

Theory of Operation

Introduction

The Splendide Front-Loading Washer-Dryer models are designed to wash and dry laundry while taking up the least amount of space. Able to go from wash to dry automatically, they provide exceptional convenience. Using front-loading washing technology, they are more gentle on fabrics while using up to 40% less water than top-loading machines. The Splendide WD802M dries laundry using a traditional vented dryer. Comb-o-matic models dry laundry without a vent - by using condensation.

Water System

The water system consists of the hot and cold water inlet valves and the dispenser distribution system along with a traditional pressure switch.

Water Inlet Valves

The hot and cold water inlet valves are located at the back, top-left of the washer. These valves receive a control signal from the Wash/Rinse Temperature knob to manage the temperature of incoming water. The temperatures are determined by the specific wash temperature selected.

Dispenser Distribution System

All wash and rinse water is introduced into the drum through a Dispenser Distribution System that diverts the incoming water to one or more of the following water inlet modes: Warm/Hot Wash Detergent Dispensing, Cold/Pre-Wash Detergent Dispensing, Bleach Dispensing, Fabric Softener Dispensing. The dispenser drawer has four separate compartments for adding laundry products to the wash load. These compartments are:

- A.** Detergent (Cold Wash/Pre-Wash)
- B.** Detergent (Warm/Hot Wash)
- C.** Bleach*
- D.** Liquid Fabric Softener

All of the water flows through the dispenser assembly. Laundry products are diluted and dispensed automatically at the proper time during the wash cycle. Refer to the "Owners

Manual" that came with the appliance for proper use of laundry aids.

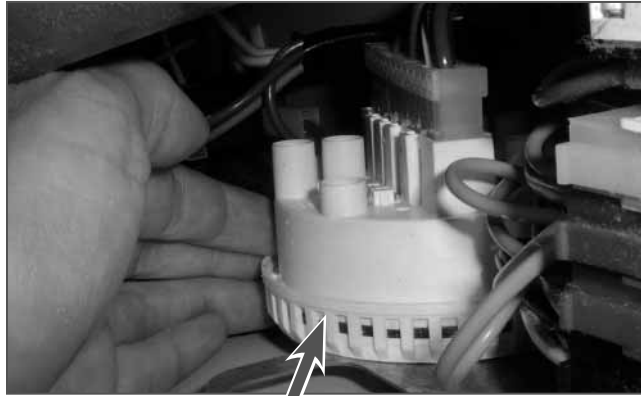


Dispenser Drawer

***NOTE: WDC1024M does not have a Bleach option.**

Pressure Switch

The pressure switch is located in the upper, right-front corner of the washer (below the Wash Timer). This switch senses the water level in the drum. The control signal from the pressure switch is sent to the Wash Timer and is used to determine the amount of water introduced into the drum during the wash cycle.



Pressure Switch

Description of Wash/Rinse Temperatures

WASH/RINSE Knob Position	WASH Temperature*		RINSE Temperature*	
	HOT Water Valve	COLD Water Valve	HOT Water Valve	COLD Water Valve
HOT/WARM	Open	Closed	Open	Open
HOT/COLD	Open	Closed	Closed	Open
WARM/WARM	Open	Open	Open	Open
WARM/COLD	Open	Open	Closed	Open
COLD/COLD	Closed	Open	Closed	Open

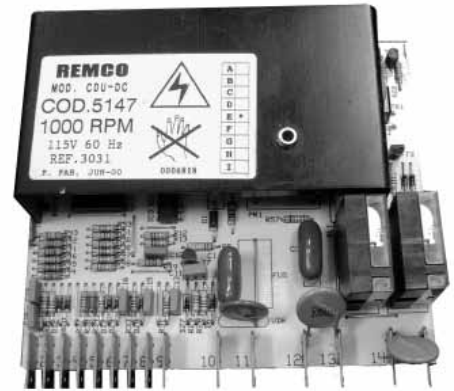
**NOTE: Actual wash water temperatures will vary depending on the temperature set at the water heater.*

Wash/Dry System

The Wash/Dry System consists of the Module Board, the Wash Timer the Main Motor, the Pump Motor and two Dryer Heating Elements.

Module Board

The Module Board is located at the bottom, right-rear corner of the washer-dryer. The module board receives input from the Wash Timer to control drum rotation. If diagnostic tests indicate that the module board is defective, the entire module board must be replaced.



