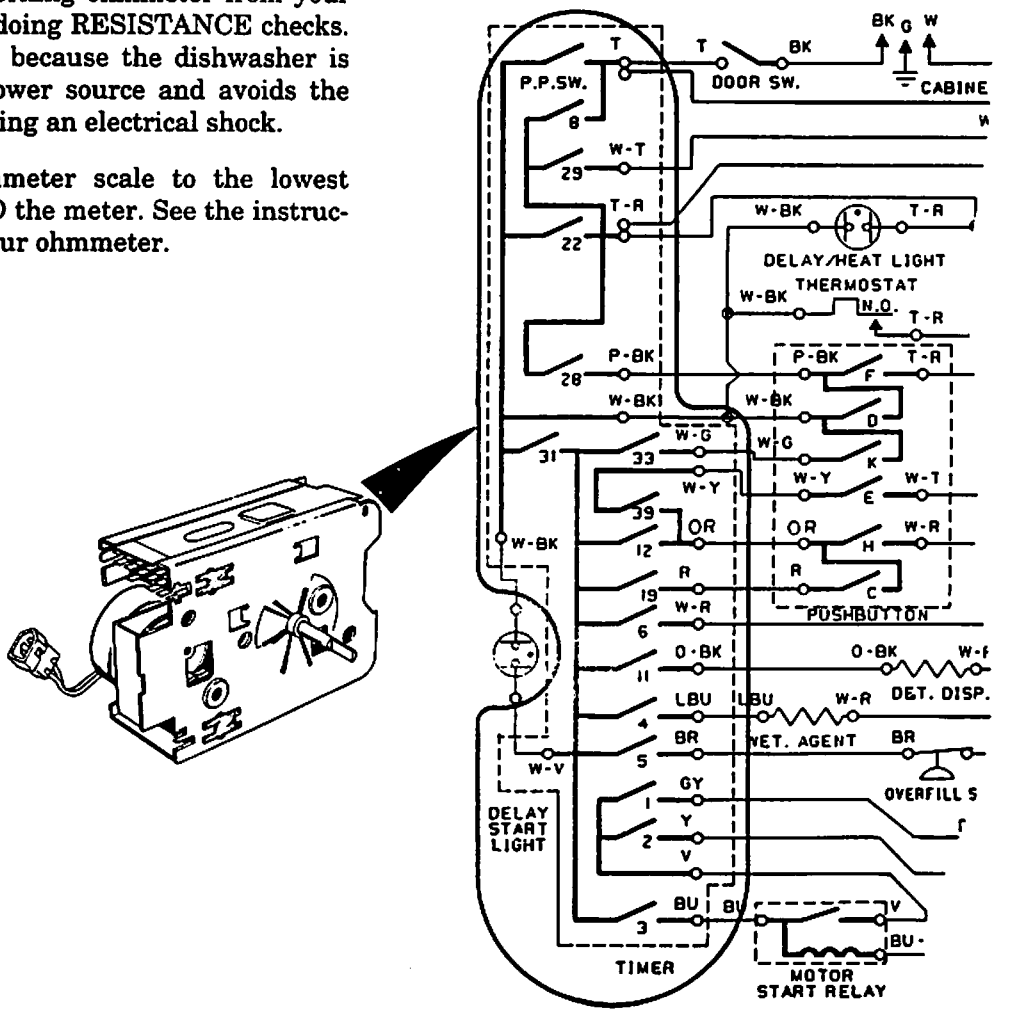
STEP 3 Remove both the white and black disconnect blocks. Some models only have the (black) disconnect block. The blocks have tabs on each end which must be pressed while pulling on the block.

Instead of coding timer terminals like the standard frame timers, a chart of each wiring block is printed on the back of the timer. The line through the chart separates the two blocks. Letters indicate active terminals while the black dots identify blank terminals.

STEP 4 Touch one ohmmeter probe to the terminal specified for this function.

STEP 5 Touch the other ohmmeter probe to the other terminal specified for this function.

STEP 6 The ohmmeter should show ZERO resistance (continuity). If not, the timer is bad and needs replacing.

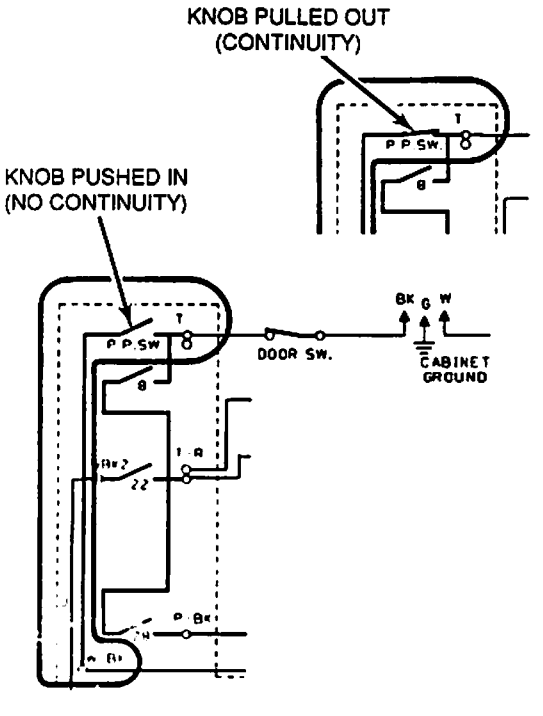


STEP 7 EXAMPLE: Move the timer to the start of NORMAL wash. PROBLEM: Dishwasher does not fill.

STEP 8 Touch one ohmmeter probe to terminal T.

STEP 9 Touch the other ohmmeter probe to terminal BR.

STEP 10 The ohmmeter should show ZERO resistance (continuity). If not, the timer is bad and needs replacing.



STEP 11 If the door switch is good but the dishwasher still won't start when the timer knob is pulled out, check the internal timer push/pull switch (P.P.SW.) contacts.

STEP 12 Pull the timer knob out.

STEP 13 Touch one ohmmeter probe to terminal T.

STEP 14 Touch the other ohmmeter probe to terminal W-BK.

STEP 15 The ohmmeter should show ZERO resistance (continuity) with the timer knob pulled out. If not, the timer is bad and needs replacing.

The ohmmeter should show an open circuit with the timer knob pushed in.

STEP 16 Place the colored blocks in their proper end marked BLACK or WHITE on the timer.

RAPID ADVANCE TIMER

This part, used with a pushbutton switch, has no dial or knob to turn. As the pushbutton switch is pressed for the cycle you want, the rapid advance timer motor quickly advances the timer to the proper start-up cycle. At this point, the regular timer motor takes over.

There are two areas in which this rapid advance timer could be located: either behind the access panel/toeplate (Built-In Models), behind the access panel/coverplate (Portable Models), or in the console area for both types of dishwashers.

CHECKING PROCEDURE

Obtain a properly working ohmmeter from your local store. We will be doing RESISTANCE checks. This is the safest way because the dishwasher is unplugged from the power source and avoids the possibility of you receiving an electrical shock.

STEP 1 Set the ohmmeter scale to the lowest ohms setting and ZERO the meter. See the instructions that came with your ohmmeter.

STEP 2 Disconnect any timer motor wires, marking them as to where they were.

STEP 3 Remove both the white and black disconnect blocks. Some models only have the (black) disconnect block. The blocks have tabs on each end which must be pressed while pulling on the block.

Instead of coding timer terminals like the standard frame rapid advance timers, a chart of each wiring block is printed on the back of the timer. The line through the chart separates the two blocks. Letters indicate active terminals while the black dots identify blank terminals.

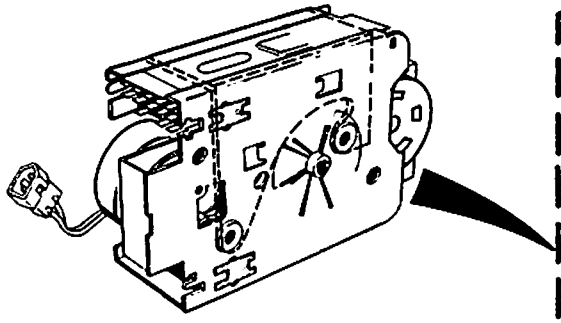
STEP 4 See example in steps 8-11. Using a screwdriver, place it in the slot on the shaft of the rapid advance timer and turn it to the cycle you suspect is bad.

