



GE Appliances

TECHNICIAN'S MANUAL

WSKS/WSKP2060 22" COMPACT WASHER

Servicing and Troubleshooting

Pub. No. 31-15060-2

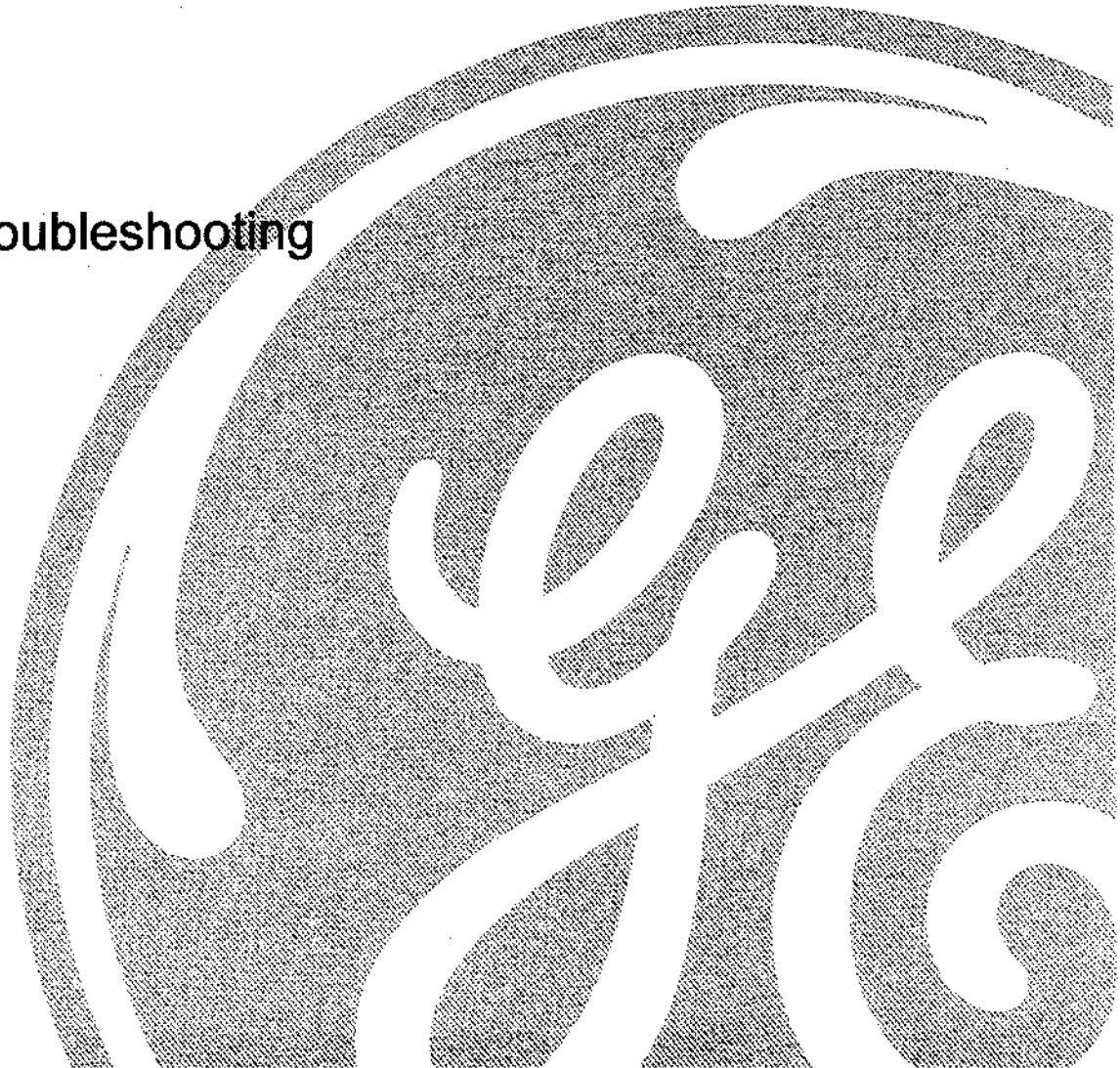


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Section 1

EQUIPMENT AND SAFETY

EQUIPMENT

All tests/checks should be made with a VOM or DVM having a sensitivity of 20,000 ohms per volt DC or greater.

SAFETY

WARNING

ELECTRICAL SHOCK HAZARD

Disconnect the unit from household electric supply before servicing.
Failure to do so could result in serious injury or death.

CAUTION

ELECTROSTATIC DISCHARGE (ESD) SENSITIVE ELECTRONICS

Do not open the package containing the service replacement control assembly until it is time to install it. ESD problems are present everywhere. ESD may damage or weaken the electronic control assembly. The new control assembly may appear to work well after repair is finished, but failure may occur at a later date due to ESD stress.

Use an anti-static wrist strap.

Connect wrist strap to green ground connection point or unpainted metal in the appliance.

-OR-

Touch your finger repeatedly
to a green ground connection point
or unpainted metal in the appliance.

Before moving the part from its package,
touch the anti-static bag to a green ground connection
point or unpainted metal in the appliance.

Avoid touching electronic parts or terminal contacts;
handle electronic control assembly by edges only.

When repackaging a failed electronic control assembly in the anti-static bag,
observe above precautions.

WARNING

ELECTRICAL SHOCK HAZARD

- A good electrical ground is required for this appliance.
- Do not modify the power supply cord. If it does not fit the wall receptacle, have a qualified electrician install the proper outlet.
- Do not have a fuse in the neutral or ground circuit. A fuse in these circuits could cause electrical shock.
- Do not use an extension cord with this appliance.
- If there is doubt as to whether this unit is grounded properly, check with a qualified electrician.

Failure to follow these procedures could result in serious injury or death.

Section 2

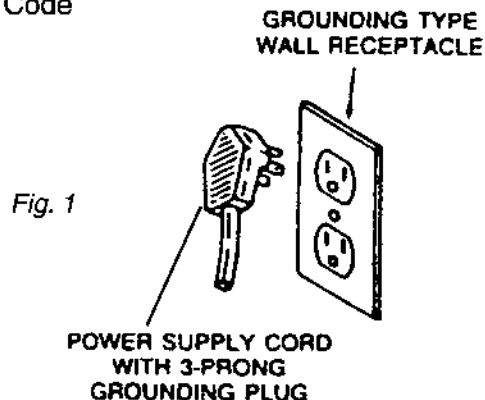
INSTALLATION CONSIDERATIONS

Electrical Requirements

This appliance is equipped with a power cord that has a 3-prong grounding plug. To minimize the possibility of electrical shock hazard the cord must be plugged into a mating 3-prong grounding type wall receptacle installed in accordance with National Electrical Code (ANSI/NFPA70) - latest edition* or Canadian Electrical Code - latest edition** and all local codes and ordinances. (Fig. 1)

Copies of these codes can be obtained from:

- * National Fire Protection Association
Batterymarch Park
Quincy, Massachusetts 02269
- ** Canadian Standard Association
178 Rexdale Boulevard
Rexdale (Toronto), Ontario M9W 1R3



It is the personal responsibility of the customer to have a properly grounded 3-prong wall receptacle installed by a qualified electrician.

A 120VAC , 60HZ, 15 to 20 amp fused electrical supply is required. If possible a separate electrical circuit should be used for this appliance.

Unpacking and Setup

Before Your Start

Check the location where the washer is going to be used and make sure it has the following:

- A grounded electrical outlet.
- A hot and cold water faucet that is within 4 feet (1.2m) of the washer that can deliver 120°F (49°C) water at 20 to 100 psi (138 to 690kPa) (Stationary Model.)
- A sink that is within 4 feet (1.2m) of the washer with a minimum carry-away capacity of 11 gallons (41.8 liters) per minute. (Portable Model)
- A floor with no more than a 3/8" (1cm) slope running under the entire washer that can hold the washer up to a weight of 260 pounds (118kg) (Portable Model.)
- A floor with no more than a 1" (2.5cm) slope running under the entire washer that can be corrected by the use of leveling legs to within 3/8" (1cm) (Stationary Model.)

One of the following drain systems should be provided: (Stationary Models)

- **Standpipe** - The pipe should have a minimum carry-away capacity of 17 gallons (65 liters) per minute. The top of the standpipe should be between 34" and 72" (85cm to 180cm) from the bottom of the washer.
- **Floor Drain** - For this installation a siphon break kit (part no. 285320) will be required. The kit contains installation instructions.
- **Laundry Tub** - The tub must be capable of holding a minimum of 20 gallons (76 liters) of water. The top should be between 34" and 72" (85cm to 180cm) from the bottom of the washer.

Unpacking

1. Cut along the dotted line on the side face of the carton and lay the side on the floor.
2. Carefully slide the washer out of the carton and off the carton side.
3. Remove and dispose of all cardboard, wood, plastic covers and all of the shipping tape from the outside of the washer.
4. Remove the items inside the washer basket.
5. Turn the washer 90° and lay the washer on its front on the carton side.
6. Remove the styrofoam blocks and cardboard packing from the bottom of the washer and discard.
7. Stand the washer upright.

Setup (Portable Model)

Portable washers are supplied with a combination fill hose and drain line attached at one end to a faucet connector (Fig. 2). The other ends of these hoses should be attached to the washer as follows:

1. Make sure there is a rubber flat washer in the end of the water supply hose. (Fig. 3)

Fig. 3

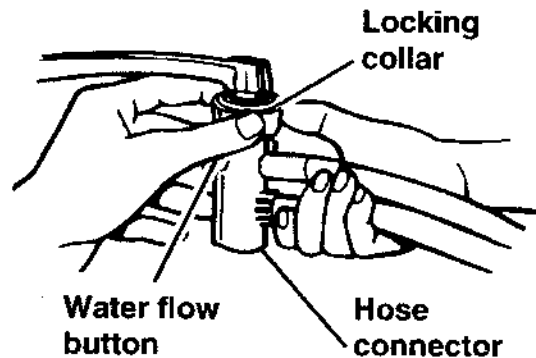
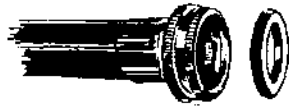


Fig. 2

2. Connect the water supply hose to the Cold (marked C) water inlet connector on the washer. Use a pair of pliers and tighten the connector an additional 2/3 of a turn.
3. Squeeze the ends of a hose clamp with a pair of pliers and slide it onto the straight end of the drain hose.
4. Slide the hose over the drain connector of the washer and clamp it in place. (Fig. 4)
5. Carefully install an adaptor on the water faucet.
NOTE: Do not force fit new adaptor. If threads do not mesh properly, consult the supplier of the kitchen faucet.
6. Move the washer near the sink and attach the faucet connector to the faucet adaptor and plug the power supply cord into a proper wall outlet.
7. Follow the instructions in the Use and Care Guide and run a small load of clothes and check for leaks and proper installation.
8. A storage rack is provided on portable models to hang the hoses on when not in use. (Fig. 5)

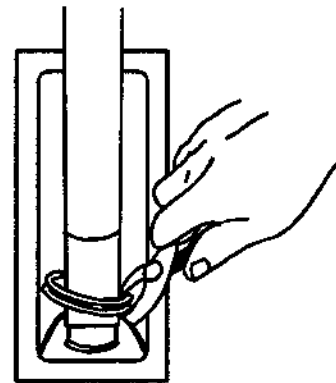


Fig. 4

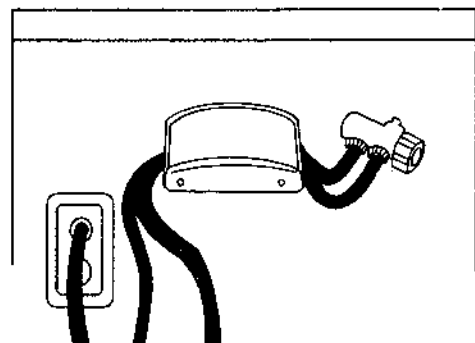


Fig. 5

Setup (Stationary Models)

Built-in washers are supplied with two water supply hoses and separate drain hose. Install these hoses as follows:

1. Make sure there is a rubber flat washer in the ends of both of the water supply hoses.
2. Connect one end of each water supply hose to the Cold (marked C) and Hot (marked H) water inlet connectors on the washer. Use a pair of pliers and tighten the connectors an additional $\frac{2}{3}$ of a turn.
3. Squeeze the ends of a short tang hose clamp with a pair of pliers and slide it onto the straight end of the drain hose.
4. Slide the hose over the drain connector of the washer and clamp it in place. (Fig. 4)
5. Hook the curved end of the drain hose over the edge of the stand pipe or laundry tub and secure it with a plastic tie. (Fig. 6)
6. Turn the hot and cold water faucets on and run them for a minute to clear the lines of any foreign particles.
7. Close the lid before moving washer. Move the washer near its final location and attach the hot and cold water supply hoses to the proper water supply faucets. Plug the power supply cord into a proper wall outlet.
8. Move the washer into its permanent location and check for level both front to back and side to side. Adjust the leveling feet if necessary.
9. Follow the instructions in the Use and Care Guide and run a small load of clothes and check for leaks and proper installation.

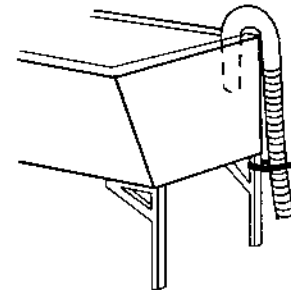


Fig. 6

Enclosed Locations

To install the washer in a recessed area such as a closet be sure the following minimum clearances are followed (Fig. 7):

- 4" (10cm) from the back wall
- 0" (0cm) from side walls
- 17" (42.5cm) from the top

If a door is to be installed a 1" (2.5cm) space between the washer and the door must be maintained. Use minimum air vent openings at the top and bottom of the enclosure:

- 24 sq. inches (154.8cm²) starting 3" (7.5cm) from the bottom edge of the door.
- 48 sq. inches (309.7cm²) starting 3" (7.5cm) from the top edge of the door.