Wash Timer

The Wash Timer is located at the top, right-front corner of the washer-dryer. The Wash Timer sends information to the module board to control drum rotation. The Wash Timer directly controls the dispenser, drain pump, water inlet valves, pressure switch, door locking and unlocking, fan motor and heating element.



Main Motor

The main motor is located at the bottom, rear of the washer and is an infinite speed 0-90 VDC motor that operates at various speeds and directions based on input voltages from the Module Board



Main Motor

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Pump Motor

A separate Pump/Pump Motor is used to drain the drum (Fig. 3-1). The 120VAC Pump Motor is located at the right, bottom-rear of the machine and is attached directly to the pump. The pump has a filter located at the right, bottom-front of the machine (Fig. 3-2) that allows for the removal of lint and objects like keys and coins that may have passed from the basket.

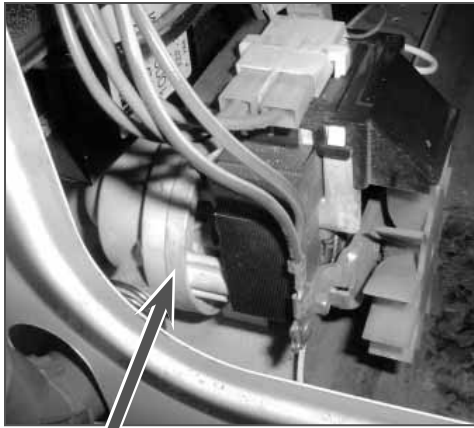


Fig. 3-1

Drain Pump



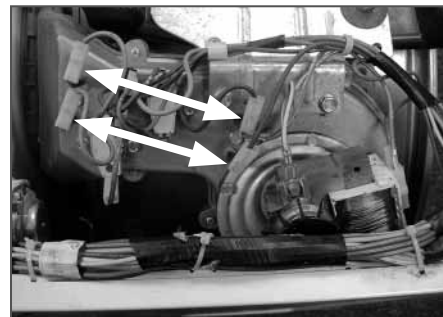
Fig. 3-2

Lint Filter

Two Dryer Heating Elements

The two Dryer Heating Elements are located in the heater duct assembly on the top-right of the drum. The Dry Timer provides power to the element in the dry cycle. During the dry cycle:

- **Vented models** (WD802M) take air from the surrounding room, heat it, tumble it through the clothes, and then exhaust it to the outside through a vent.
- **Ventless models** (WDC1024M, WDC1025M/MCEE) require 5 gallons of cold water per hour during the dry cycle. (See below.)



Dryer Heating Elements

How Does Ventless Drying Work?

1. As damp laundry tumbles, the inner drum is heated. Heat draws the moisture out of the laundry in the form of STEAM.
2. Cold water cools the OUTER TUB. The cold surface attracts the warm, saturated air. STEAM passes through the holes in the INNER DRUM to reach the OUTER TUB.
3. When the STEAM hits the cooled surface of the OUTER TUB, it's condensed back into water. The water is then pumped out the drain. Process repeats until clothes are dry.

Door Lock/Switch Assembly

The Door Lock/Switch Assembly is located on the right side of the door opening. The assembly contains a bi-metal operated latching mechanism that will electrically lock the door during a wash cycle or anytime water is in the drum.

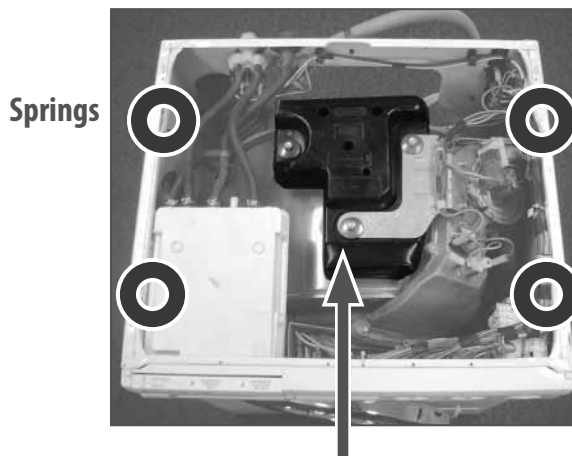


Door Lock/Switch Assembly

Suspension System

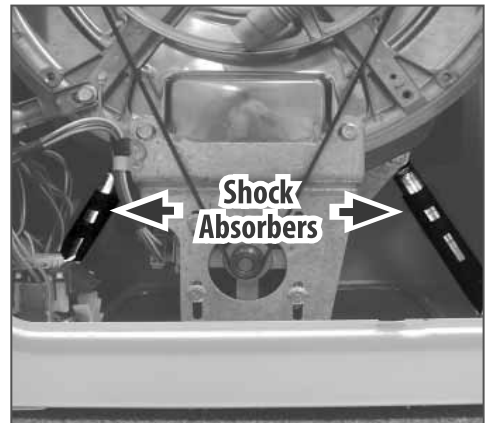
The drum assembly is held in position with two shock absorbers attached to the bottom sides of the tub assembly. In addition, the drum is suspended from the top frame of the washer with four springs attached to the sides of the case.