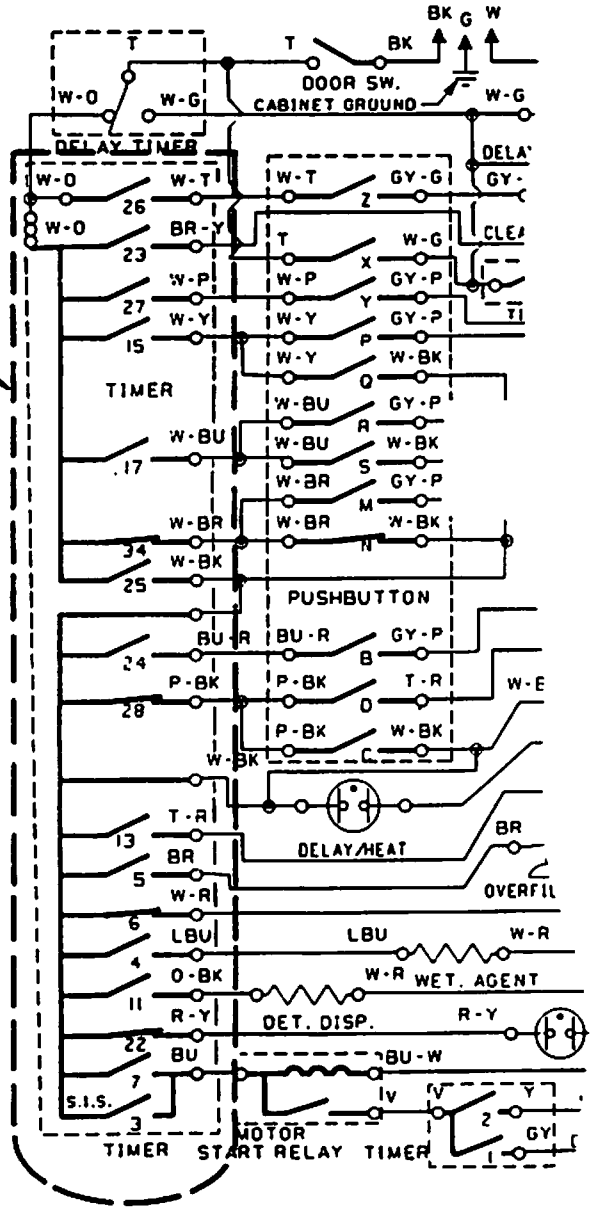
STEP 5 Touch one ohmmeter probe to the terminal specified for this function.

STEP 6 Touch the other ohmmeter probe to the other terminal specified for this function.

STEP 7 The ohmmeter should show ZERO resistance (continuity). If not, the timer is bad and needs replacing.

STEP 8 EXAMPLE: Move the timer to the start of NORMAL wash. PROBLEM: Dishwasher does not fill.





STEP 9 Touch one ohmmeter probe to terminal T.

STEP 10 Touch the other ohmmeter probe to terminal BR.

STEP 11 The ohmmeter should show ZERO resistance (continuity). If not, the rapid advance timer is bad and needs replacing.

STEP 12 If you know the door switch is good but the dishwasher still won't start check the internal timer push/pull switch (P.P.SW.) contacts (T to W-BK).

Remember: There is no push/pull switch although the timer contacts are there. Also, since there is no timer shaft for a dial and knob, a square hole has been provided in the cam shaft to use for rotating the timer through its cycles.

The timer cycles are printed on the timer plus there is a raised step on the cam shaft that is a pointer to indicate where the timer is in the cycle.

STEP 13 Touch one ohmmeter probe to terminal T.

STEP 14 Touch the other ohmmeter probe to terminal W-BK.

STEP 15 The ohmmeter should show ZERO resistance (continuity) with the rapid advance timer in the "ON" position. If not, the timer is bad and needs replacing.

The ohmmeter should show an open circuit with the rapid advance timer in the "OFF" position.

STEP 16 Replace the colored blocks in the proper end marked BLACK or WHITE on the timer.

STEP 17 Replace the timer motor wires.

DELAY TIMER

This part is located in the console. Its purpose, when selected, is to delay the start-up of the dishwasher up to eight hours.

CHECKING PROCEDURE

Obtain a properly working ohmmeter from your local store. We will be doing RESISTANCE checks. This is the safest way because the dishwasher is unplugged from the power source and avoids the possibility of you receiving an electrical shock.

STEP 1 Remove one wire at a time, carefully labeling each wire according to the terminal marking on the delay timer. This procedure should assure that the right wire is reconnected to the right terminal.

STEP 2 Set the ohmmeter scale to the lowest ohms setting and ZERO the meter. See the instructions that came with your ohmmeter.

STEP 3 Touch one ohmmeter probe to terminal T.

STEP 4 Touch the other ohmmeter probe to terminal W-O.

STEP 5 The ohmmeter should show ZERO resistance (continuity). If not, the delay timer is bad and needs replacing.

STEP 6 Touch one ohmmeter probe to terminal W-G.

STEP 7 Touch the other ohmmeter probe to terminal W-O.

STEP 8 The ohmmeter should show an open circuit. If not, the delay timer is bad and needs replacing.

STEP 9 Touch one ohmmeter probe to terminal W-G.

STEP 10 Touch the other ohmmeter probe to terminal T.

STEP 11 The ohmmeter should show an open circuit. If not, the delay timer is bad and needs replacing.

STEP 12 Rotate the delay timer dial so that a TIME is shown on the dial.

STEP 13 Touch one ohmmeter probe to terminal T.

STEP 14 Touch the other ohmmeter probe to terminal W-G.

STEP 15 The ohmmeter should show ZERO resistance (continuity). If not, the delay timer is bad and needs replacing.

STEP 16 Touch one ohmmeter probe to terminal W-O.

STEP 17 Touch the other ohmmeter probe to terminal W-G.

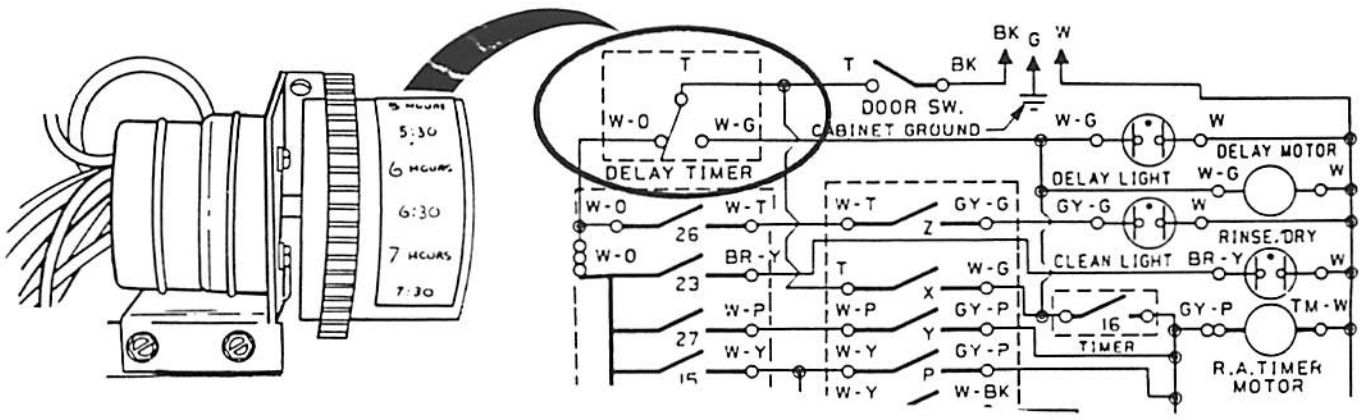
STEP 18 The ohmmeter should show an open circuit. If not, the delay timer is bad and needs replacing.

STEP 19 Touch one ohmmeter probe to terminal W-O.

STEP 20 Touch the other ohmmeter probe to terminal T.

STEP 21 The ohmmeter should show an open circuit. If not, the delay timer is bad and needs replacing.

STEP 22 Reconnect the wires to the proper terminals as previously marked.



TIMER MOTOR

Timer motors may vary slightly in appearance, but regardless of the differences each functions in the same manner as the others. It is a synchronous-type motor, similar to those used in electrical clocks, with a small pinion which drives a gear. This part is located on the timer assembly and is used to advance the timer through the cycles.

CHECKING PROCEDURE

Obtain a properly working ohmmeter from your local store. We will be doing RESISTANCE checks. This is the safest way because the dishwasher is unplugged from the power source and avoids the possibility of you receiving an electrical shock.