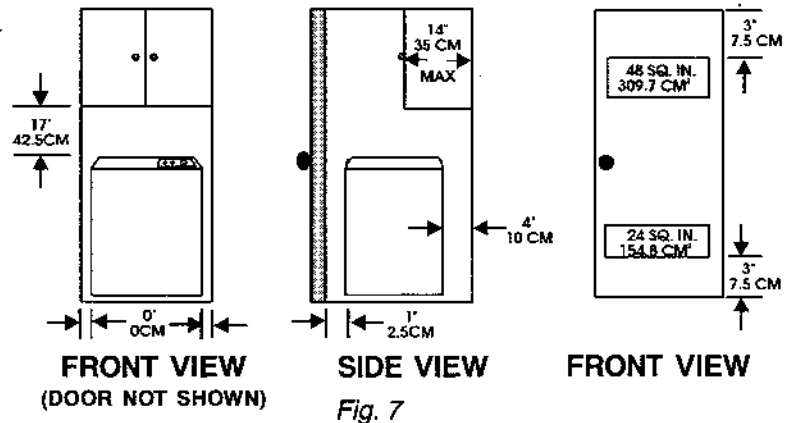


Fig. 7

Installation Checklist

The most common causes of failure to run are the result of issues related to proper installation. Before servicing the appliance, perform the following checks:

- Is the power cord firmly plugged into a live circuit with proper voltage?
- Has a household fuse blown or circuit breaker tripped? Is the circuit on a time delay fuse?
- Is the washer lid closed? (Washer will not operate when the lid is open.)
- Is the washer in Pause Mode? See "Pause Mode" in Section 3, "Theory of Operation."
- Are both hot and cold water faucets open and water supply hoses and water inlet screens unobstructed?

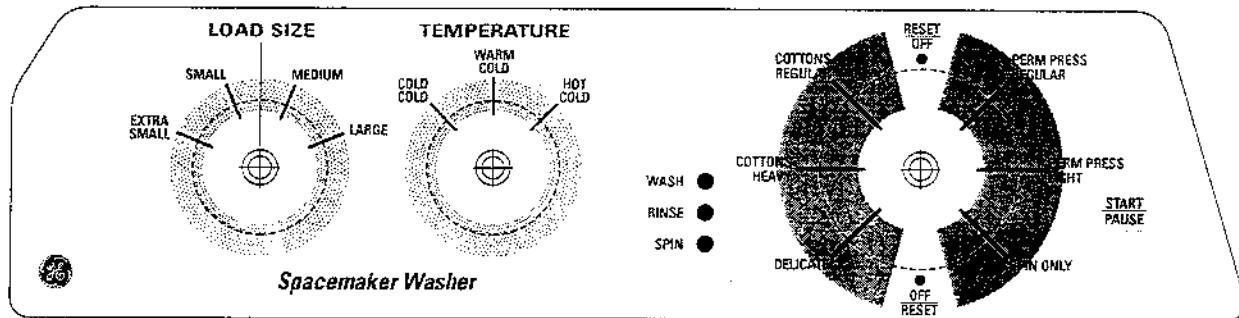
Section 3

THEORY OF OPERATION

GENERAL INFORMATION

Start Up

Whenever the washer power cord is plugged into a household electrical source the electronic control will be energized. At this time the microcontroller will be permanently on-line waiting for user input.



Cycle/Status Indicators

There are three red status indicator Light Emitting Diodes (LED) on the console:

- Wash
- Rinse
- Final Spin

A blinking indicator is the signal that the washer is in Pause Mode. If all lights are off, washer is OFF.

Pause Mode

The Pause Mode can be used to interrupt machine cycles at any time. To initiate a Pause Mode, press the START/PAUSE button on the console panel. Any Cycle/Status indicator that was lit at the time the START/PAUSE button was pressed will flash every 1/2 second until the Pause Mode is terminated. To terminate or exit the Pause Mode press the START/PAUSE button a second time. If the washer remains in Pause Mode for more than two hours the microcontroller discontinues the program and turns off all the LEDs.

Soak Mode

The Soak Mode suspends the wash cycle for a timed interval before completion of the cycle. In order to alert the user that the washing process has not finished, the Wash indicator LED remains lit during soak. If the Pause button is pressed while in Soak Mode, the Wash LED will blink.

Long Fill Time

If the user selected water level has not been reached after 30 minutes the microcontroller will discontinue the program and turn the washer off.

Long Drain Time

If the water level switch does not detect a low water level condition after 14 minutes of Drain, the microcontroller will discontinue the program and turn the washer off. **NORMAL DRAIN TIME IS APPROXIMATELY 5 MINUTES.**

Cycle Select Knob

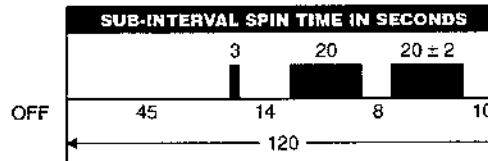
The Cycle Select Knob must be turned to the OFF position to terminate the current wash cycle and begin a new one.

S.I.S. (Sub-Interval Spin)

Sub-Interval Spin (S.I.S.) is a series of short spin times initiated during the first 120 seconds of the cotton/regular spin cycles and throughout all of the permanent press and delicate spin cycles. The S.I.S. is designed to help the washer break up soap suds for easier water removal during drain.

(Table 1)

Table 1



Operation

Washing Action Cycle Selection

A six or eight position switch provides for the selection of up to seven washing action options and "OFF". The washing action cycle options are:

- SUPER WASH
- COTTONS: HEAVY
- COTTONS: NORMAL
- SPIN ONLY
- SOAK
- DELICATE
- PERMANENT PRESS

CYCLE CHART**

CYCLES →	COTTONS: HEAVY				PERMANENT PRESS			DELICATE		SOAK ONLY	HAND WASH	SPIN ONLY	SUPER WASH	
	SUPER	HEAVY	NORMAL	LIGHT	HEAVY	NORMAL	LIGHT	SUPER	HEAVY					
CYCLE	1	2	3	4	5	6	7	8	9	10	11	12	13	
WASH	Fill Until Full	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	no	yes	
	Agitate Normal	4	14	10	6	14	10	6	0	0	2	0	4	
	Agitate Delicate	0	0	0	0	0	0	0	8	4	0	6 SR*	0	
	Soak	0	0	0	0	0	0	0	0	0	8	0	0	
	½ Tub Drain	yes	no	no	no	yes	yes	yes	no	no	no	no	yes	no
	Fill	yes	no	no	no	yes	yes	yes	no	no	no	no	no	no
	Agitate Normal	14	0	0	0	2	2	2	0	0	2	0	0	14
	Soak	0	0	0	0	0	0	0	0	0	8	0	0	0
	Drain	4	4	4	4	4	4	4	4	4	0	4	no	4
	Subinterval Spin	yes	yes	yes	yes	yes	yes	yes	yes	yes	no	yes	no	yes
Spin	2	2	2	2	0	0	0	0	0	0	0	0	2	
RINSE	Fill	yes	yes	yes	yes	yes	yes	yes	yes	yes	no	yes	no	yes
	Agitate Normal	4	4	4	4	4	4	4	0	0	2	0	4	
	Agitate Delicate	0	0	0	0	0	0	0	4	4	0	4 SR*	0	
	Soak	0	0	0	0	0	0	0	0	0	8	0	0	
SPIN	Drain	4	4	4	4	4	4	4	4	4	4	4	no	4
	Subinterval Spin	1 time	1 time	1 time	1 time	2 times	2 times	2 times	2 times	2 times	1 time	1 time	2 times	1 time
	Spin	4	4	4	4	0	0	0	0	0	2	0	4	4

*SR = Special Rate (Agitate Delicate 5 seconds ON and 10 seconds OFF until time finished)
 ** Chart contains all wash cycles and options available for all washer variations.

Table 2

When the selector switch is placed in the "OFF" position the washer will suspend all activity and wait for further user input.

Water Level Control

The load setting or water level control is determined through the use of an electromechanical pressure switch which provides a 120VAC signal to the microcontroller. The microcontroller reads the signal from the water level pressure switch during fill, agitate or drain functions only. Water level changes during any other function will not be initiated by the control system.

Adjusting the water level control to a higher level during the agitate function will cause the washing action to stop (no agitation) and the appropriate water valves will be turned on until the newly required water level is met.

Adjusting the water level control to a lower level during the agitate function will not be effected until the next water fill takes place. (i.e. No water will be pumped out during agitation.) **NOTE:** Do not adjust the screw on the pressure switch.

Water Temperature Switch

The water temperature switch can select up to four predetermined Wash and Rinse water temperature combinations.

Table 3

TEMPERATURE SELECTOR	
Position No.	Temperature
1	CC = Cold Wash and Cold Rinse
2	WC = Warm Wash and Cold Rinse
3	HC = Hot Wash and Cold Rinse

Rinse water temperatures are limited to warm and cold to improve energy efficiency.

Start/Pause Button

The START/PAUSE button is pressed to start the selected washing action and to pause the machine during any function. The first time the START/PAUSE button is pressed after a selection is made initiates the washer operation.

The second time the START/PAUSE button is pushed after the washer has begun running will put the machine in a Pause Mode. All machine functions will stop and cycle timing will not resume until the START/PAUSE button is again pressed. The "Paused" mode will be indicated by the blinking of any one of the LEDs. After 2 hours in the PAUSE MODE, washer will turn off.

Features

- Bleach Dispenser** - Located under the lid in the rear left corner. Pour liquid bleach into this dispenser. The washer dilutes and dispenses the bleach during the wash cycle.
- Liquid Fabric Softener Dispenser** - Located at the top of the agitator. Liquid fabric softener is dispensed at the beginning of the rinse cycle. Fabric softener will only dispense if spin reaches full speed. Rinse the fabric softer cup under hot water when residue builds up.
- Lint Filter** - Pull the liquid fabric softener dispenser up from the center of the agitator. To clean the lint filter, wipe around the inner surface with a finger.

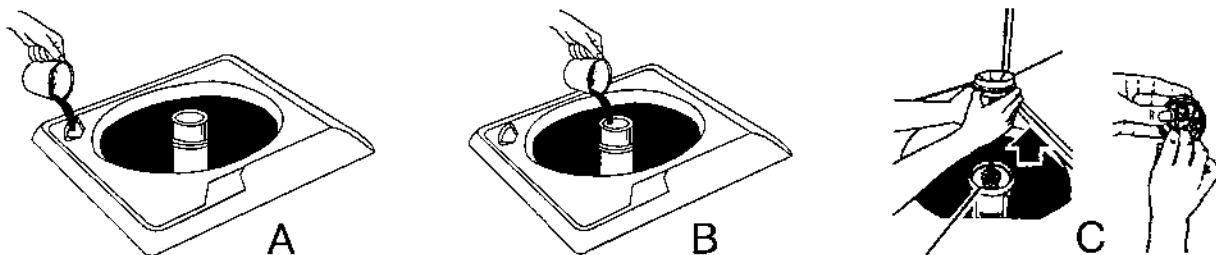


Fig. 9

CYCLE FUNCTIONS

First Step

With the Cycle Selector Knob in the OFF position, turn the Water Level and Wash/Rinse Water Temperature knobs to the desired settings.

Fill Cycle

NOTE: See FILL Strip Circuit on page 36.

Turn the Cycle Selector Knob to the desired wash cycle. The washer will begin to fill. When the water has reached the predetermined level the water level switch will break power to the water fill valves and the fill valves will turn off. The water pressure switch circuit remains active during the wash cycle to maintain the proper water level in the tub. A high water level fill will be approximately 17 gal. (64.6 L).

Wash (Agitate) Cycle

NOTE: See AGITATE Strip Circuit on page 36.

Wash agitation is achieved by reversing the direction of the drive motor. The electronic control board will initiate a four part control cycle to the drive motor. Step 1 will apply power to the drive motor in one direction for a predetermined length of time (as determined by the washing action chosen by the cycle selector switch). In step 2 the power is turned off for a period of time. Step 3 again powers the drive motor, but in the opposite direction, for a period of time. Step 4 again turns the power to the motor off. This cycle is repeated for the duration of the WASH/RINSE cycle. The tables below show the duration of the agitate cycle for Normal and Gentle Wash.

The HANDWASH cycle adds one more time variable. Normal agitation will occur for 5 seconds followed by 10 seconds of no agitation. This will continue until the WASH/RINSE cycle is completed.

Normal Agitation

Cycle Duration	Direction of Rotation
Power ON for .25 sec.	Clockwise (CC)
Power OFF for .20 sec.	
Power ON for .25 sec.	Counterclockwise (CCW)
Power OFF for .20 sec.	

During NORMAL agitation the agitator rotates approximately 270° in each direction at a frequency of 67 strokes-per-minute.

Table 4

Gentle Agitation

Cycle Duration	Direction of Rotation
Power ON for .16 sec.	Clockwise (CC)
Power OFF for .38 sec.	
Power ON for .16 sec.	Counterclockwise (CCW)
Power OFF for .38 sec.	

During GENTLE agitation the agitator rotates approximately 180° in each direction at a frequency of 48 strokes-per-minute.

Table 5

Drain Cycle

NOTE: See DRAIN Strip Circuit on page 37.

The electronic control board will apply power to the drain pump during the drain cycle. The pump will remove the water from the tub into an appropriate drain. At the time that the drain pump is activated the control board also energizes the brake solenoid, releasing the basket to spin.

Spin Cycle

NOTE: See SPIN Strip Circuit on page 37.

The drain pump and brake solenoid are energized at the beginning of the Spin Cycle. The energized brake solenoid releases the brake and engages the splutch.

For the first 120 seconds of the Spin Cycle the electronic control board sequentially cycles the drive motor on and off to allow the basket to slowly build up speed. This sub-interval timing loop allows the water and suds to move through the drain holes in the basket and flow down the outside of the basket. This draining action keeps the suds from building up between the basket and the tub. If this did not occur, the suds build up could cause the motor to go into thermal overload and shorten its life.

Spin Start Up Sequence (S.I.S.)

Table 6

Cycle Duration	Duration of Rotation
OFF	45 sec.
ON	3 sec.
OFF	14 sec.
ON	20 sec.
OFF	8 sec.
ON	20 sec.
OFF	10 sec.
ON	Remainder of Spin Cycle

Heavy Duty and Normal Rinse Cycle Spin: S.I.S. runs for 120 seconds.
Permanent Press and Gentle Cycle Spin: S.I.S. runs through entire spin.