Stability for this suspension system is provided by two concrete counter weights. One is located at the top and one at the bottom-front of the outer drum.



Springs

Top Counter Weight



Shock Absorbers

Customer Interface / Cycle Selection System

The Customer Interface / Cycle Selection System consists of the Control Panel Assembly along with the Cycle Selector, option buttons, and Wash/Rinse Temperature and Dry Time Selectors.

Control Panel Assembly

The Control Panel Assembly (Fig. 3-3) contains all the buttons and switches for the user to operate the washer-dryer. This interfaces what the consumer commands to the machine.

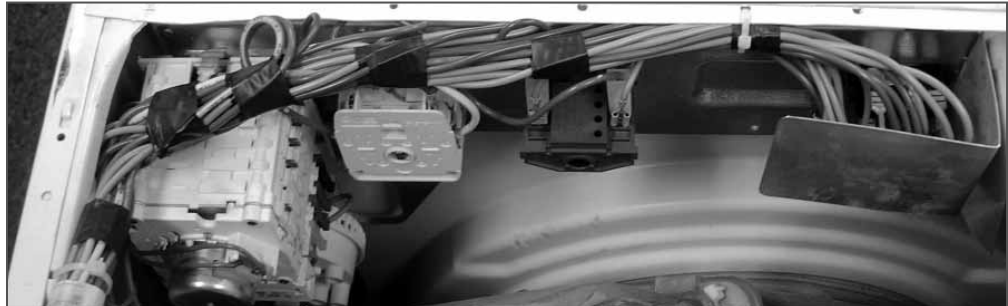
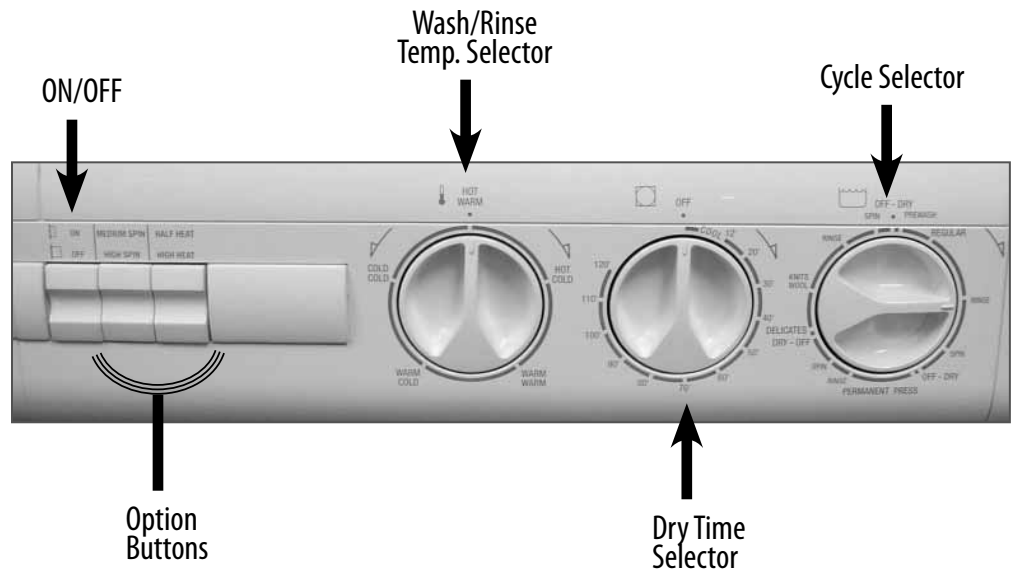


Fig. 3-3

Description of Control Panel Buttons & Knobs

ON/OFF Button- Leave the ON/OFF button in the OFF (out) position while setting the controls, then press ON (in) to start the program.