STEP 1 Disconnect the two wires coming from the motor, marking them as to what terminals they were on. This procedure should assure that the right wire is reconnected to the right terminal after checking or replacement.

OR

Pull apart the two connectors.

STEP 2 Refer to the instructions that came with your ohmmeter to find the proper scale to measure 1,500 to 3,000 ohms. Set the ohms scale and ZERO the meter.

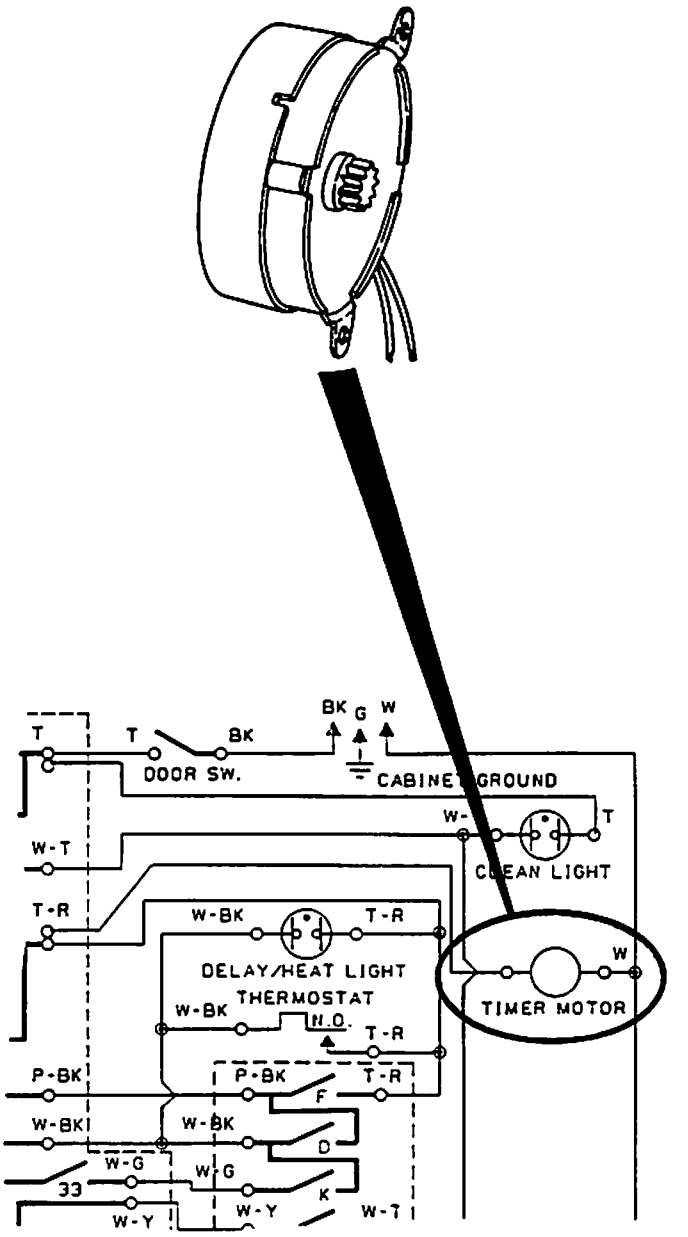
STEP 3 Touch one ohmmeter probe to one of the timer motor wire terminals.

STEP 4 Touch the other ohmmeter probe to the other timer motor wire terminal.

STEP 5 The ohmmeter should show between 1,500 to 3,000 ohms on the ohms scale. If not, the timer motor is bad and needs replacing.

STEP 6 Reconnect the wires to the proper terminals as previously marked.

NOTE: If you get this reading, the timer motor could still be bad from a mechanical problem inside the motor. This condition can only be checked by running a voltage check.



DOOR SWITCH

The purpose of the single-pole, double-throw door switch is to stop the dishwasher when the door is opened. A bad door switch could cause the dishwasher to keep running with the door open or not to run with the door closed.

CHECKING PROCEDURE

Obtain a properly working ohmmeter from your local store. We will be doing RESISTANCE checks. This is the safest way because the dishwasher is unplugged from the power source and avoids the possibility of you receiving an electrical shock.

STEP 1 Remove one wire at a time, carefully labeling each wire according to the terminal marking on the door switch. This procedure should assure that the right wire is reconnected to the right terminal after checking or replacement.

STEP 2 Set the ohmmeter scale to the lowest ohms setting and ZERO the meter. See the instructions that came with your ohmmeter.

STEP 3 With the door closed, touch one of the ohmmeter probes to one of the terminals.

STEP 4 Touch the other ohmmeter probe to the other terminal.

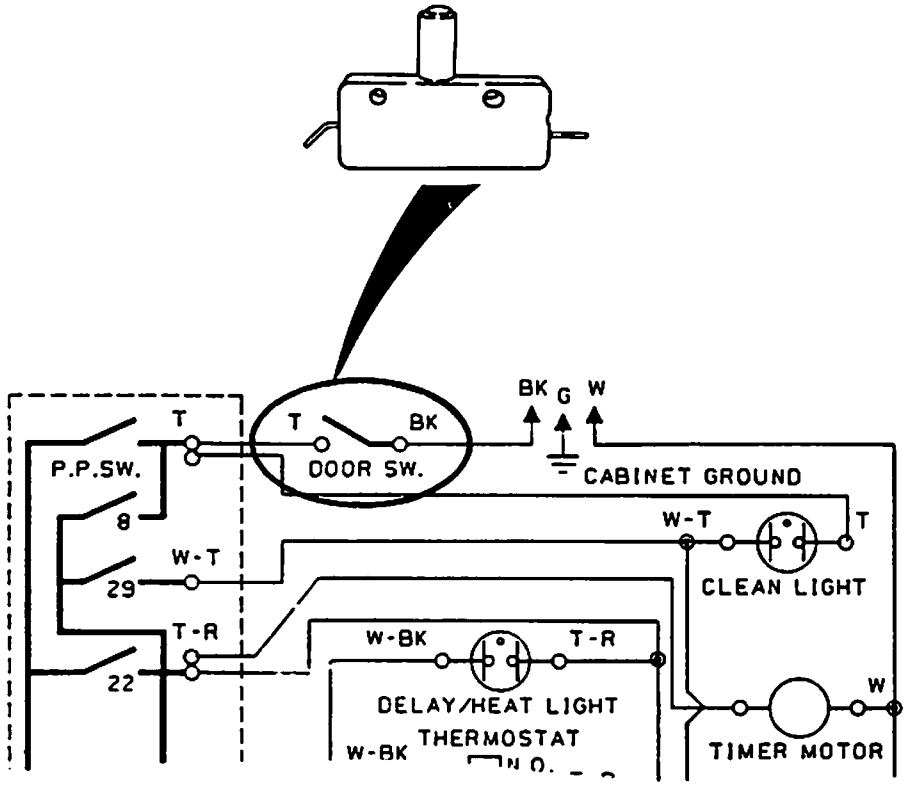
STEP 5 The ohmmeter should show ZERO resistance (continuity). If not, the door switch is bad and needs replacing.

STEP 6 With the door open, touch one of the ohmmeter probes to one of the terminals.

STEP 7 Touch the other ohmmeter probe to the other terminal.

STEP 8 The ohmmeter should show an open circuit. If not, the door switch is bad and needs replacing.

STEP 9 Reconnect the wires to the proper terminals as previously marked.



ROCKER SWITCH

This part is located in the console and is used to select the type of drying you prefer. Either the energy saving AIR DRY or HEAT DRY.

CHECKING PROCEDURE

Obtain a properly working ohmmeter from your local store. We will be doing RESISTANCE checks. This is the safest way because the dishwasher is unplugged from the power source and avoids the possibility of you receiving an electrical shock.

STEP 1 Remove one wire at a time, carefully labeling each wire according to the terminal marking on the rocker switch. This procedure should assure that the right wire is reconnected to the right terminal after checking or replacement.

STEP 2 Set the ohmmeter scale to the lowest ohms setting and ZERO the meter. See the instructions that came with your ohmmeter.

STEP 3 Move the rocker switch to the "AIR DRY" setting.

TWO TERMINAL SWITCH

STEP 4 Touch one ohmmeter probe to one of the terminals.

STEP 5 Touch the other ohmmeter probe to the other terminal.

STEP 6 The ohmmeter should show an open circuit. If not, the rocker switch is bad and needs replacing.