The Splutch Assembly

The splutch slider has teeth around the bottom hub that mate with the teeth in the pulley. The engaging and disengaging of these teeth changes the drive motor from operating the agitator or spinning the tub. (Fig. 10)

The hub of the slider is grooved to fit over the lower splined end of the spin tube on the gearcase assembly. The upper portion of the spin tube is connected directly to the basket. As long as the slider is engaged with the splutch pulley the basket will rotate.

The cam ring controls the movement of the slider up or down. As the cam ring rotates, the tabs on the bottom slide up and down on mating tabs in the splutch housing. This up and down movement of the cam ring controls the movement of the slider. A spring maintains pressure between the two sets of tabs.

The rotation of the cam ring is controlled by the brake solenoid and the brake arm assembly. This assembly also has a brake band which is wrapped around a rotor on the end of the spin tube. When the solenoid is energized:

- The brake arm rotates to loosen the brake band around the rotor.
- The cam ring rotates to lower the slider.

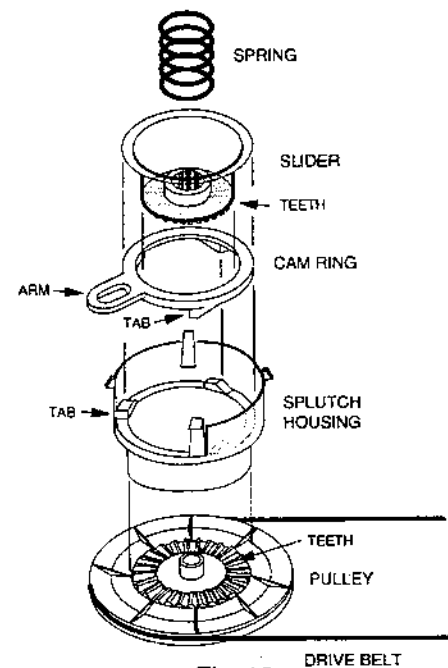


Fig. 10

The Splutch Assembly During Wash/Agitate

When a Wash/Agitate cycle occurs, the agitator which is connected to the shaft inside the spin tube, is rotated by the drive motor and the splutch pulley. At this time the brake solenoid is not energized. This leaves the slider disengaged from the pulley and the brake band in tight against the rotor. This keeps the spin tube from moving. (Fig. 11-A)

The Splutch Assembly During Spin

When a Spin cycle occurs, the brake solenoid is energized causing the slider to drop onto the pulley teeth. The brake band is loosened from around the rotor releasing the spin tube. The basket and agitator can now be directly driven by the drive motor and spin. (Fig. 11-B)

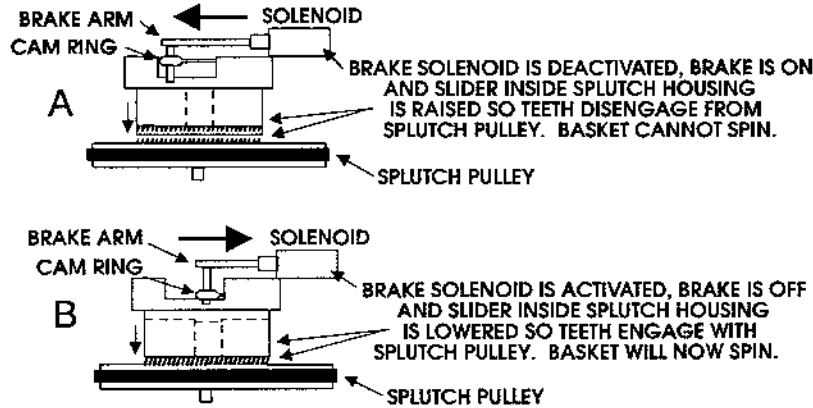


Fig. 11

The Gearcase Assembly

The gearcase has two separate shafts, one inside the other. The inner shaft is splined and is driven by the drive motor through the splutch pulley and drive belt. The agitator slides over the top of the splined inner shaft and rotates when the drive motor operates.

The outer shaft or spin tube is connected to the rotor and operates independently of the inner shaft. Four planetary gears located inside the gearcase reduce the speed of the spin tube to a 5:1 ratio. These gears are driven by a central gear connected to a shaft emerging from the splutch assembly.

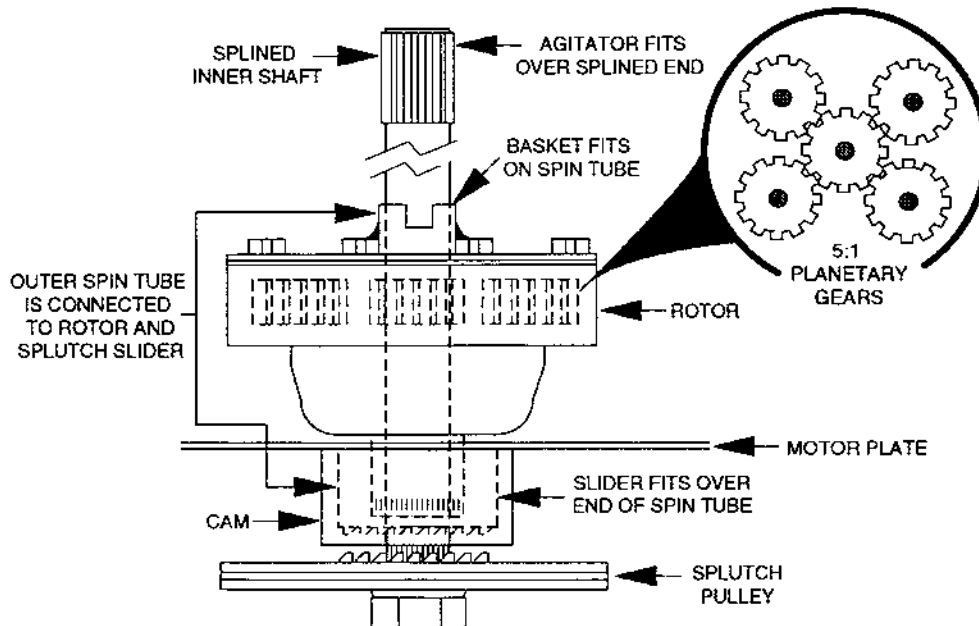
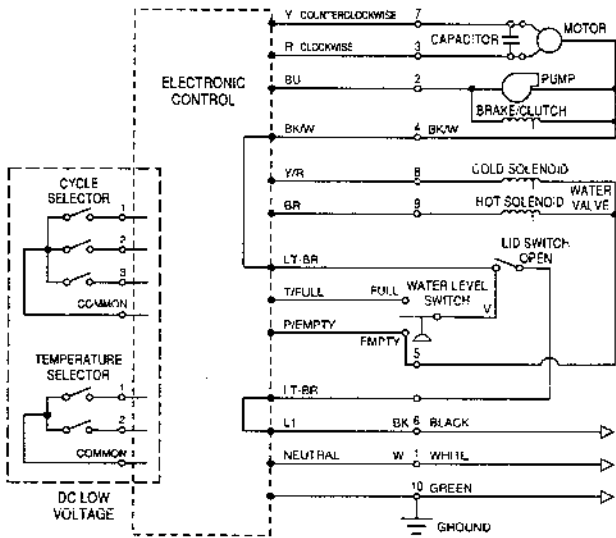


Fig. 12

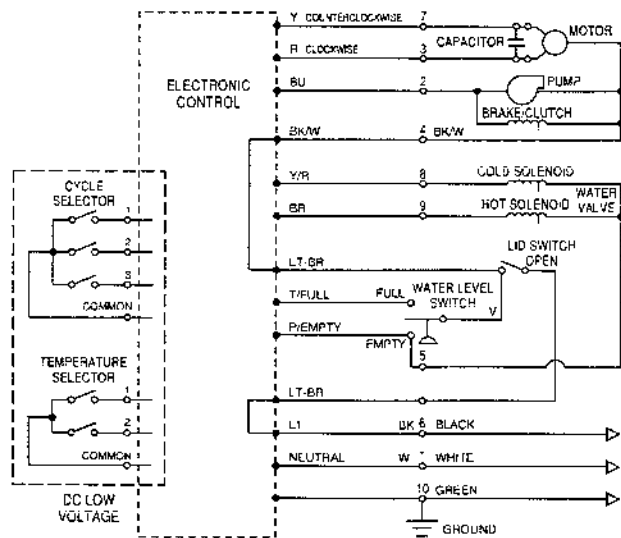
Notes

4. Use these wiring diagrams to trace the active circuits for the function stated.

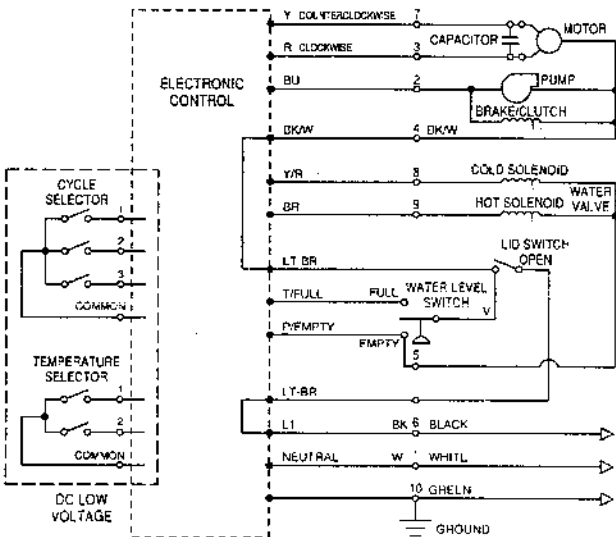
FILL



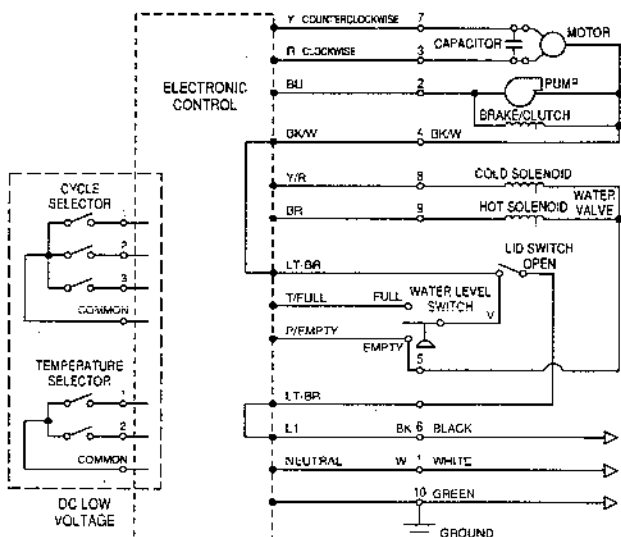
AGITATE



DRAIN



SPIN



Section 4

COMPONENT ACCESS

WASHER TOP COMPONENTS

Washer Top Removal

Refer to Figures 13 and 14 for this procedure.

NOTE: Empty the washer of all clothes and water. Drain hose should be emptied into a bucket or drain.

1. Remove control knobs.
2. Remove 4 screws at the rear of the washer top.
3. Lift the rear edge of the top approximately six inches. Push down the strain relief for the power cord to dislodge from the top. It will remain on the top edge of the cabinet.
4. Pull the bleach hose from the bleach nipple in the top.
5. Lift the rear edge of the top higher and pull the pressure switch hose from the control pan nipple. Pull straight down to prevent breaking the nipple.
6. Reach under the top and unplug the large connector block from the connector block in the top. Unplug the ground terminal connector next to the connector block.
7. Lay the washer top upside down on a soft surface to protect the finish.

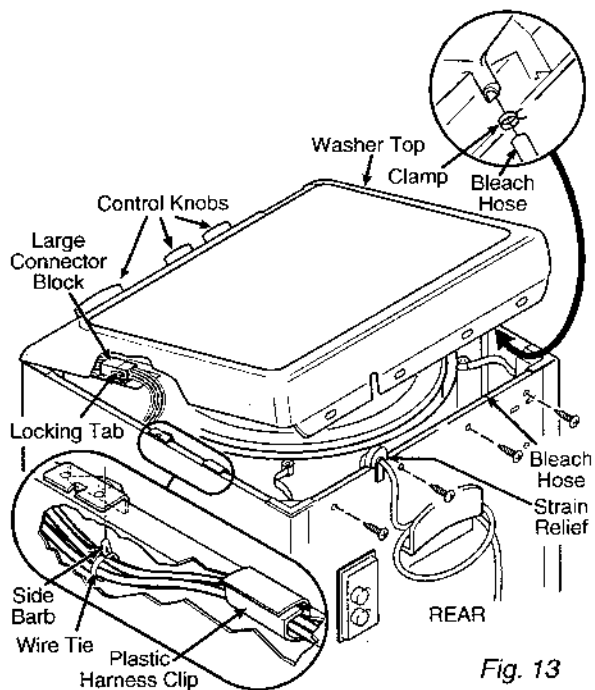


Fig. 13

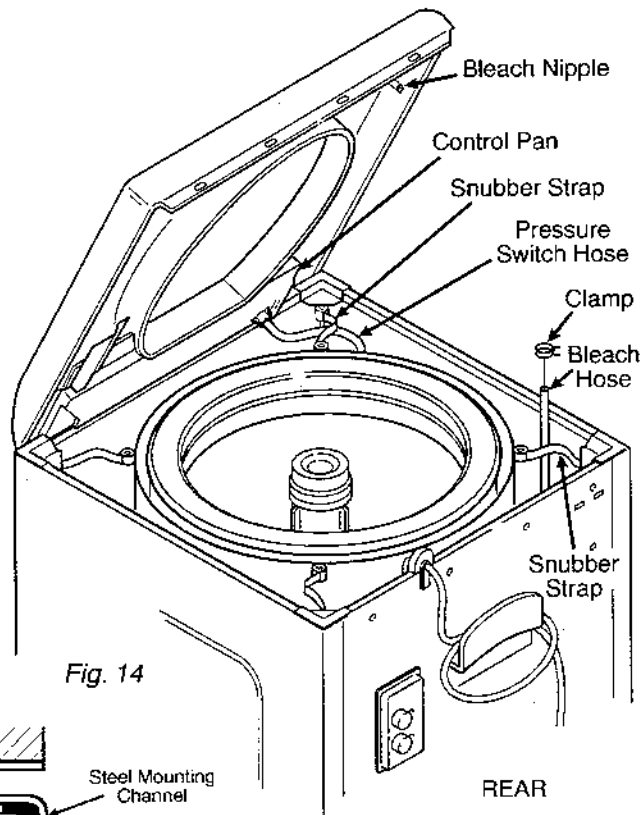


Fig. 14

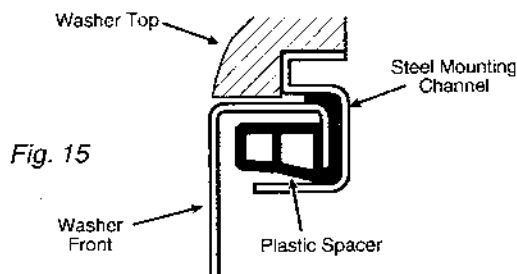


Fig. 15

Washer Top Replacement

Refer to Figures 13, 14 and 15 for this procedure.