Option Buttons - Use these buttons to modify the wash or dry cycle (see “Description of Option Buttons”)



Wash/Rinse Temperature Selector - Choose a wash/rinse temperature combination by turning the knob to the desired selection. Refer to the garment label and choose the warmest water safe for the fabric.

Dry Time Selector - Choose a dry time by turning the knob to the desired selection. Choose from No Dry (“OFF”) up to 120 min. This knob moves, or “counts-down” during the dry cycle.

Cycle Selector - Choose a wash cycle or dry cycle by turning the knob to the desired cycle. Each cycle is designed for different types of fabric and soil levels. This knob moves, or “counts-down” during the wash cycle.

(Continued on the next page)

Description of Cycle Selector Options

Rinses and Spins - Use a Rinse cycle to get a rinse and spin only. A rinse is useful for loads that need rinsing only or for adding fabric softener to a load. Use the spin cycles to remove moisture from fabrics or to drain water from the drum.

Description of Option Buttons

You can customize the wash or dry cycle by adding an OPTION or combination of options to your cycle selection. You can add or change the options at any time during operation.

Medium Spin/High Spin - Pressing this button will reduce the spin speed to 800 rpm

Half Heat/High Heat - Pressing this button will reduce the temperature during the dry cycle

Description of Preset Wash Cycles

Regular Wash - Use the Regular cycles to wash loads of sturdy, colorfast fabrics and normally to heavily soiled garments. These cycles combine fast speed tumbling and an extra high spin speed (1000 RPM) to shorten dry times.

- PREWASH - Use this cycle to wash heavily soiled garments.
- REGULAR - Use this cycle to wash normally soiled garments.

Permanent Press Wash - Use the Permanent Press cycle to wash loads of no-iron fabrics such as sport shirts, blouses, casual business clothes, permanent press blends, linens, and other synthetic fabrics. These cycles combine medium speed tumbling and a medium-speed spin (800 RPM) for reduced wrinkling of synthetic fabrics.

- PERMANENT PRESS - Use this cycle to wash normally to heavily soiled garments.

Delicates Wash - Use the Delicates Cycles to wash sheer fabrics, silk, wool, lingerie and other hand washable items. These cycles combine variable speed tumbling and a low spin speed (450 RPM) for gentle fabric care. (Check the label instructions to make sure that the garment is washable.)

- DELICATES - Use this cycle for delicate fabrics.
- KNITS WOOL - Use this cycle to clean washable woolen garments and other hand washables.

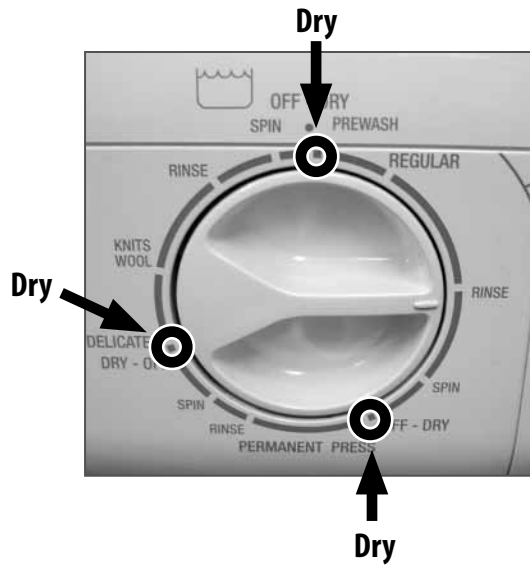
How to Set a Wash Cycle ONLY*

1. With the machine OFF, select a Wash Cycle
2. Set the Dry Time knob to "OFF"
3. Press "ON"

**See next page for 'How to Set a Wash Through Dry Cycle' and 'How to Set a Dry Cycle ONLY!'*

Description of Preset Dry Cycles

OFF-DRY - Use this high heat cycle to dry sturdy, colorfast fabrics like towels socks and jeans. (Press the Half Heat/High Heat button to use a medium heat cycle to dry certain blouses and casual business clothes.)



How to Set a Wash Through Dry Cycle

1. With the machine OFF, select a wash cycle
2. Set the Dry Time knob to the desired time
3. Press "ON". When the wash cycle is finished, the machine will automatically start drying in the preset cycle.