THREE TERMINAL SWITCH

This closes contact "B"

STEP 7 Touch one ohmmeter probe to terminal R-W.

STEP 8 Touch the other ohmmeter probe to terminal BU-OR.

STEP 9 The ohmmeter should show ZERO resistance (continuity). If not, the rocker switch is bad and needs replacing.

STEP 10 Move the rocker switch to the "HEAT DRY" setting.

TWO TERMINAL SWITCH

STEP 11 Touch one ohmmeter probe to one of the terminals.

STEP 12 Touch the other ohmmeter probe to the other terminal.

STEP 13 The ohmmeter should show ZERO resistance (continuity). If not, the rocker switch is bad and needs replacing.

THREE TERMINAL SWITCH

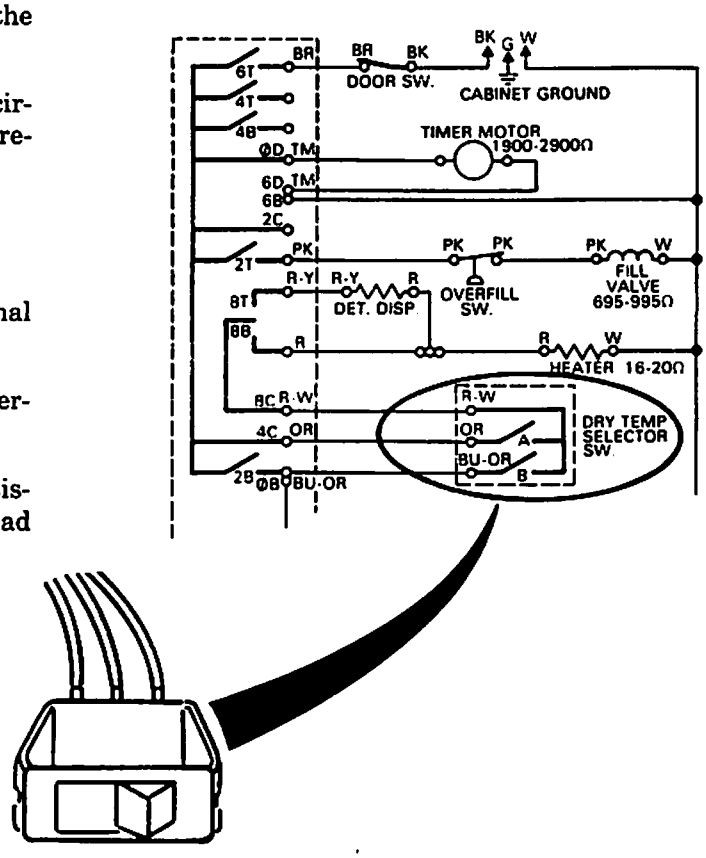
This closes contact "A"

STEP 14 Touch one ohmmeter probe to terminal R-W.

STEP 15 Touch the other ohmmeter probe to terminal OR.

STEP 16 The ohmmeter should show ZERO resistance (continuity). If not, the rocker switch is bad and needs replacing.

STEP 17 Reconnect the wires to the proper terminals as previously marked.



WETTING AGENT DISPENSER

This part is located on the left side of the door. It dispenses a wetting agent just before the final rinse. This causes water breakdown during rinse. The water then runs off the dishes and silverware, leaving fewer or no spots.

CHECKING PROCEDURE

Obtain a properly working ohmmeter from your local store. We will be doing RESISTANCE checks. This is the safest way because the dishwasher is unplugged from the power source and avoids the possibility of you receiving an electrical shock.

STEP 1 Pull the connector off the pin type terminals.

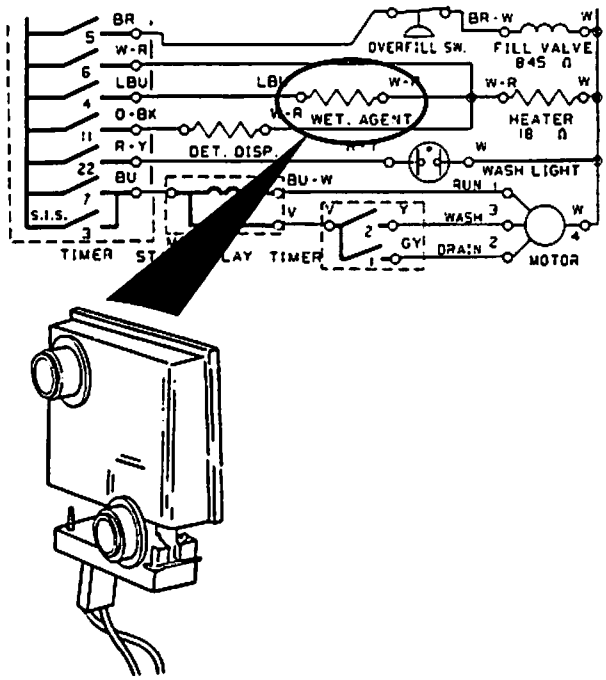
STEP 2 Set the ohmmeter scale to the lowest ohms setting and ZERO the meter. See the instructions that came with your ohmmeter.

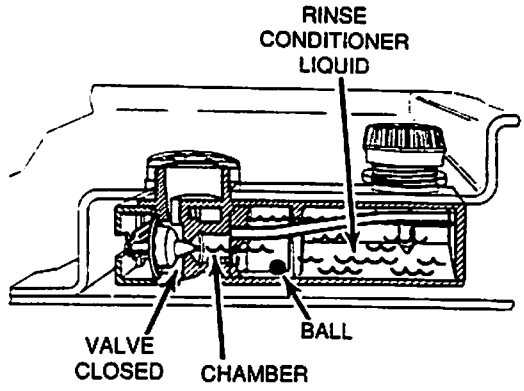
STEP 3 Touch one ohmmeter probe to one of the pin-type terminals.

STEP 4 Touch the other ohmmeter probe to the other pin-type terminal.

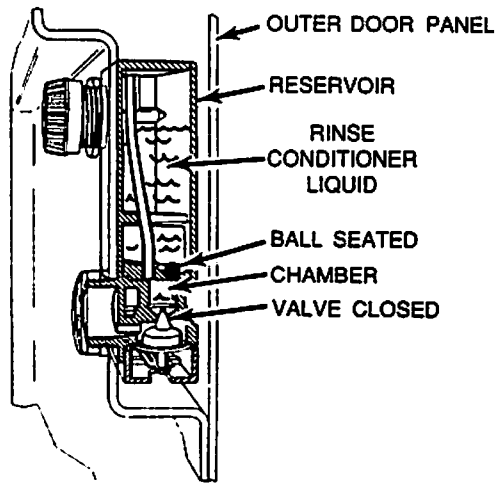
STEP 5 You should read between .100 to .500 ohms on the ohms scale. If not, the wetting agent actuator is bad and needs replacing.

STEP 6 Reconnect the connector by pushing this over the pin type terminals.

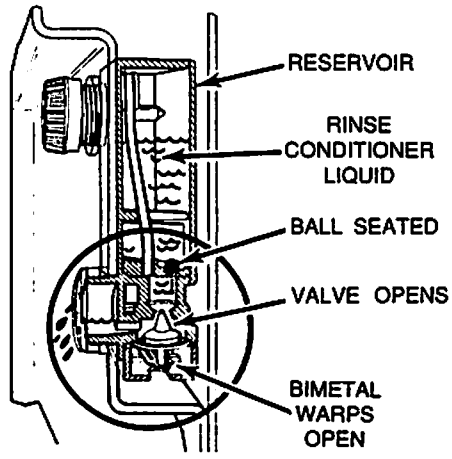




When the door is opened for loading, the wetting agent flows into the dispensing chamber because the sealing ball has fallen away from its sealing position.



when the door is closed, the sealing ball rolls back into its sealing position and seals the now full dispensing chamber.



During the final rinse, current flows to the bimetal heater. This causes it to warp downward. The valve opens and a small amount of wetting agent (approximately 1 cc or .03 oz.) flows into the dishwasher.

DETERGENT DISPENSER

This part is located on the left side of the door. It has two dispenser cups, one with a cover and one without. The cup without a cover, dispenses its detergent as soon as the door is closed. This helps remove heavier deposits at the beginning of the cycle. At the proper time in the selected cycle, the timer completes a circuit to the magnets or bimetal heater (whichever is used) of the dispenser with a cover. The bimetal warps and releases the spring loaded cover latch, releasing the detergent into the dishwasher.