1. Lift the rear edge of the top and place slot of steel mounting channel over the plastic spacers on the top front lip of the washer cabinet. Take care to prevent scratching the top front edge of the cabinet.
2. Route the pressure switch hose so it will pass under the snubber strap and press it straight onto the control pan nipple.
3. Add a clamp to the bleach hose and route the hose so it will pass to the front of the snubber strap and push it onto the bleach nipple in the washer top.
4. Plug the large connector block into the connector block on the top. Make sure it is fully latched. Reconnect the ground terminal.
5. Lower the washer top and guide the strain relief so it will enter the slot in the top.
6. Install the four screws at the rear of the washer top.
7. Replace the control knobs.

Circuit Board And Rotary Switch Removal

Refer to Figures 16 and 17 for these procedures.

1. Remove the washer top and the control knobs.
2. Remove the three stainless steel control pan screws.
3. Turn the control pan over and lay it off toward the right side. Leave the upper water level tube connected to the control pan nipple.
4. Unplug the small connector from the small connector block. Leave the clear plastic tube from the lid switch routed through the small connector block.
5. Slide both the large and small connector blocks out of their mounting slots.
6. Pull the connectors from the terminals on the water level switch.
7. Remove the water level switch mounting screw. This will release the ground connector and the water level switch.
8. Pull the ground connector from the terminal on the steel mounting channel.
9. Remove the five circuit board mounting screws and raise the rear edge of the circuit board.
10. Lift the locking tab on each rotary switch and turn the switch 45° counterclockwise. Remove the switch from the control panel. (If necessary, pull the connector of each rotary switch from the connector block on the circuit board.)

Circuit Board and Rotary Switch Replacement

Refer to Figures 16 and 17 for these procedures.

1. Install each rotary switch by first orienting the switch as shown in Figure 20. Insert the switch into the mounting socket in the control panel and turn it 45° clockwise or until the locking tab engages in the detent notch.
2. Push the connector of each rotary switch onto its connector block on the circuit board. The connector web should be oriented toward the rear of the circuit board.
3. Push the ground connector onto the terminal on the steel mounting channel.
4. Install the water level switch mounting screw through the ground connector and water level switch bracket.

5. Route the three water level switch wires around the circuit board mounting post.
6. Install the five circuit board mounting screws.
7. Push the connectors onto the correct terminals on the water level switch. (Tan to "T", Pink to "P", Violet to "V".)
8. Slide both the large and small connector blocks into their mounting slots.
9. Route the clear plastic tube through the center terminal position in the small 3-pin connector. Plug the small 3-pin connector into the small connector block. Make sure the connectors are latched securely.
10. Slide the control pan tabs into the slot in the steel mounting channel. Install the three stainless steel control pan mounting screws.
11. Replace the control knobs and the washer top.

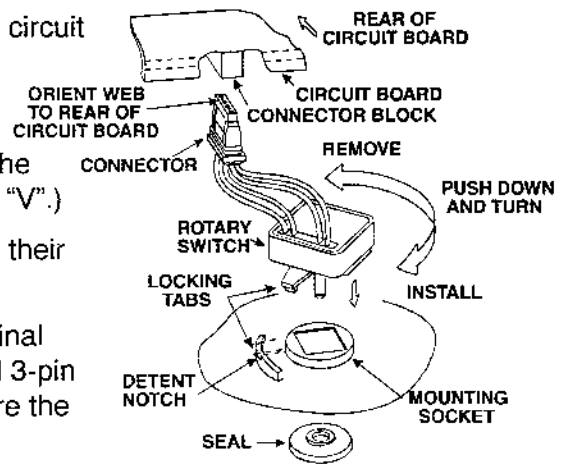


Fig. 16

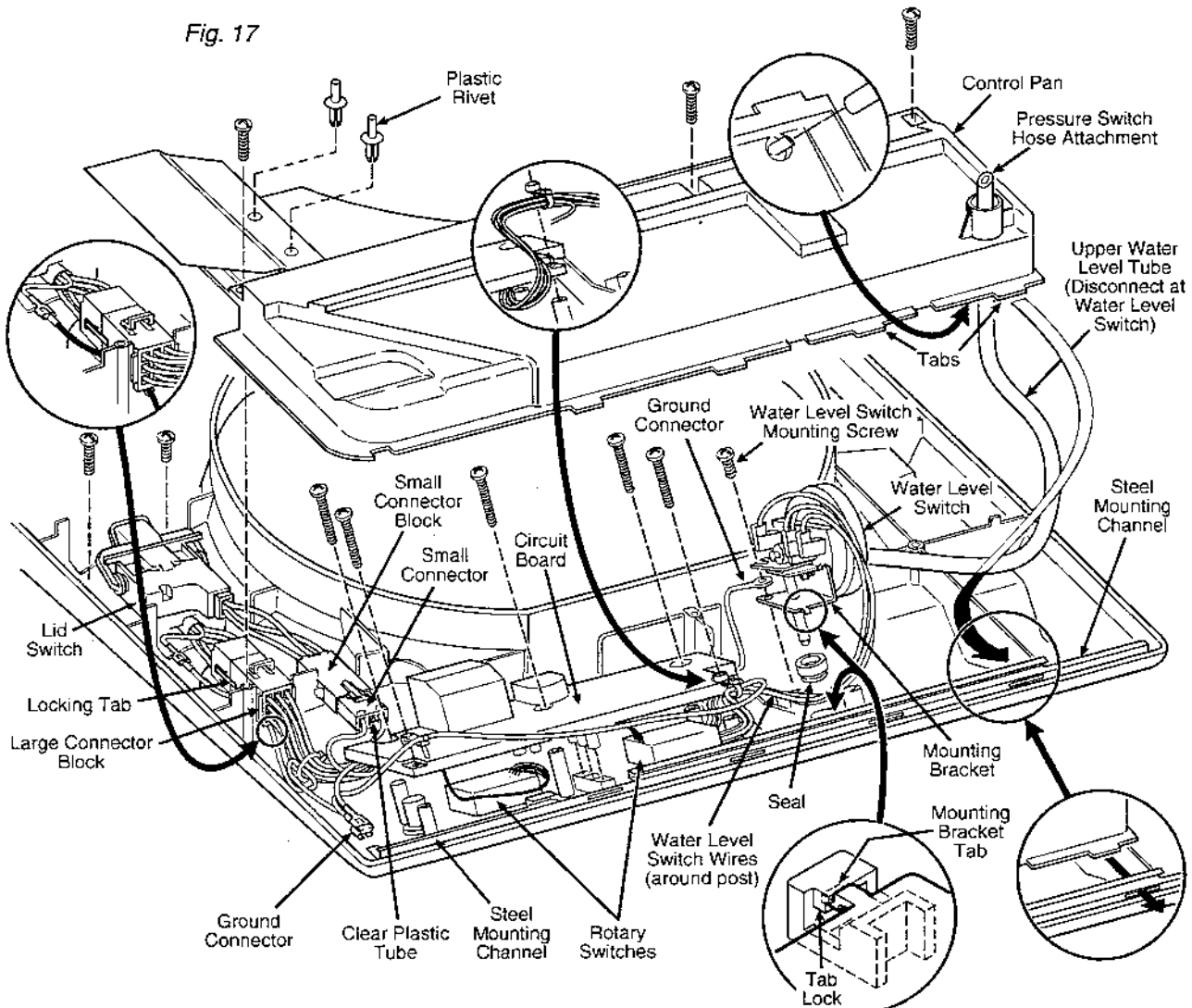


Fig. 17

Water Level Switch Removal

Refer to Figure 17 for these procedures.

1. Remove washer top.
2. Remove the three control pan screws. Turn the control pan over and lay it to one side.
3. Pull the upper water level tube from the nipple on the water level switch. Do not disconnect the tube from the pan nipple.
4. Pull the connectors from the terminals on the water level switch.
5. Remove the water level switch mounting screw. This will free the ground connector and the water level switch.

Water Level Switch Replacement

Refer to Figure 17 for these procedures.

1. Slide the water level switch mounting bracket tab into the mounting slot.
2. Install the mounting screw through the ground connector and the water level switch bracket.
3. Route the three water level switch wires around the circuit board mounting post.
4. Push the upper water level switch tube onto the nipple on the water level switch.
5. Install the three control pan screws.
6. Install the washer top.

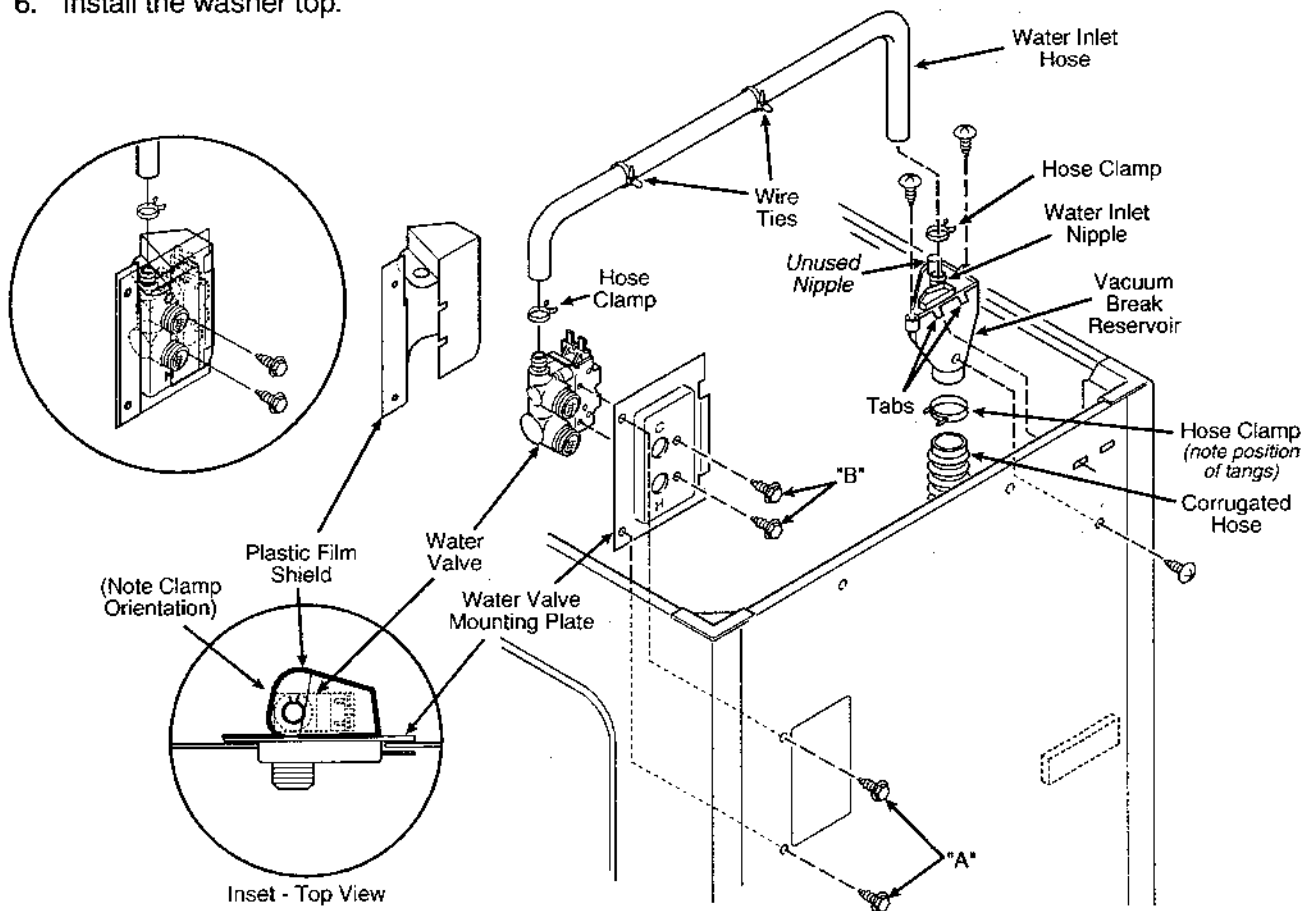


Fig. 18

CABINET COMPONENTS

Water Inlet Components Removal

Refer to Figures 18 and 19 for these procedures.

1. Remove the washer top.
2. Remove the hose clamp from each end of the water inlet hose. The hose can be removed from the cabinet by slipping the two wire ties from their holes in the cabinet back.
3. Remove the wiring connectors from the solenoid valve terminals.
4. Remove the two mounting screws from the water inlet valve and remove the valve.
5. Remove the hose clamp from the corrugated hose at the bottom of the vacuum break reservoir.
6. Remove the mounting screw from the vacuum break reservoir and remove the reservoir.
7. Remove the hose clamp from the lower end of the corrugated hose and remove the hose.
8. The lower inlet fitting is a serviceable assembly on early production models only. The entire tub assembly must be replaced on later production models.

Water Inlet Components Replacement

Refer to Figures 18 and 19 for these procedures.

1. The lower inlet fitting comes preassembled to the tub.
2. Install the corrugated hose onto the top end of the inlet fitting with a hose clamp. Position tangs as shown in figure 23.
3. Install a hose clamp on the corrugated hose at the bottom of the vacuum break reservoir. Position tangs as shown in figure 22.
4. Insert the vacuum break reservoir tabs in the mounting slots and install the mounting screw into the reservoir.
5. Install two mounting screws through the water valve mounting plate into the water valve.
6. Push the wiring connectors onto the water valve terminals.
NOTE: The red double connector goes to the top terminal. The white double connector goes on the bottom terminals.
7. Install the water inlet hose with hose clamps on each end.