How to Set a Dry Cycle ONLY

1. With the machine OFF, select a Dry Cycle (see above)
2. Set the Dry Time knob to the desired time
3. Press "ON"

Preset Wash/Dry Cycles Chart

Type of Fabric	Cycle Selector Knob	Detergent for Wash	Fabric Softener	Bleach (Not Available on Cold/Cold)	Options Available	Total Length of Cycle**	Description of Wash Cycle**
Exceptionally soiled whites/colorfast fabrics (Sheets, tablecloths, etc.)	PREWASH	●	●	●	Medium Spin/ High Spin	67 min	42 min. wash cycle, 3 rinse cycles, and spin cycle
Whites/colorfast fabrics	REGULAR	●	●	●	Medium Spin/ High Spin	56 min	30 min. wash cycle, 3 rinse cycles, and spin cycle
Rinse Cycles	Rinse	Fabric softener is automatically dispensed during the last rinse			Medium Spin/ High Spin		
1000 RPM spin	Spin				Medium Spin/ High Spin		
Drying Cycle or OFF	OFF-DRY				Half Heat/ High Heat	0-120 min	Drying cycle for cotton fabrics
Colorfast synthetics (Baby linen, etc.)	PERMANENT PRESS	●	●		Medium Spin/ High Spin	38 min	18 min. wash cycle, 2 rinse cycles, and spin cycle
Rinse Cycles	Rinse	Fabric softener is automatically dispensed during the last rinse			Medium Spin/ High Spin		
800 RPM spin	Spin				Medium Spin/ High Spin		
Drying Cycle or OFF	Dry-Off				Half Heat/ High Heat	0-120 min	Drying cycle for permanent press fabrics
Delicate color synthetics	DELICATES	●	●			23 min	12 min. wash cycle, 2 rinse cycles, and spin cycle
Kit/Wool Washables	KNITS/WOOL	●	●			17 min	6 min. wash cycle, 2 rinse cycles, and spin cycle
Rinse Cycles	Rinse	Fabric softener is automatically dispensed during the last rinse					
450 rpm	Spin						
Drying Cycle or OFF	OFF-DRY				Half Heat/ High Heat	0-120 min	Drying cycle for delicate fabrics

NOTE: Some options cannot be added to some cycles. Always follow the washing and drying instructions found on the clothing tag.

**Wash cycle times will vary according to water pressure, load size and fabric type. Dry cycles include a 12-minute cool down.

Automatic Routines

The following are routines that the washer-dryer will follow out automatically during the wash, spin, rinse and/or dry cycles.

Door Locking / Unlocking Routines

Door Locking Summary - The Door Locking Routine will only start if the door is securely closed and the Door Switch contact is CLOSED.

1. The Door Switch is energized whenever a wash cycle is started.
2. During the next few seconds, the contacts on the door switch are checked by the Wash Timer. Then, the cycle will begin.

Door Unlocking Summary - Unlocking will occur ONLY under these conditions:

1. The Main Motor speed equals "0"
2. There is no water in the drum
3. The wash cycle is finished
4. The Cycle Selector is on an 'OFF-DRY' position

IMPORTANT!

- The door WILL NOT open while a wash cycle is in progress.
- The door WILL STAY LOCKED for approximately 1-2 min. after the wash cycle is complete.
- To interrupt a wash cycle and open the door, advance the Cycle Selector knob to a Spin position. Wait for the water to drain from the drum. When there is no water left in the drum, advance the knob to an OFF-DRY position. Wait 1-2 minutes for the door to unlock.

DO NOT attempt to open the door while the door lock is still engaged. If you do, the handle could break and replacement costs would not be covered under the Warranty.

Wash Quality Routines

Drain and Spin Routines - During the Drain and Spin cycles, the water level is checked continuously. Normal Drain and Spin will occur until the Pressure Switch senses no water in the drum.

Impulse Spin Technology (IST) - During the Spin cycle the drum will rotate at varying speeds before reaching high spin (instead of a constant pace). This routine optimizes rinse efficiency and drying uniformity - clothing comes out with less creasing and wrinkling.

Automatic Balance Routine

Automatic Balance Routine Summary - An unbalanced load can cause excessive noise and vibration. The Automatic Balance Routine occurs during the distribution ramp (while the basket spin is accelerating from 40 to 600 rpm). At 600 rpm the motor is decelerated and the rate of deceleration is monitored by the Module Board. The motor is then ramped up to 600 rpm and shut off. The rate of deceleration is monitored again and compared to the first deceleration rate. Based on this comparison, the Module Board can determine whether an unbalanced condition exists or not.

- If the Module Board does not sense an unbalanced condition, the ramp will continue.
- If the Module Board senses an unbalance condition, the Main Motor will rotate slowly back and forth for the remainder of the cycle.