CHECKING PROCEDURE

Obtain a properly working ohmmeter from your local store. We will be doing RESISTANCE checks. This is the safest way because the dishwasher is unplugged from the power source and avoids the possibility of you receiving an electrical shock.

STEP 1 Remove one wire at a time, carefully labeling each wire according to the terminal marking on the detergent dispenser. This procedure should assure that the right wire is reconnected to the right terminal after checking or replacement.

OR

Pull apart the connectors from the coil (magnets) and the wiring harness.

STEP 2 If you have the magnets, refer to the instructions that came with your ohmmeter to find the proper scale to measure 1,500 to 2,00 ohms. Set the ohms scale and ZERO the meter.

OR

If you have the bimetal heater set the ohmmeter scale to the lowest ohms setting and ZERO the meter. See the instructions that came with your ohmmeter.

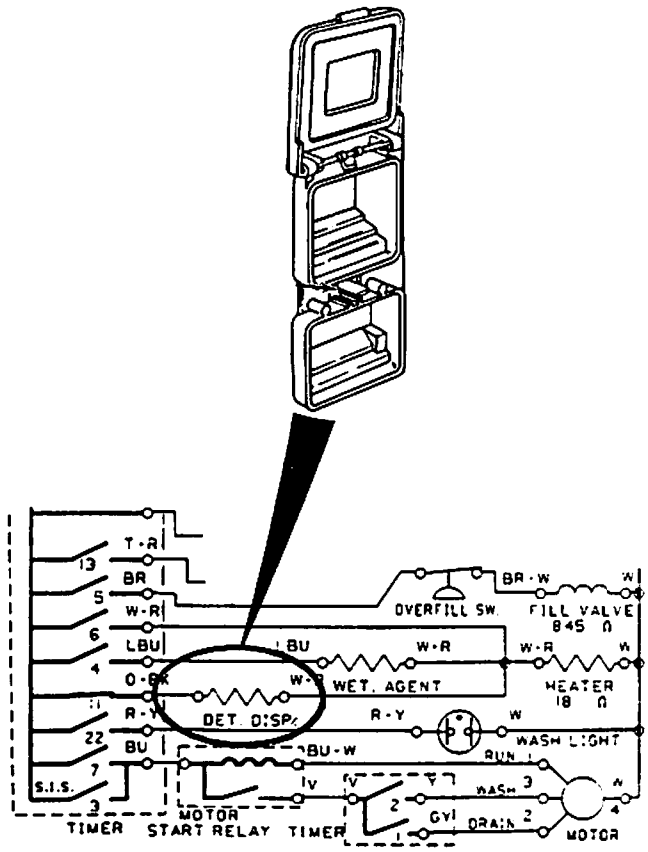
STEP 3 Touch one ohmmeter probe to one of the terminals either inside the connector or on the bimetal.

STEP 4 Touch the other ohmmeter probe to the other terminal either inside the connector or on the bimetal.

STEP 5 The ohmmeter should show between 1,500 to 2,000 ohms when checking the connector (magnets) or ZERO resistance (continuity) or less than one ohm, when checking the bimetal. If not, the coil (connector) or the actuator (bimetal) is bad and needs replacing.]

STEP 6 Reconnect the wires to the proper terminals as previously marked.

NOTE: On the bimetal type DO NOT connect it across 120VAC. It takes 20 to 30 seconds for the bimetal to open the valve.



PUSHBUTTON SWITCH

This part located in the console, is used in selecting the type of wash and dry cycles. Pushbuttons are mechanically linked to the various switches. When the selected cycle or energy option button is pushed, it causes the proper switch or switches to open or close to select the required fill, number of washers and rinses, water action, heat or no heat, and the minimum water temperatures when required. The timer switch or switches, in series with the pushbutton switches, control the sequence of these various functions and the time they are operable in the cycle.

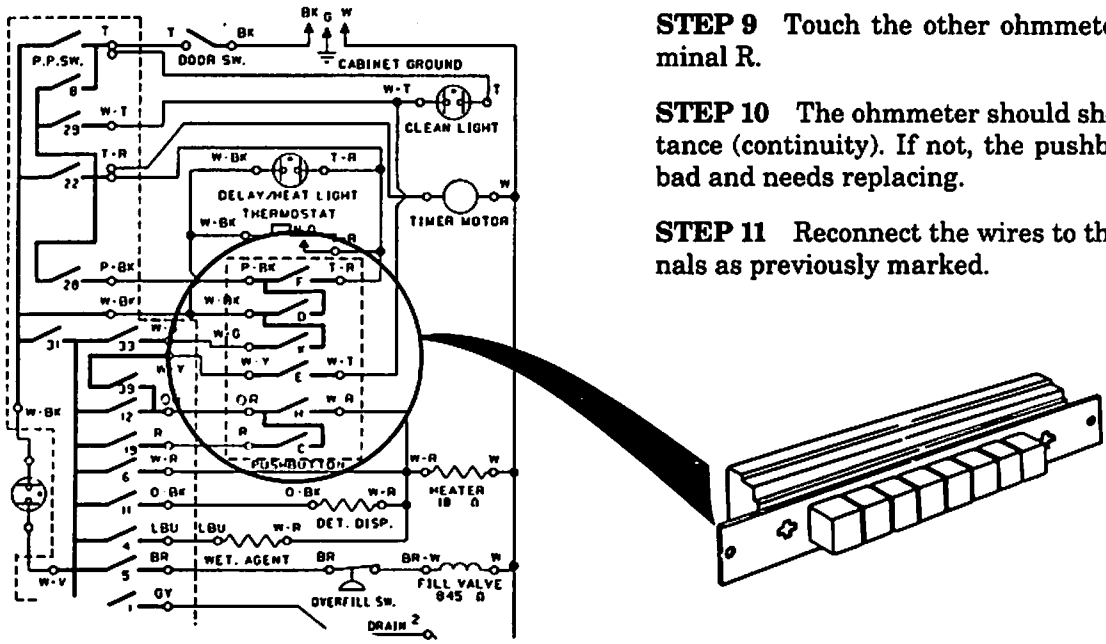
CHECKING PROCEDURE

Obtain a properly working ohmmeter from your local store. We will be doing RESISTANCE checks. This is the safest way because the dishwasher is unplugged from the power source and avoids the possibility of you receiving an electrical shock.

STEP 1 Remove one wire at a time, carefully labeling each wire according to the terminal marking on the pushbutton switch. This procedure should assure that the right wire is reconnected to the right terminal after checking or replacement.

STEP 2 Set the ohmmeter scale to the lowest ohms setting and ZERO the meter. See the instructions that came with your ohmmeter.

STEP 3 Check each circuit by pushing in on the pushbutton to each setting and check the proper terminals.



Use the following chart. Your pushbutton switch may not have all the settings shown.

Terminals shown in each setting must show ZERO resistance (continuity).

This is a typical diagram; refer to your own wiring diagram for proper terminal markings.

PUSHBUTTON NO.	TERMINAL MARKING ON SWITCH
1	W-BK to W-G, OR to R
2	W-BK to P-BK, W-BK to W-G W-G to P-BK, OR to R
3	W-BK to P-BK, OR to R
4	W-BK to P-BK, OR to R
5	W-BK to P-BK, W-Y to W-T
6	W-BK to P-BK, W-Y to W-T
7	Must be open P-BK to T-R
8	Must be open OR to W-R

STEP 4 EXAMPLE: Push the number 3 button (from the left). This closes contacts inside the switch, W-BK to P-BK and OR to R.

STEP 5 Touch one ohmmeter probe to terminal W-BK.

STEP 6 Touch the other ohmmeter probe to terminal P-BK.

STEP 7 The ohmmeter should show ZERO resistance (continuity). If not, the pushbutton switch is bad and needs replacing.

STEP 8 Touch one ohmmeter probe to terminal OR.

STEP 9 Touch the other ohmmeter probe to terminal R.

STEP 10 The ohmmeter should show ZERO resistance (continuity). If not, the pushbutton switch is bad and needs replacing.

STEP 11 Reconnect the wires to the proper terminals as previously marked.

WATER INLET VALVE

This part is located behind the bottom access panel. On Built-In Model's, the valve is located on the left side and on Portable Models, the valve is located on the right. This single coil inlet valve is mainly a shut-off valve for controlling water entering the dishwasher.