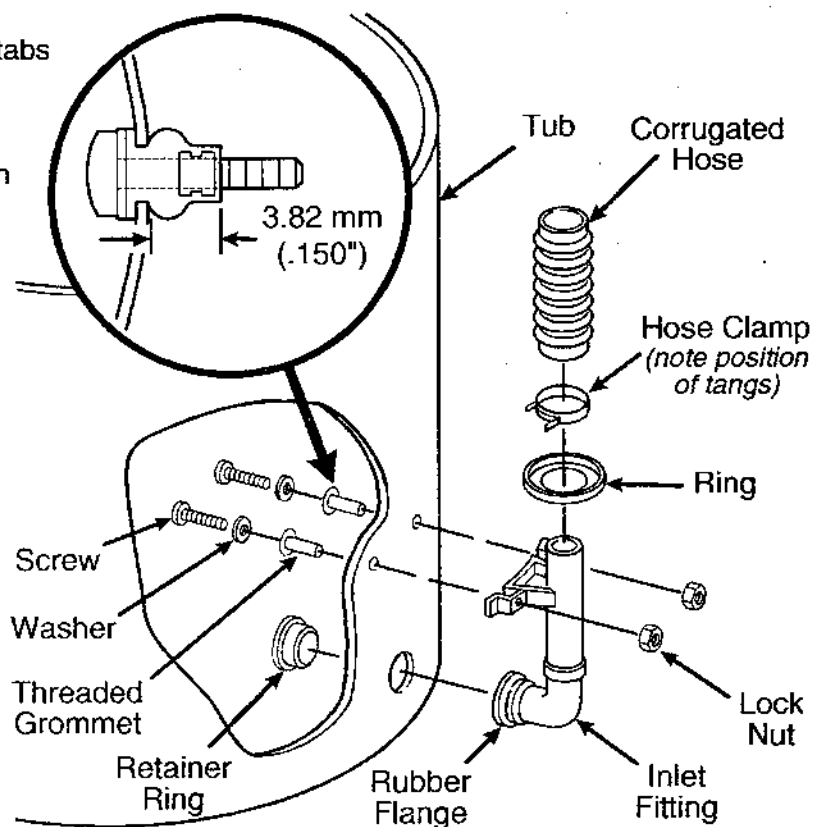


Fig. 19

Agitator Replacement

Refer to Figure 20 for these procedures.

1. Open the lid of the washer.
2. Loosen the hex head screw in the agitator access hole. **DO NOT REMOVE THIS SCREW.**
3. Pull the agitator off the splined agitator shaft.
4. Position the new agitator over the splined agitator shaft and turn it until the splines mate properly and press down on the agitator until it slides down the shaft as far as it can go.
5. Retighten the hex head screw securely. Do not overtighten it or the threads will strip.

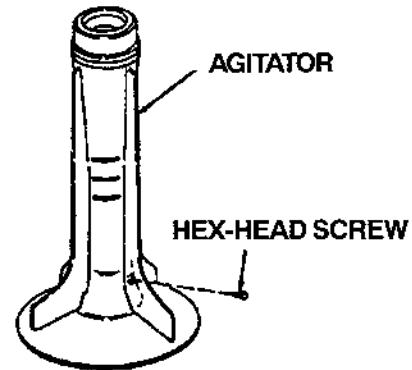


Fig. 20

Basket Removal

Refer to Figures 21 and 22 for these procedures.

1. Remove the agitator.
2. Remove the top assembly.
3. Unsnap eight snap clips holding the tub ring to the tub and set the tub ring aside.
4. Loosen the drive hub screw by four or five turns. **DO NOT REMOVE THIS SCREW.**
5. Tap on the head of the drive hub screw to loosen the saddle block.
6. Pull up on the basket and remove it from the tub.

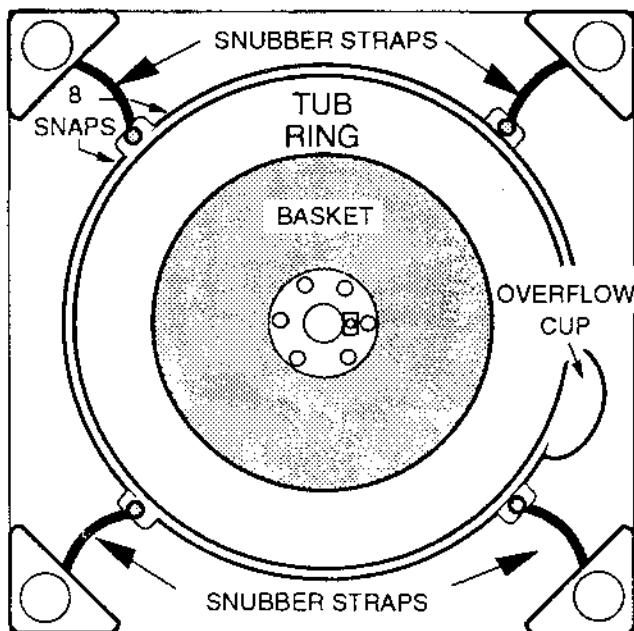


Fig. 21

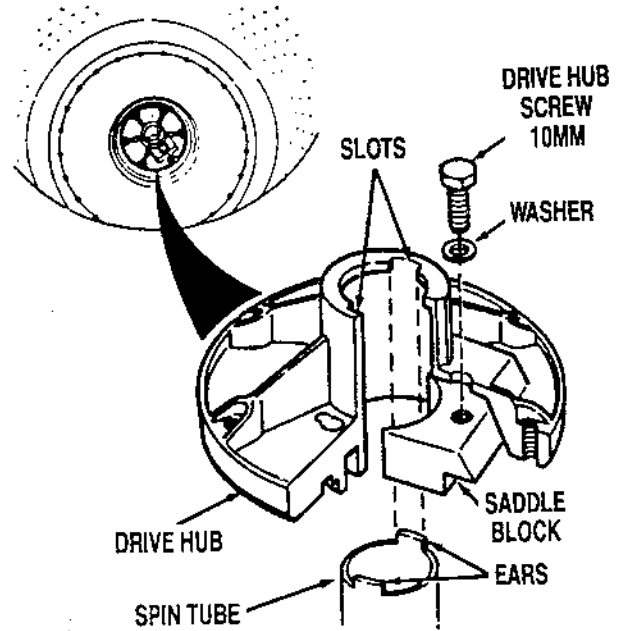


Fig. 22

Basket Replacement

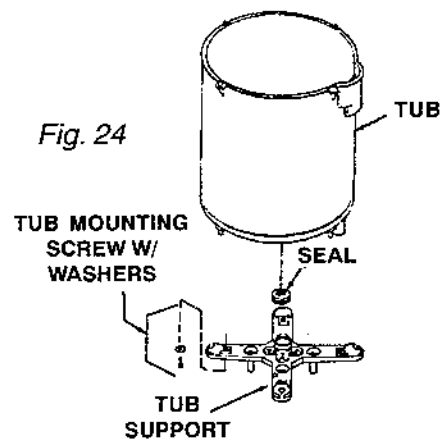
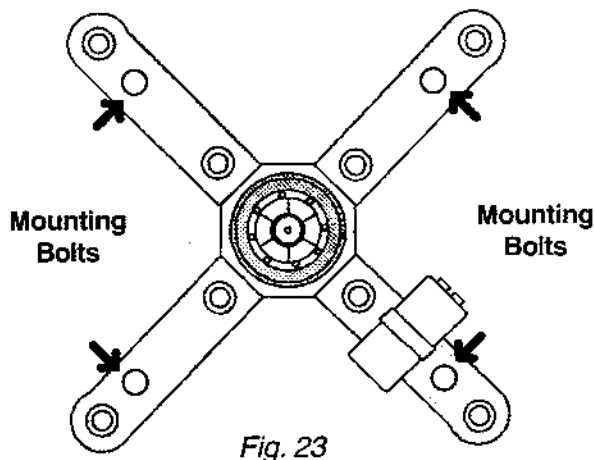
Refer to Figures 21 and 22 for these procedures.

1. If a new basket is being installed, remove the drive hub from the old basket and install it on the new one.
2. Lift the basket into the tub and carefully slide it over the spin tube. Rotate the basket until the locator ears drop into the slots in the drive hub. The basket rests on top of the spin tube.
3. Tighten the saddle block screw.
4. Be sure the snubber straps are positioned on the studs of the tub.
5. Position the tub ring over the top of the tub so the overflow hose is positioned inside the washer properly and the overflow cover fits over the overflow cup. Align the tabs on the tub ring over the snubber studs and snap the tub ring onto the tub.

Tub Removal

Refer to Figures 23 and 24 for these procedures.

1. Remove the agitator.
2. Remove the top assembly.
3. Remove the basket.
4. Lay the washer on its front on a soft surface to protect the cabinet finish.
5. Remove the four hex head bolts from the tub support.
6. Disconnect the drain hose from the pump.
7. Using fingers and thumbs as a wedge, push the tub forward until it pops off the rubber seal at the bottom center of the tub.
8. Stand the washer upright.
9. Disconnect the water inlet hose from the water inlet valves and remove the plastic straps securing the inlet hose to the cabinet.
10. Lift the entire tub assembly from the washer cabinet.
11. If the tub is to be replaced with a new one, remove the pressure hose, liquid bleach dispenser hose, metal motor shield and drain hose from the tub.



Capacitor Replacement

Refer to Figure 25 for these procedures.

⚠ WARNING

ELECTRICAL SHOCK HAZARD

- Disconnect the washer's power supply cord from the household power supply before servicing the capacitor.
- The capacitor is capable of storing voltage that could be lethal. **Do not touch the bare capacitor terminals.**
- Before removing the capacitor make sure the stored electrical charge has been dissipated by placing a 100 ohm 2 watt resistor across the terminals or placing a screwdriver blade between the terminals and grounding the screwdriver to the tub support for several seconds.

Failure to follow these procedures could result in serious injury or death.

1. Disconnect the water and drain hose from the washer.
2. Lay the washer on its front on a soft surface to protect the cabinet finish.
3. Carefully discharge the capacitor.
4. Remove the hex head screw securing the capacitor mounting strap and remove the strap and capacitor from the washer.
5. Slide the red and yellow connectors from the old capacitor and place them on the new one.
6. Position the capacitor so the terminals are easy to get to and the wires are not stressed. Secure the capacitor to the tub support with the mounting strap and hex head screw removed earlier.
7. Stand the washer upright.
8. Connect the water and drain hoses to the washer.

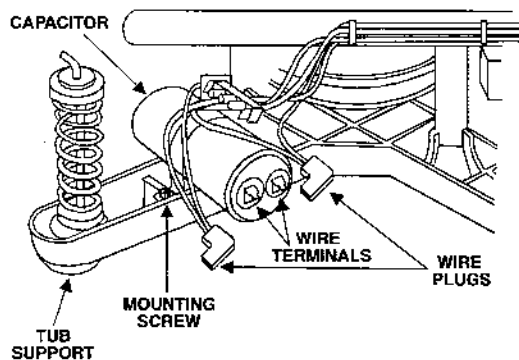


Fig. 25

Solenoid Replacement

Refer to Figures 26 and 27 for these procedures.

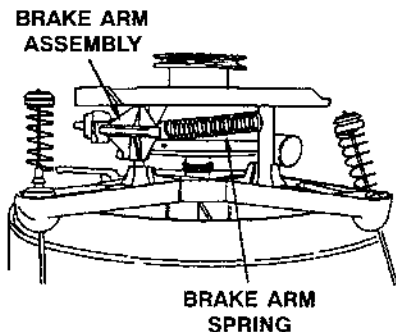


Fig. 26

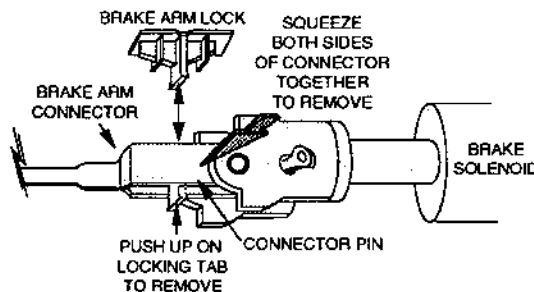


Fig. 27

1. Disconnect the water and drain hoses from the washer.
2. Lay the washer on its front on a soft surface to protect the cabinet finish.
3. Remove the end of the brake arm spring from the slot in the brake arm assembly.
4. Use your thumb to push up on the bottom of the brake arm lock so it unsnaps from the brake arm connector and remove it.
5. Press in on both sides of the brake arm connector and slide the pins out of the solenoid bracket holes.
6. Pull the two wire connectors located under the slot in the terminal cover from the solenoid terminals with a pair of needle nose pliers.
7. Remove the four hex head screws securing the solenoid to the motor mounting plate and remove the solenoid and the cover.
8. Mount the new solenoid to the motor mounting plate with the four hex head screws. Press the protective cover over the ends of the screws with the cutout over the wire terminals.
9. Reconnect the blue and white wires to the solenoid terminals.
10. Snap the two connector pins on the brake arm connector into the solenoid bracket holes.
11. Press the brake arm lock into the top of the brake arm connector and snap it into place. Slide the lock toward the solenoid as far as it will go.
12. Reconnect the end of the brake arm spring to the slot in the brake arm.
13. Stand the washer upright.
14. Reconnect the water and drain hoses and check for proper operation.

Drive Belt Replacement

Refer to Figure 28 for these procedures.

1. Disconnect the water and drain hose from the washer.
2. Lay the washer on its front on a soft surface to protect the cabinet finish.
3. Remove the plastic motor pulley shield.
4. Rotate the splutch pulley by hand and roll the belt off the splutch and motor pulleys.
5. Loop the replacement belt over the motor pulley and rotate the splutch pulley while rolling the belt onto it.
6. Press on the belt midway between the pulleys to make sure there is 1/8" of deflection while under slight pressure. To tighten the belt, loosen one of the motor mounting bolts slightly and rotate the motor until the tension is correct. Retighten the motor mounting bolt.
7. Reinstall the plastic motor shield.
8. Connect the water and drain hoses to the washer and check for proper operation.