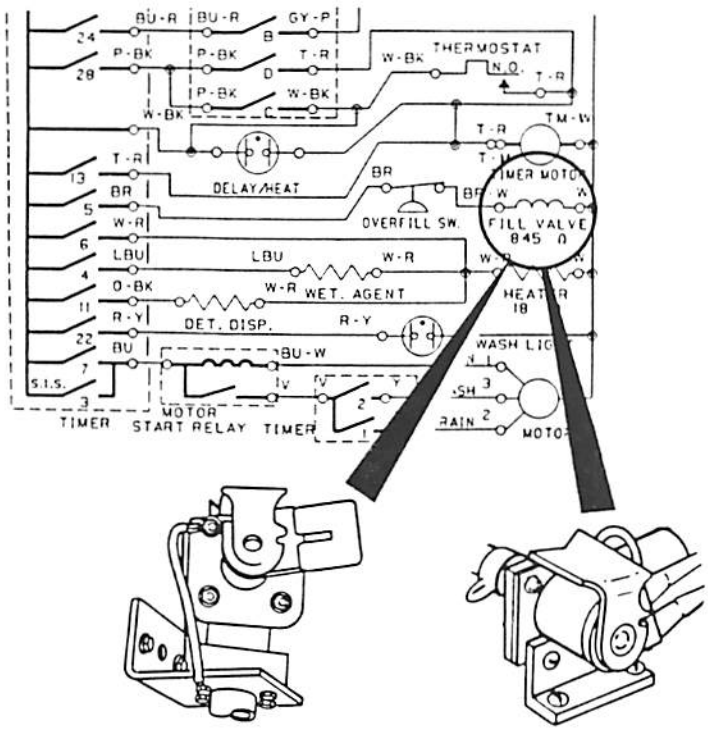
CHECKING PROCEDURE

Obtain a properly working ohmmeter from your local store. We will be doing RESISTANCE checks. This is the safest way because the dishwasher is unplugged from the power source and avoids the possibility of you receiving an electrical shock.

STEP 1 Remove one wire at a time, carefully labeling each wire according to the terminal marking on the inlet valve. This procedure should assure that the right wire is reconnected to the right terminal after checking or replacement.

OR

Pull the connectors apart.



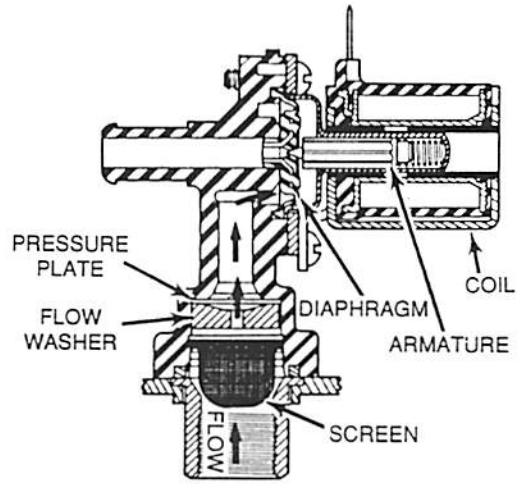
STEP 2 Refer to the instructions that came with your ohmmeter to find the proper scale to measure 500 to 2,000 ohms. Set the ohms scale and ZERO the meter.

STEP 3 Touch one ohmmeter probe to one of the terminals.

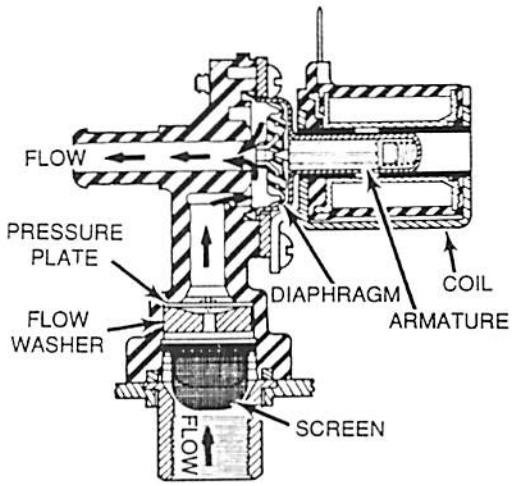
STEP 4 Touch the other ohmmeter probe to the other terminal.

STEP 5 You should read between 500 to 2,000 ohms on the ohms scale. If not, the water inlet valve is bad and needs replacing.

STEP 6 Reconnect the wires to the proper terminals as previously marked.



VALVE CLOSED



VALVE OPEN

OVERFILL SWITCH

This switch is located behind the access panel, on the right side, underneath the tub. This is a normally open (N.O.) switch that is kept closed by the weight of the float. This switch is in series with the fill valve. This switch is used as an overfill protection safety switch only. It does not control the water fill as this is time-controlled through the timer. If an overfill situation occurs, this switch opens, breaking the circuit to the inlet valve and shutting it off. The float is located in the tub, in the front right corner under the lower dishrack.

CHECKING PROCEDURE

Obtain a properly working ohmmeter from your local store. We will be doing RESISTANCE checks. This is the safest way because the dishwasher is unplugged from the power source and avoids the possibility of you receiving an electrical shock.

STEP 1 Remove one wire at a time, carefully labeling each wire according to the terminal marking on the overfill switch. This procedure should assure that the right wire is reconnected to the right terminal after checking or replacement.

STEP 2 Set the ohmmeter scale to the lowest ohms setting and ZERO the meter. See the instructions that came with your ohmmeter.

STEP 3 With the float or lever in the down position, touch one ohmmeter probe to one of the terminals.

STEP 4 Touch the other ohmmeter probe to the other terminal.

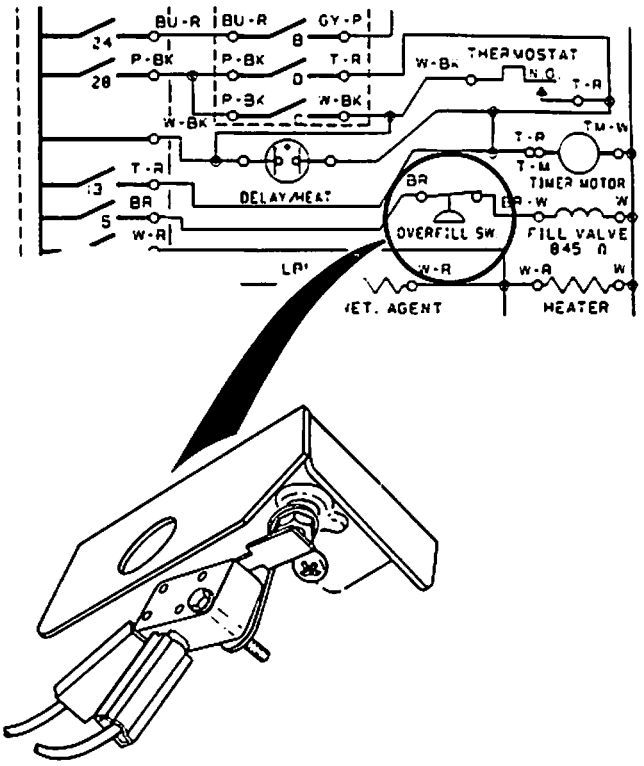
STEP 5 The ohmmeter should show ZERO resistance (continuity) with the float or lever down. If not, the overfill switch is bad and needs replacing.

STEP 6 With the float or lever in the up position, touch one ohmmeter probe to one of the terminals.

STEP 7 Touch the other ohmmeter probe to the other terminal.