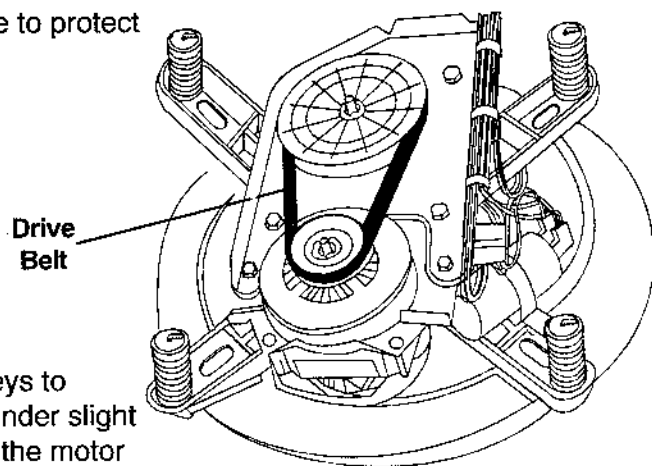


Fig. 28

Splutch Assembly Removal

Refer to Figure 29 for these procedures.

1. Disconnect the water and drain hoses from the washer.
2. Remove the agitator.
3. Loosen the hex head drive hub screw three or four turns. Do not remove this screw.
4. Lay the washer on its front on a soft surface to protect the cabinet finish.
5. Remove the nuts securing the plastic motor pulley shield and remove the shield.
6. Remove the C-ring securing the splutch pulley to the splutch assembly and remove the cup washer.
7. Pull the splutch pulley off the splined gearcase shaft and then remove the pulley and the drive belt.
8. The splutch housing is held to the motor plate by four tabs. Work each tab loose by pressing in while pulling out on the housing until it is free.

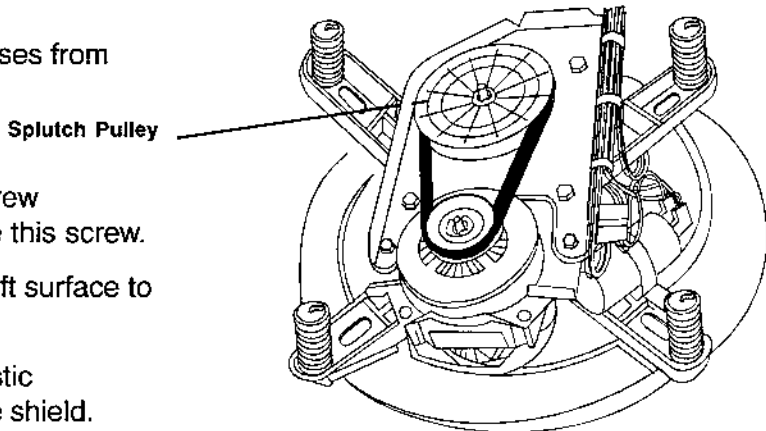


Fig. 29

Motor Plate Removal

Refer to Figure 30 for these procedures.

1. Follow the procedures for removing the splutch assembly.
2. Follow the procedures for disconnecting the brake arm assembly from the solenoid.
3. Squeeze the tabs on the four wiring harness standoffs in the motor plate together and push them out of their mounting holes.
4. Cut the nylon cable tie that holds the wiring harness connector to the motor plate.
5. Bend back the end clips slightly and separate the motor plug from the wiring harness connector.
6. Remove the four hex head bolts securing the motor plate to the tub support.
7. Pull the motor plate assembly off the tub support.

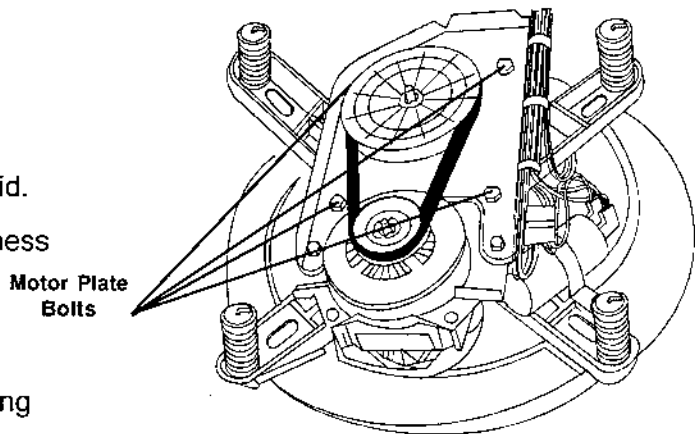


Fig. 30

Motor Replacement

Refer to Figure 31 for these procedures.

1. Remove the nuts securing the plastic motor shield from the motor mounting bolts.
2. Loosen the motor mounting bolts and slide the motor toward the center of the washer to loosen the drive belt. Remove the drive belt.
3. Finish removing the motor mounting bolts and washers.
4. Remove the motor.
5. Remove the nut and spacer washer securing the motor pulley to the motor and remove the pulley.
6. Install the pulley on the new motor and secure it with the spacer washer and the nut.
7. Position the motor under the motor mounting plate and secure it in place with the bolts, washers and nuts.
8. Replace the plastic motor pulley shield with the two remaining nuts.

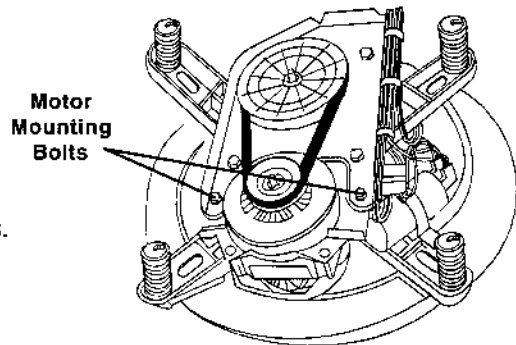


Fig. 31

Brake Replacement

Refer to Figures 32 and 33 for these procedures.

1. Follow the procedures for removing the splutch assembly.
2. Follow the procedures for removing the motor mounting plate.
3. Rotate the brake arm assembly to loosen the brake band from the drum.
4. Slide the band over the lip of the drum and slide the brake arm assembly off the motor mounting plate stud. The brake will now be loose of the brake arm assembly.
5. Carefully slide just the top section of the brake arm assembly shaft over the indicated tub support stud.
6. Position the brake band around the brake drum and insert the free end of the band into the cutout of the brake assembly shaft. Then slide the band and the rest of the brake assembly onto the mounting stud.

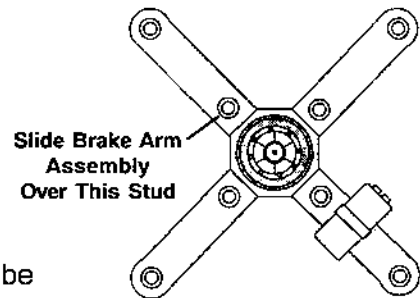


Fig. 32

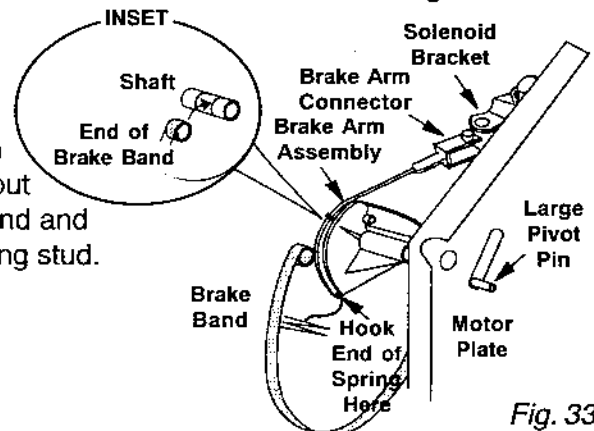


Fig. 33

Servicing the Drain Pump

Refer to Figure 34 for these procedures.

NOTE: There is an overload inside the pump that resets itself after approximately 20 minutes.

1. Lay the washer on its front on a soft surface to protect the cabinet finish.
2. Unplug the power connector from the drain pump motor terminal.
3. Unclamp the end of the drain hose from the drain pump connector.
4. Remove the two large hex head screws securing the drain pump to the cabinet back.
5. Support the drain pump in one hand and remove the remaining hex head screw and remove the pump from the cabinet.
6. Hold the pump in one hand with the drain housing to the right and rotate the drain housing clockwise with the other hand until the tabs release from the motor housing.
7. Remove the rubber O-ring from the motor housing and inspect it for wear. Replace it if necessary.
8. Clean any debris (lint, soap, sludge, etc.) from inside the drain housing. Wash the inside with mild detergent and a soft brush.
9. Install the rubber O-ring over the rim of the motor housing.
10. Position the drain housing as shown in Figure 34 and insert the tabs in the motor housing slots. Turn the drain housing counter clockwise as far as possible until the assembly locks together.
11. Slide the end of the drain hose over the drain connector as far as it will go and clamp it in place. Make sure the hose is not twisted or kinked.
12. Slide the power connector over the drain motor terminals as far as it will go. The edges of the large connector shield should seat firmly against the pump.
13. Position the drain motor so the mounting holes align with the holes in the cabinet. Replace the 5/16" and 10mm hex head screws removed earlier.

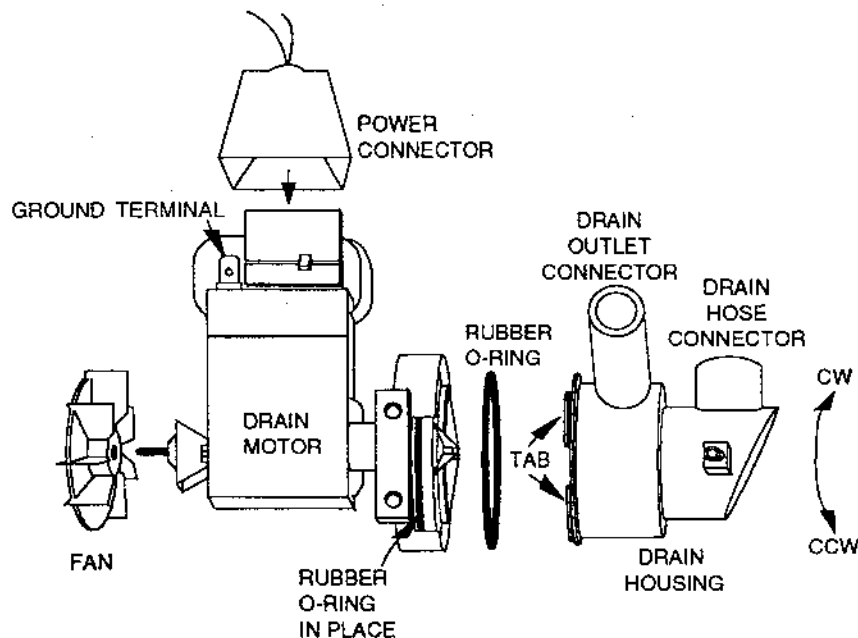


Fig. 34

Servicing the Splutch Assembly

Refer to Figure 35 for these procedures.

NOTE: The splutch must be reassembled in the order described below. Failure to do so may result in a malfunction where the agitator spins at a high rate of speed and the basket remains stationary.

1. Spread the snap-ring with a pair of snap-ring pliers and slide it over the splined shaft of the gearcase. Press the ring tightly against the bearing. Be careful not to shave off any of the splines.
2. Slide the spring over the splined shaft.
3. Insert the cam ring inside the splutch housing so the tab on the ring is inside the wide cutout of the housing.
4. Position the slider over the cam ring.
5. Slide the splutch assembly over the splined shaft so that the gears mesh and the tab on the cam ring loops over the pivot pin of the brake assembly.
6. Press the four tabs of the splutch housing into the mounting holes in the motor mounting plate so they snap into place.

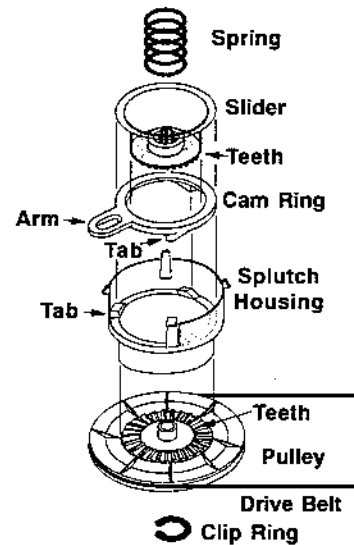


Fig. 35

Servicing the Gearcase

Refer to Figure 36 for these procedures.

1. Follow the procedure to remove the motor plate from the washer on page 24.
2. Strike the top of the agitator shaft two or three times with a rubber mallet to dislodge the gearcase from the bearing race in the tub support.
3. a) On early production models the brake assembly and the gearcase will have to be removed together by carefully sliding both assemblies from the tub support at the same time.
b) On later production models the brake assembly should be removed separately. See procedure on page 23. Then carefully slide the gearcase from the tub support.
4. When replacing the gearcase a small bead of Loctite should be applied approximately $3\frac{3}{4}$ " from the top of the spin tube. (Fig. 36)

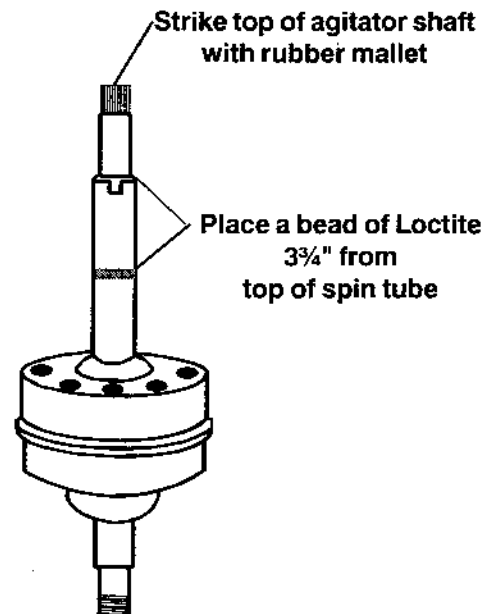


Fig. 36

SECTION 4

CONFIRMATION OF LEARNING EXERCISE

1. If a washer is available, remove and replace the following components:
 - a. Electronic Control Board
 - b. Basket
 - c. Tub
 - d. Motor Board

2. Number the following steps for removing the electronic control board and switches in the proper order.
 - ___ Turn the control pan over and lay it off toward the right side. Leave the upper water level tube connected to the control pan nipple.
 - ___ Remove the three stainless steel control pan screws.
 - ___ Unplug the small 3-pin connector from the small connector block. Leave the clear plastic tube from the lid switch routed through the small connector block.
 - ___ Remove the washer top and the control knobs.
 - ___ Slide both the large and small connector blocks out of their mounting slots.
 - ___ Pull the connectors from the terminals on the water level switch.
 - ___ Remove the water level switch mounting screw. This will release the ground connector and the water level switch.
 - ___ Pull the ground connector from the terminal on the steel mounting channel.
 - ___ Remove the five circuit board mounting screws and raise the near edge of the circuit board.
 - ___ Lift the locking tab on each rotary switch and turn the switch 45° counterclockwise. Remove the switch from the control panel. (If necessary, pull the connector of each rotary switch from the connector block on the circuit board.)