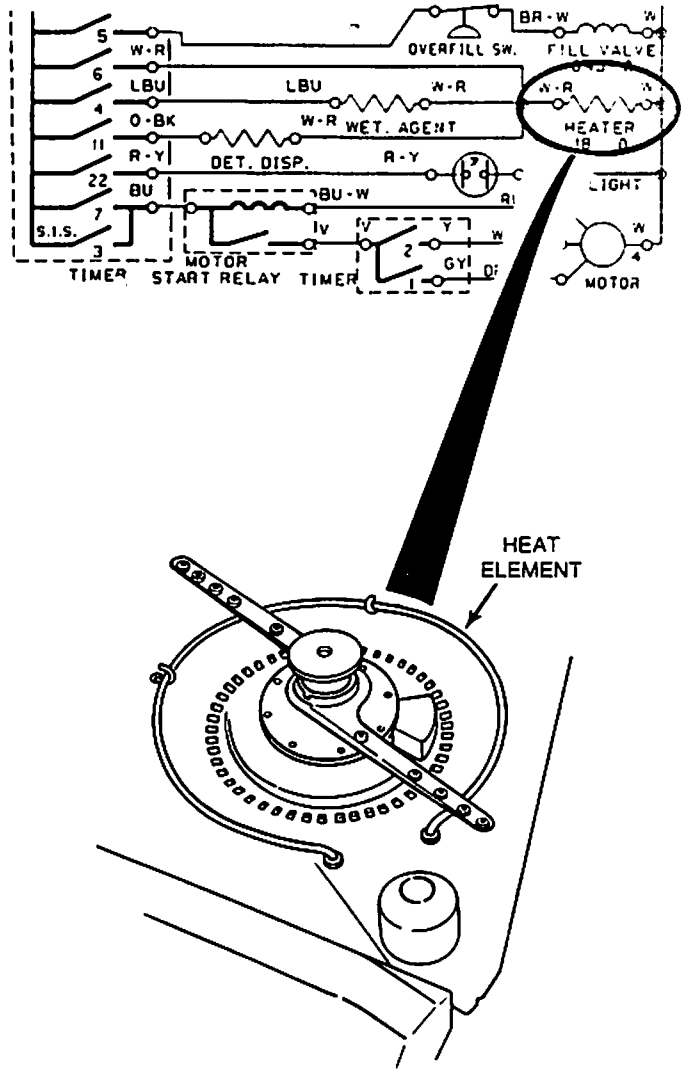
STEP 8 The ohmmeter should show an open circuit with the float or lever up. If not, the overfill switch is bad and needs replacing.

STEP 9 Reconnect the wires to the proper terminals as previously marked.



HEATER

This heater is located in the middle, inside the tub. It keeps the water temperature at 140°F during washing and rinsing and also helps dry the dishes during the dry cycle. This heating element serves as a resistance and is in series with the detergent and wetting agent dispensers. When the heater element is used in drying, dry room air is pulled in at the bottom of the door and heated by the heating element. Air flows upward by convection (like a chimney), picking up moisture from the wet dishes, and escapes through a screened exhaust vent in the top front of the door.



CHECKING PROCEDURE

Obtain a properly working ohmmeter from your local store. We will be doing RESISTANCE checks. This is the safest way because the dishwasher is unplugged from the power source and avoids the possibility of you receiving an electrical shock.

STEP 1 Remove one wire at a time, carefully labeling each wire according to the terminal marking on the heater. This procedure should assure that the right wire is reconnected to the right terminal after checking or replacement.

STEP 2 Refer to the instructions that came with your ohmmeter to find the proper scale to measure 10 to 30 ohms. Set the ohms scale and ZERO the meter.

STEP 3 Touch one ohmmeter probe to one of the heater terminals.

STEP 4 Touch the other ohmmeter probe to the other terminal.

STEP 5 You should read around 10 to 30 ohms on the ohms scale. If not, the heater is bad and needs replacing.

GROUNDING CHECK

STEP 6 Touch one ohmmeter probe to one of the heater terminals.

STEP 7 Touch the other ohmmeter probe to the frame of the dishwasher.

STEP 8 The ohmmeter should show an open circuit. If not, the heater is bad and needs replacing.

STEP 9 Reconnect the wires to the proper terminals as previously marked.

THERMOSTAT

This part is located behind the access panel and held against the bottom of the tub by a spring type bracket. This thermostat keeps turning the timer "OFF" and the heater "ON" to keep the water temperature at 140°F. When the thermostat is open, the circuit must go through the high-resistance neon light which does not pass enought current to run the timer motor. This stops the timer from advancing through the cycle.

CHECKING PROCEDURE

Obtain a properly working ohmmeter from your local store. We will be doing RESISTANCE checks. This is the safest way because the dishwasher is unplugged from the power source and avoids the possibility of you receiving an electrical shock.

STEP 1 Remove one wire at a time, carefully labeling each wire according to the terminal marking on the thermostat. This procedure should assure that the right wire is reconnected to the right terminal after checking or replacement.

STEP 2 Set the ohmmeter scale to the lowest ohms setting and ZERO the meter. See the instructions that came with your ohmmeter.

STEP 3 Touch one ohmmeter probe to one of the terminals.

STEP 4 Touch the other ohmmeter probe to the other terminal.

STEP 5 The ohmmeter should show an open circuit. If not, the thermostat is bad and needs replacing.

STEP 6 Place the thermostat face down (terminals up) in an electric skillet.

STEP 7 Turn the electric skillet "ON" to 155°F. When the electric skillet reaches this temperature, we can test the thermostat.

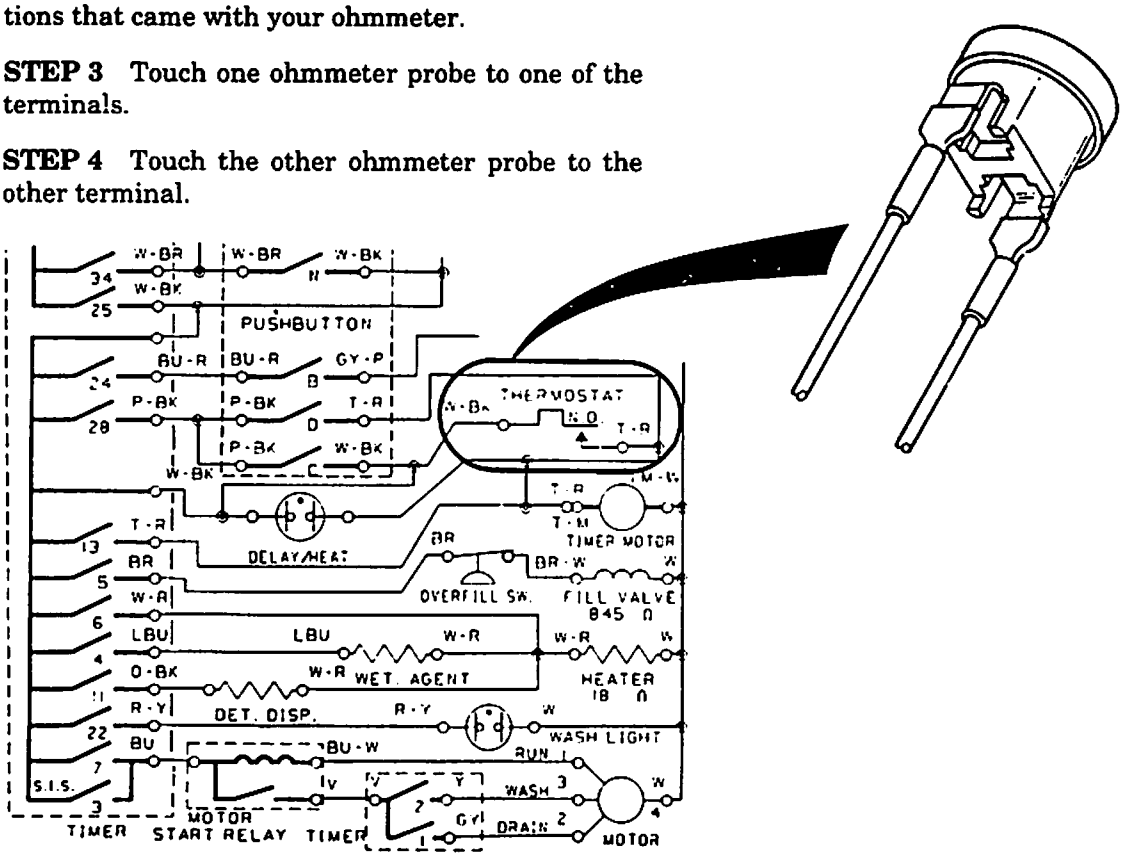
STEP 8 Touch one ohmmeter probe to one of the terminals.

STEP 9 Touch the other ohmmeter probe to the other terminal.

STEP 10 The ohmmeter should show ZERO resistance (continuity). If not, the thermostat is bad and needs replacing.

STEP 11 Reconnect the wires to the proper terminals as previously marked.

NOTE: Don't forget to turn the skillet "OFF" and let the thermostat cool before removing it from the skillet.



DRIVE MOTOR

This part is located behind the access panel and in the middle of the tub. This motor provides the driving force for the pump. It is a reversible type motor driving a pump impeller (clockwise) in one direction, washing the dishes, then changes direction and drives the impeller (counterclockwise) in the other direction for draining of the water.

CHECKING PROCEDURE

Obtain a properly working ohmmeter from your local store. We will be doing RESISTANCE checks. This is the safest way because the dishwasher is unplugged from the power source and avoids the possibility of you receiving an electrical shock.

STEP 1 Remove one wire at a time, carefully labeling each wire according to the terminal marking on the drive motor. This procedure should assure that the right wire is reconnected to the right terminal after checking or replacement.

OR

Pull apart the two connectors.

STEP 2 Set the ohmmeter scale to the lowest ohms setting and ZERO the meter. See the instructions that came with your ohmmeter.

GROUNDING CHECK

STEP 3 Touch one ohmmeter probe to the motor housing.

STEP 4 One at a time, touch the other ohmmeter probe to terminals 1, 2, 3 and 4.

STEP 5 The ohmmeter should show an open circuit when each of the terminals is checked. If not, the drive motor is bad and needs replacing.

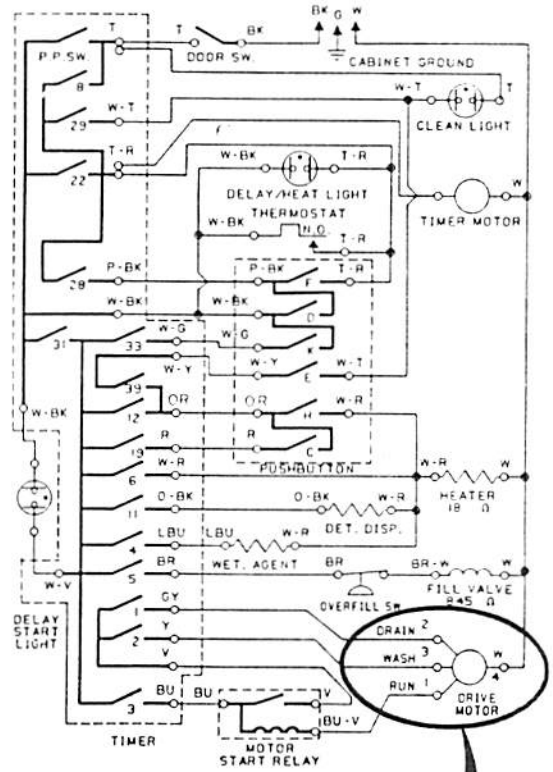
RUN WINDING

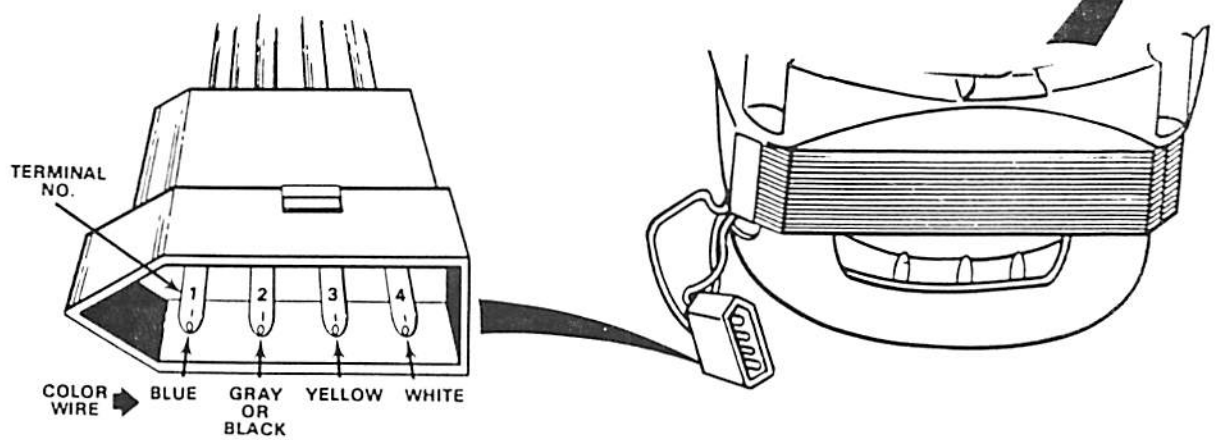
STEP 6 Touch one ohmmeter probe to terminal no. 1 (Blue).

STEP 7 Touch the other ohmmeter probe to terminal no. 4 (White).

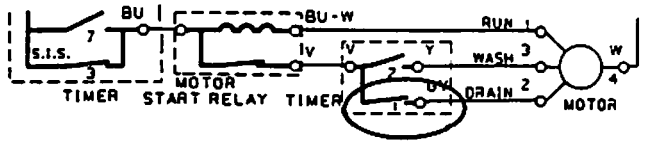
STEP 8 The ohmmeter should show 1-4 ohms on the ohms scale.

STEP 9 If you do not get this reading, the drive motor is bad and needs replacing.





START WINDING-DRAIN



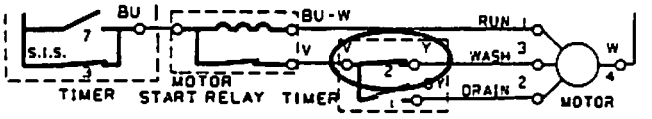
STEP 10 Touch one ohmmeter probe to terminal no. 2 (Gray or Black).

STEP 11 Touch the other ohmmeter probe to terminal no. 4 (White).

STEP 12 The ohmmeter should show 3-8 ohms on the ohms scale.

STEP 13 If you do not get this reading, the drive motor is bad and needs replacing.

START WINDING-WASH



STEP 14 Touch one ohmmeter probe to terminal no. 3 (Yellow).

STEP 15 Touch the other ohmmeter probe to terminal no. 4 (White).

STEP 16 The ohmmeter should show 3-8 ohms on the ohms scale.

STEP 17 If you do not get this reading, the drive motor is bad and needs replacing.

STEP 18 Reconnect the wires to the proper terminals as previously marked.

START RELAY

The start relay is used in getting voltage to the start wash winding or the start drain winding.

The initial starting current passes through the relay coil since it is in series with the motor's RUN windings. The starting current surge causes the relay coil to produce a strong magnetic force, attracting the steel armature and closing the switch in the relay. As the motor approaches full speed, the initial surge of current will diminish. The magnetic force of the relay will also diminish, since the relay coil carries the same amperage. At about 2/3 motor speed, the magnetic force weakens to the point that the weight of the armature overcomes the magnetic force, allowing the armature to drop and open the relay contacts. This de-energizes the start winding, and the motor continues running on the run winding.

This start relay could be located in one of the following places. Either behind the toe panel (build-in models), access panel and coverplate (portable models) or in the console area.

CHECKING PROCEDURE

Obtain a properly working ohmmeter from your local store. We will be doing RESISTANCE checks. This is the safest way because the dishwasher is unplugged from the power source and avoids the possibility of you receiving an electrical shock.

STEP 1 Remove one wire at a time, carefully labeling each wire according to the terminal marking on the start relay. This procedure should assure that the right wire is reconnected to the right terminal after checking or replacement.

STEP 2 Set the ohmmeter scale to the lowest ohms setting and ZERO the meter. See the instructions that came with your ohmmeter.

STEP 3 Touch one ohmmeter probe to terminal marked M, BU or 3.

STEP 4 Touch the other ohmmeter probe to terminal marked M, BU (different terminals) or 4.

STEP 5 The ohmmeter should show ZERO resistance (continuity). If not, the start relay is bad and needs replacing.

STEP 6 Touch one ohmmeter probe to any terminal marked M, BU 3 or 4.

STEP 7 Touch the other ohmmeter probe to terminal marked S, V or 2.

STEP 8 The ohmmeter should show an open circuit. If not, the start relay is bad and needs replacing.

STEP 9 Remove the start relay and turn it upside down.

STEP 10 Touch one ohmmeter probe to terminal marked M, BU or 3.

STEP 11 Touch the other ohmmeter probe to terminal marked M, BU (different terminals) or 4.

STEP 12 The ohmmeter should show ZERO resistance (continuity). If not, the start relay is bad and needs replacing.

STEP 13 Touch one ohmmeter probe to terminal marked S, V or 2.

STEP 14 Touch the other ohmmeter probe to each terminal marked M, BU 3 and 4.

STEP 15 The ohmmeter should show ZERO resistance (continuity). If not, the start relay is bad and needs replacing.

STEP 16 Reconnect the wires to the proper terminals as previously marked.