2. Number the following steps for replacing the brake assembly in the proper order.
 - ___ Carefully slide just the TOP section of the brake arm assembly shaft over the indicated tub support stud.
 - ___ Follow the procedures for removing the motor mounting plate.
 - ___ Rotate the brake arm assembly to loosen the brake band from the drum.
 - ___ Position the brake band around the brake drum and insert the free end of the band into the cutout of the brake assembly shaft. Then slide the band and the rest of the brake assembly onto the mounting stud.
 - ___ Follow the procedures for removing the splutch assembly.
 - ___ Slide the band over the lip of the drum and slide the brake arm assembly off the motor mounting plate stud. The brake will now be loose of the brake arm assembly.

Section 5 TROUBLESHOOTING AND DIAGNOSTICS

TROUBLESHOOTING

NOTE: Check the Tech Sheet provided with the washer from the most recent troubleshooting information.

IMPORTANT: Possible Cause/Test **MUST** be performed in the sequence shown for each problem.

PROBLEM	POSSIBLE CAUSE/TEST
WON'T POWER UP (Verify lid is closed)	<ol style="list-style-type: none"> 1. Unplug unit for more than 5 seconds, then plug back in. 2. Check 120V at outlet. 3. Check harness connections. 4. Check 120V between 9-pin connector and ground.
WON'T START (Verify lid is closed)	<ol style="list-style-type: none"> 1. Verify unit is not in Pause or Service Mode. 2. Unplug unit for 5 seconds, then plug back in. 3. Verify power between 9-pin connector and ground.
CONTROL LOOPSTHROUGH CYCLE REPEATEDLY	<ol style="list-style-type: none"> 1. Unit is in Service Mode. Unplug for more than 5 seconds, then plug back in.
WON'T FILL (Verify lid is closed)	<ol style="list-style-type: none"> 1. Check installation. Verify water supply. Verify valves are turned on. 2. Check screens on water valve. 3. Operate Actuator and Switch test. 4. Check resistance measurements with unplugged unit. 5. Check connections on water valves. 6. Verify 120V at valves during fill. If no voltage exists and above solutions fail, replace electronic control.
OVERFILLS	<ol style="list-style-type: none"> 1. Check Water Level switch hose connections. 2. Check Water Level switch using ohmmeter. 3. Blow into Water Level switch hose to tub to dislodge lint in air dome. 4. Do not adjust Water Level switch. Adjusting Water Level switch will cause flooding. 5. Check connections on Water Level switch. 6. If machine still overfills replace Water Level switch. 7. If above solutions fail, replace electronic control.
WON'T AGITATE OR AGITATOR ROTATES IN ONE DIRECTION (Verify lid is closed)	<ol style="list-style-type: none"> 1. Perform Actuator and Switch Test for Dry Agitate. 2. Verify 120V between the control yellow wire (counterclockwise) and ground and between the red wire (clockwise) and ground. Verify power at the motor. If the voltage is at the motor and the unit does not agitate replace motor. If no voltage comes from the control replace the electronic control. <p>NOTE: The voltage pulsates; it does not stay on. It is difficult to check with a Digital Volt Meter.</p>
WRONG AGITATE SPEED	<ol style="list-style-type: none"> 1. Check belt tension. There should be light deflection (approximately 1/8") when pressed. (Loose belt will also cause black mark on inside of cabinet.)

PROBLEM	POSSIBLE CAUSE/TEST
<p>WON'T SPIN (Verify lid is closed)</p> <p>NOTE: Unit has a drain cycle of approximately 5 minutes before spin.</p>	<ol style="list-style-type: none"> 1. Perform Actuator and Switch Test for Spin. 2. Check for power on 120V between 9-pin connector and ground. 3. Verify Water Level switch is reset by disconnecting the hose to it. If this works repeat step 1. 4. Blow into Water Level switch hose. 5. Check for voltage at motor. 6. If no power at 9-pin connector and motor resistance readings are OK replace electronic control.
<p>SPINS AT WRONG SPEED</p>	<ol style="list-style-type: none"> 1. Check brake system. 2. Verify solenoid operation and that it is not jammed. 3. If solenoid has power during the Actuator and Switch test for Pump and Brake Solenoid and does not actuate, replace solenoid. 4. The solenoid cannot be checked for resistance because it has an internal diode and is in parallel with the pump. 5. Check transmission clutch system.
<p>WON'T DRAIN/SLOW DRAIN</p>	<ol style="list-style-type: none"> 1. Perform Actuator and Switch test for Pump and Brake Solenoid. 2. Check connections to pump. 3. Check for voltage at pump. 4. Clean pump. 5. Check for lint in drain hose. 6. Check pump using resistance test. 7. If no AC voltage is output from 9-pin connector when selected, replace electronic control.
<p>UNIT STOPS WITH LID OPEN</p>	<ol style="list-style-type: none"> 1. Machine is designed to stop all functions with lid open. When the lid closes the machine continues the cycle.

DIAGNOSTIC TEST PROGRAM

The Diagnostic Test Program is designed to be an aid for authorized service technicians to objectively test the washer's water fill valves, drain pump and the clutch/brake solenoid, drive motor, water level sensor, lid switch, LEDs and rotary switches. There are four tests in the program all accessed from the control panel by following a specified entry sequence. **NOTE:** Check the Tech Sheet provided with the washer for most recent test sequences.

Entry Sequence

The entry sequence to begin the Diagnostic Test Program is as follows:

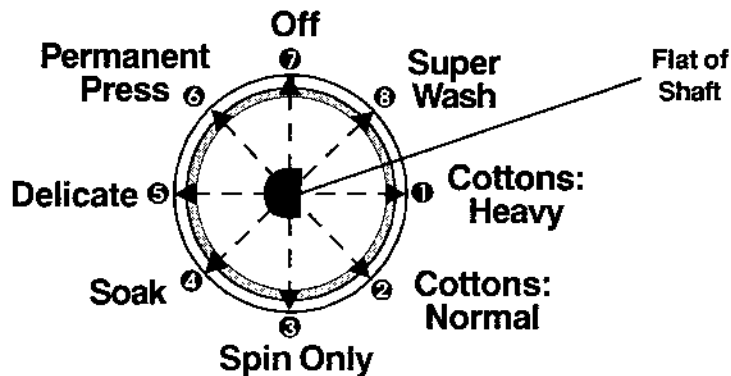
1. Set the TEMP SELECT switch for the desired test according to the following table:

Table 7

TEST	TEMP SELECT SETTING
Actuator and Switch Test (PREFERRED SERVICE TEST)	Hot/Cold (HC)
Automatic Operations Test	Cold/Cold (CC)
Interface Test*	Warm/Warm (WW)
*Interface Test available on 4-temperature models	

2. Unplug the washer power cord from the household outlet for more than five seconds.
3. Plug the washer back into the electrical power outlet.
4. Set the CYCLE SELECT switch so the flat on the stem faces position 1 - Knob points to the right. (Fig. 37)

Fig. 37



5. Press and hold the START/PAUSE button while turning the CYCLE SELECT switch one step clockwise.
6. Release the START/PAUSE button.

NOTE: To terminate any diagnostic test and return to normal operation, unplug the washer power cord from the power outlet for more than five seconds and then plug the power cord back into the outlet.

**Actuator and Switch Test (Set TEMP SELECT: Hot/Cold - Initiate Entry Sequence)
(Preferred Service Test)**

The Actuator and Switch Test is designed to detect malfunctions in the transmission, water inlet valves, pump, solenoid and clutch, and the lid switch. Each function is tested separately by turning the TEMPERATURE SELECT switch as indicated in *Table 8*. Press the START/PAUSE button to start and end each test.

Opening and closing the lid during any of the these tests will verify the lid switch.

NOTE: CYCLE SELECT setting has no effect on the Actuator and Switch Test.

Table 8

TEMP SELECT POSITION	WATER LEVEL SWITCH	ACTION
Pump and Brake Solenoid		
HC	n/a	Pump & Solenoid Actuate
Agitate Function		
WC	n/a	Dry Agitate
Water Inlet System & Water Level Switch		
CC	Empty	Warm Fill
	Full	Agitate
Spin Function		
WW* (This setting only on 4-temperature models)	Empty	Pump & Brake Solenoid Actuate, Spin
	Full	Pump & Brake Solenoid Actuate

To terminate this test and return to normal operation, unplug the washer power cord from the power outlet for more than five seconds and then plug the power cord back into the outlet.

Automatic Operations Test (Set TEMP SELECT: Cold/Cold - Initiate Entry Sequence)

The Automatic Operations Test checks LEDs, Valves, Solenoid, Pump and both Drive Motor Windings by turning each component on for approximately three seconds.

Table 9

STEP	3 SECOND OPERATIONS
1	Wash Cycle/Status LED on
2	Rinse Cycle/Status LED on
3	Spin Cycle/Status LED on
4	Cold Water Valve
5	Hot Water Valve
6	Motor Lead - Yellow
7	Motor Lead - Red
8	Pump and Solenoid
9	All OFF
10	Return to Step 1

To terminate this test and return to normal operation, unplug the washer power cord from the power outlet for more than five seconds and then plug the power cord back into the outlet.

Interface Test (Set TEMP SELECT: Warm/Warm - Initiate Entry Sequence)
 (Only on 4-temperature models)

The Interface Test has been designed to troubleshoot the control boards rotary switches. During this test every position of each rotary switch is read and decoded by the microcontroller. The CYCLE/STATUS indicator LEDs display test results.

• **CHECKING CYCLE SELECT SWITCH**

Beginning at position 1 (NORMAL) turn the CYCLE SELECT switch clockwise to all positions and note corresponding LED indicators. (Table 10)

• **CHECKING TEMPERATURE SELECT SWITCH**

Place the CYCLE SELECT switch in position 1 (NORMAL) and rotate the TEMP SELECT switch through all positions and note the corresponding LED indicators. (Table 11)

CYCLE SELECT POSITION (Turn Clockwise)	LED INDICATOR
1	Spin
2	Wash
3	Rinse
4	Wash/Rinse
5	Spin
6	Wash/Spin
7	Spin/Rinse
8	Wash/Spin/Rinse

Table 10

TEMPERATURE SELECT POSITION	LED INDICATOR
Warm/Warm (WW)	Spin
Hot/Cold (HC)	Rinse
Warm/Cold (WC)	Wash
Cold/Cold (CC)	All Off

Table 11

To terminate this test and return to normal operation, unplug the washer power cord from the power outlet for more than five seconds and then plug the power cord back into the outlet.

Ohmmeter Resistance Tests

Many of the components of the washer can be checked with an ohmmeter. The washer must be disconnected from the power supply for these tests.

Resistance checks should be made at the 9-pin connector first. (Fig. 38) If any of the readings are out of range as stated in Table 12 or not operating properly check resistance readings at the component terminals. If the readings are still out of range, replace the suspect component.

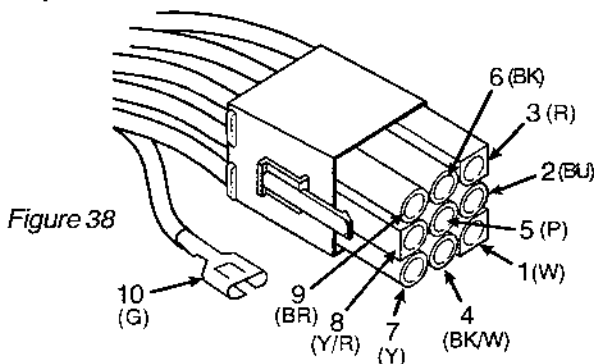


Figure 38

RESISTANCE VALUES			
Part Rating Verified	Harness Pin No. & Wire Color	Harness Pin No./ Part I.D.	Resistance Reading Ω
Harness/ Power Cord	10 (G)	to Power Cord Ground	Less than 5 Ω
Harness/ Power Cord	1 (W)	to Power Cord Ground	Less than 5 Ω
Harness/ Power Cord	6 (BK)	to Power Cord L1	Less than 5 Ω
Hot Valve	5 (P)	to 9 (BR)	800-1200 Ω
Cold Valve	5 (P)	to 8 (Y/R)	800-1200 Ω
Pump	4 (BK/W)	to 2 (BU)	3-10 Ω
Counterclockwise motor agitate	4 (BK/W)	to 7 (Y)	700-1000 Ω
Clockwise motor agitate & spin	4 (BK/W)	to 3 (R)	700-1000 Ω

Table 12

The rotary switches can also be tested by using an ohmmeter. Both CYCLE SELECT and TEMP SELECT switches are low voltage switches and should be removed before an ohmmeter is used.

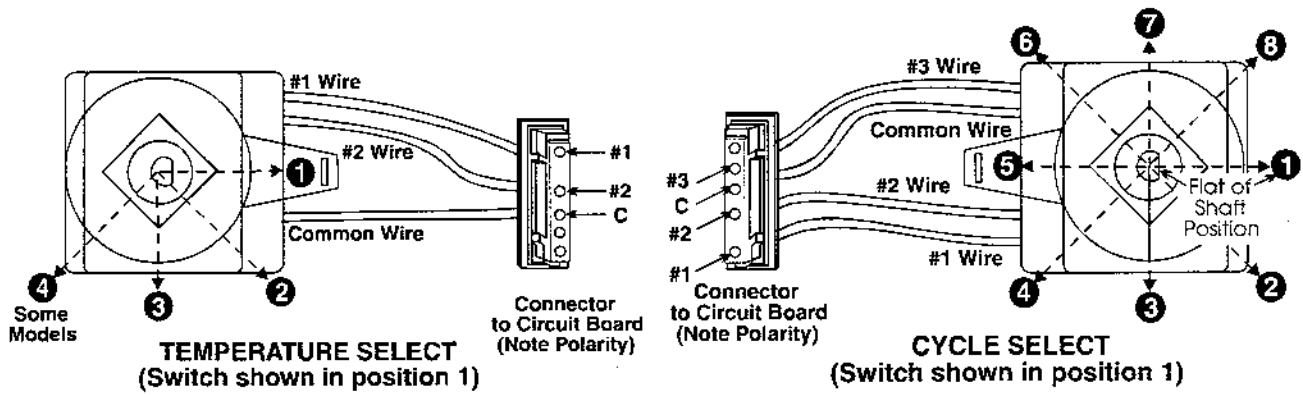


Fig. 43

CYCLE & TEMPERATURE SELECTOR SWITCH LOGIC								
Wire Lead No.	Position No./Shaft Flat Location Clockwise							
	1	2	3	4	5	6	7	8
1	-	X	X	-	-	X	X	-
2	-	-	X	X	X	X	-	-
3	-	-	-	-	X	X	X	X

X = Connection To Common

Table 13

SELECTOR DESCRIPTION		
	# of Positions	Usable Position
Cycle Selector	8	1,2,3,4,5,6,7,8
Temperature Selector	4	1,2,3,4
	3	1,2,3

Table 14

NOTE: All resistance readings must be under 5000 ohms to be considered connected. Over 5,000 ohms is considered not connected.

Section 6

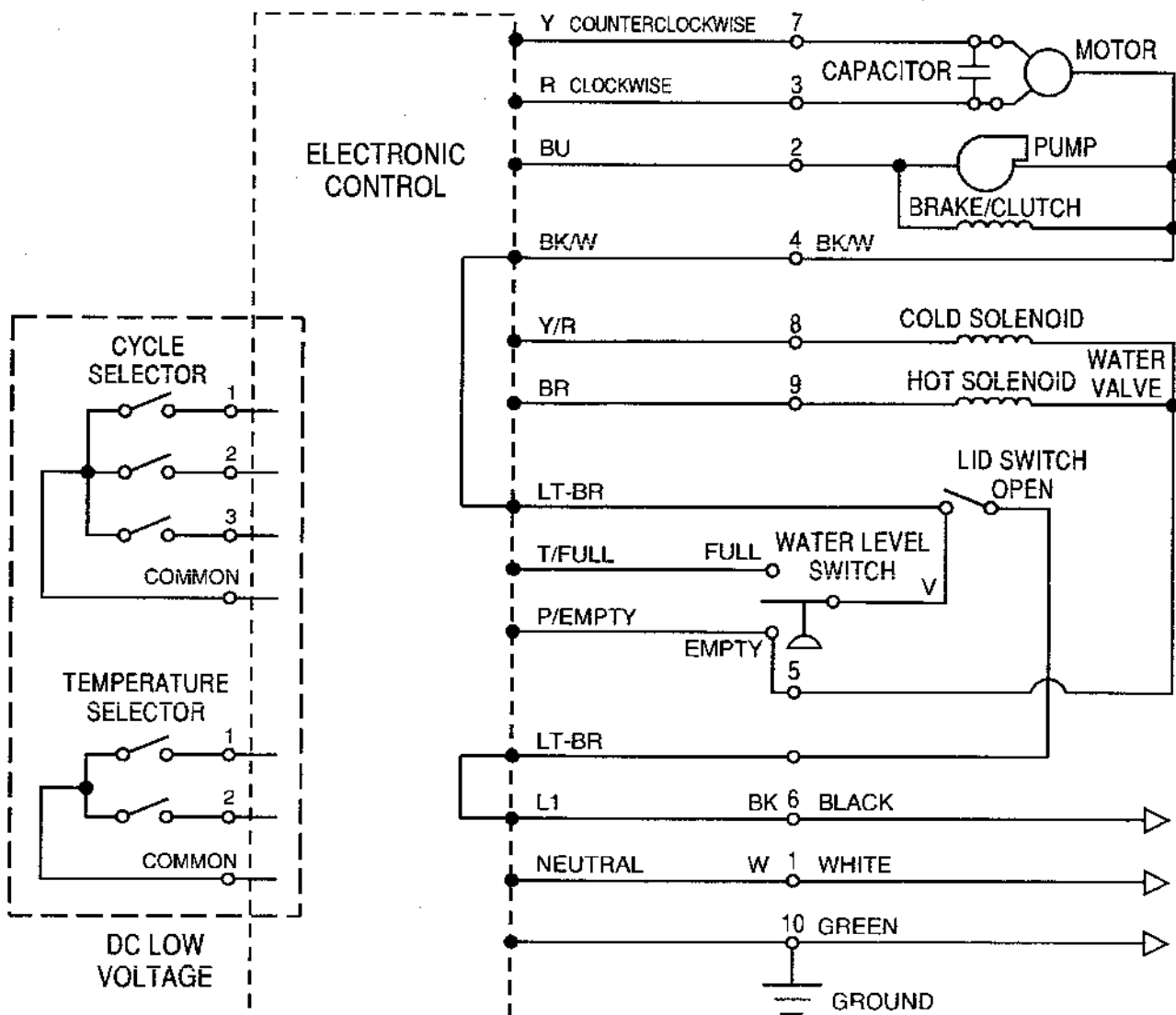
TECH TIPS

USING ANALOG AND DIGITAL VOMs

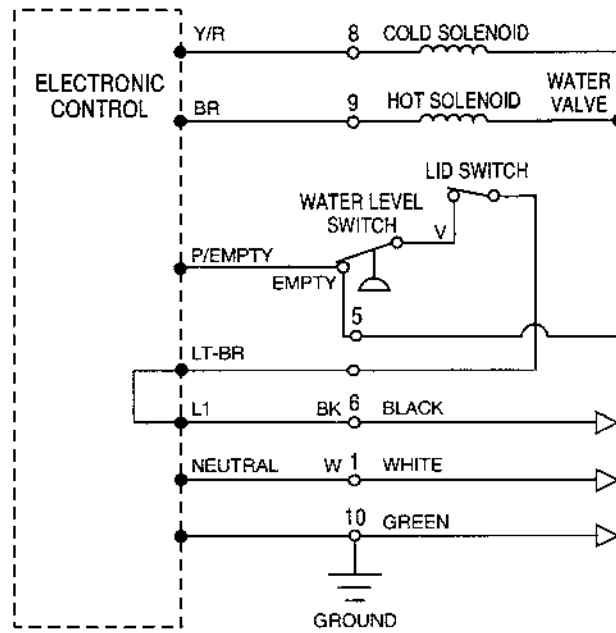
NOTE: When using an **analog VOM** (with a needle movement meter) the voltage may not read exactly as indicated. The voltage reading is dependent on the method any particular meter uses to average the square wave frequency to derive the voltage reading. As a result, a chart cannot be provided to confirm water level versus voltage reading.

When using a **digital VOM** (with a LED display) the voltage reading is again dependent on the method used to derive the voltage reading by averaging the frequency of the square wave signal. Some digital VOMs can directly read the signal frequency, but this is rare. As a result, a chart cannot be provided to confirm water level versus voltage reading.

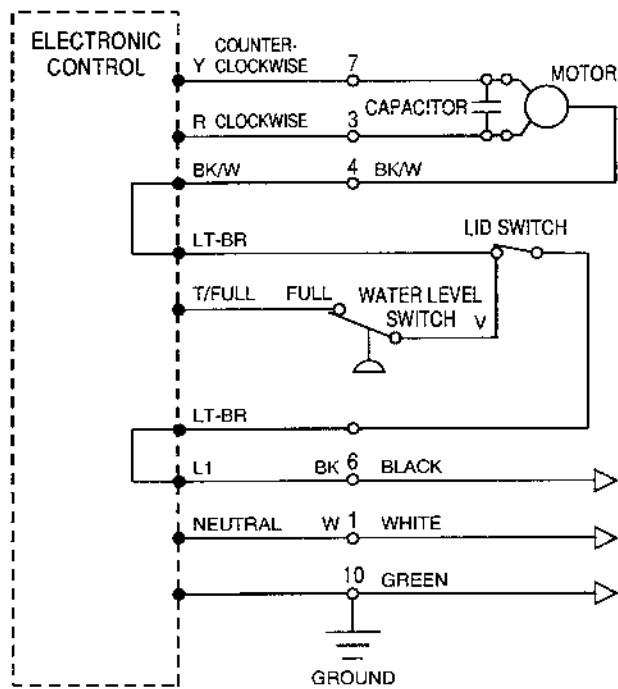
WIRING DIAGRAM



STRIP CIRCUITS

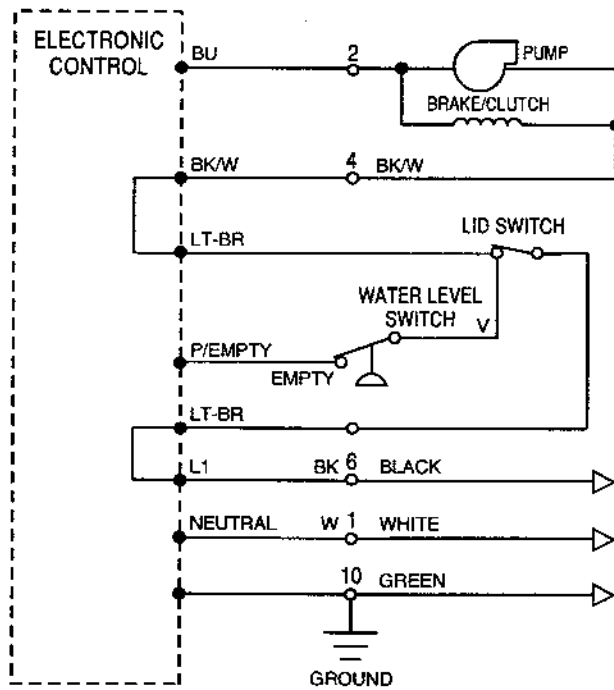


FILL

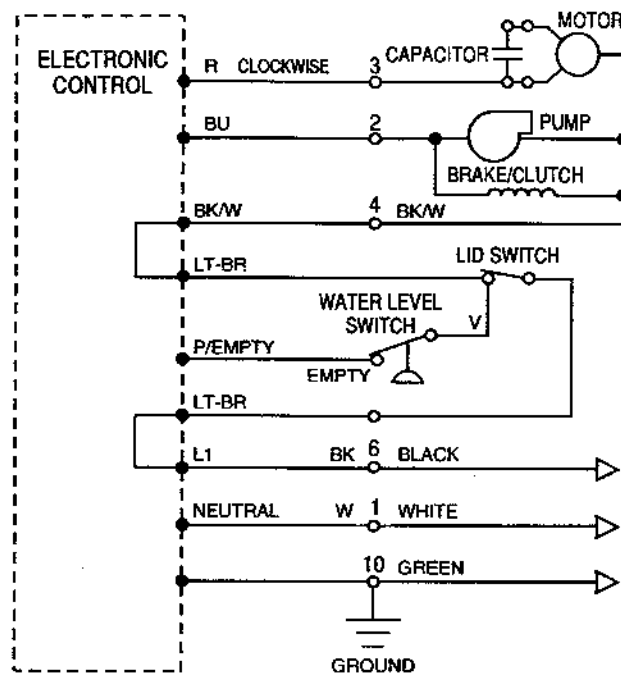


AGITATE

STRIP CIRCUITS



DRAIN



SPIN

CONTROL SEQUENCE CHART

CONNECTION WIRE LOCATION		FUNCTION LED INDICATION										MACHINE FUNCTION	CYCLE				
WIRE COLOR	1	2	3	5	6	7	8	9	10	11	12						
LINE NUMBER	NEUTRAL	PUMP/SPIN	MOTOR 1	LINE	MOTOR 2	COLD/SOAK	HOT SOAK	LID SWITCH	P SW FULL	S SW EMPTY	WASH	RINSE	SPIN	TIME (MIN)			
																OFF	
																SUPER WASH	
															P2		FILL WARM/HOT/COLD
															4		FILL AGITATE HI
															14		FILL AGITATE HI
															4		DRAIN
															2		S. I. S.
															2		SPIN
															P2		FILL COLD/WARM
															4		AGITATE HI
															4		DRAIN
															2	S. I. S.	
															4	SPIN	
																COTTON: HEAVY	
															P2		FILL WARM/HOT/COLD
															14		AGITATE H. RATE
															4		DRAIN
															2		S. I. S.
															2		SPIN
															P2		FILL COLD/WARM
															4		AGITATE HI RATE
															4		DRAIN
															2		S. I. S.
															4	SPIN	
																COTTON: NORMAL	
															P2		FILL WARM/HOT/COLD
															6		AGITATE SR
															4		DRAIN
															2		S. I. S.
															P2		FILL COLD/WARM
															4		AGITATE SR
															4		DRAIN
															2		S. I. S.
															4		SPIN
																PERMANENT PRESS	
															P2		FILL WARM/HOT/COLD
															10		AGITATE HI RATE
															P1		DRAIN
															P2		FILL WARM/HOT/COLD
															2		AGITATE NORMAL RATE
															4		DRAIN
															2		S. I. S.
															P2		FILL COLD/WARM
															4		AGITATE HI RATE
															4	DRAIN	
															4	S. I. S. (TWO TIMES)	
																DELICATE	
															P2		FILL WARM/HOT/COLD
															8		AGITATE LOW RATE
															4		DRAIN
															2		S. I. S.
															P2		FILL COLD/WARM
															4		AGITATE LOW RATE
															4		DRAIN
															4		S. I. S. (TWO TIMES)
																	SOAK
															P2	FILL WARM/HOT/COLD	
															2	FILL AGITATE LOW	
															8	SOAK	
															2	FILL AGITATE LOW	
															8	SOAK	
															2	FILL AGITATE LOW	
															8	SOAK	
															2	S. I. S.	
															2	SPIN	
																SPIN ONLY	
															4		DRAIN
															4		S. I. S. (TWO TIMES)
																4	SPIN

P1 = UNTIL PRESSURE SWITCH RESETS

P2 = UNTIL PRESSURE SWITCH SETS

SR = SPECIAL RATE: 5 SEC. ON, 10 SEC. OFF UNTIL TIME MET.

■ - DE-ENERGIZED LINE

□ - ENERGIZED LINE

⊗ - LINE MAY BE ENERGIZED OR DE-ENERGIZED