

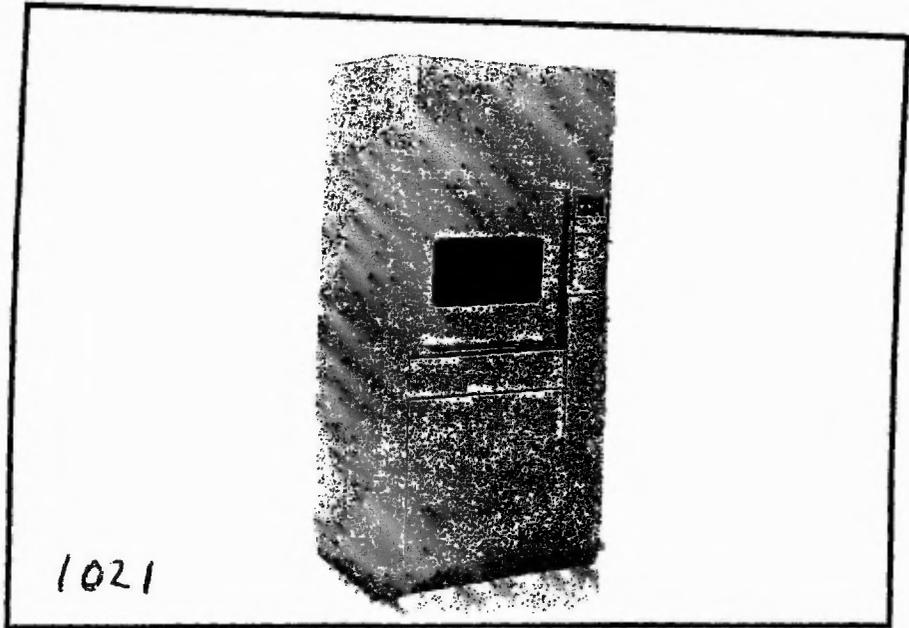
**APPLICATION**

For thorough and efficient cleaning of laboratory glassware, plastic and metal goods used in research and quality control laboratories.

**DESCRIPTION**

Reliance Models 470 and 570 laboratory glassware washers are heavy-duty, cabinet-type mechanical washers with completely automatic solid-state circuitry that monitors and controls all cycle phases. The standard cycle consists of a pre-wash, wash and two rinse phases from building-supply hot water. A cold water pre-wash, an additional building-supply water rinse, and pure water rinses are available as options. Water-temperature boosters for both building-supply water and pure water are also available. Cycle phases, phase time and water temperature are individually selectable to compensate for widely varying soiled conditions.

Washers are fully cabinet enclosed for freestanding or recessed installation. Stainless-steel barrier wall flange kits for recessing are available as accessories. A double-door unit is available for pass-through operation.



**Size (W x H x D)**

Chamber load capacity:

- Model 470 - 24 x 25 x 24 inches (610 x 635 x 610 mm)
- Model 570 - 36 x 25 x 24 inches (914 x 635 x 610 mm)

Exterior dimensions:

- Model 470 - 39-3/8 x 86 x 30 inches (1000 x 2184 x 762 mm)
- Model 570 - 53-3/8 x 86 x 30 inches (1356 x 2184 x 762 mm)

Loading Height is 36 inches (914 mm) from the floor.

**STANDARDS**

Washer meets the applicable requirements of the following standards:

- **Underwriters Laboratories (UL) Standard 544** as certified by ETL Testing Laboratories, Inc.
- **Canadian Standards Association (CSA) Standard C22.2 No. 125**
- **V.A. Soil Challenge Test**, Protein and Conductivity Test

**The Selections Checked Below Apply to This Equipment**

**MODEL**

- 470
- 570

**DOOR(S)**

- Single
- Double (for Pass-through)

**VOLTAGE**

- 208 V, 3-Ph, 60 Hz, 4-Wire
- 240 V, 1-Ph, 60 Hz, 3-Wire
- 240 V, 3-Ph, 60 Hz, 3-Wire
- 480 V, 3-Ph, 60 Hz, 3-Wire
- 500 V, 3-Ph, 60 Hz, 3-Wire

**OPTIONS**

- Cold Water Pre-wash
- Third Rinse (Building-supply Water)
- Pure Water Rinse (Unheated)
- Heated Pure Water Rinse
  - Steam
  - Electric
- Second Pure Water Rinse
- Water Temperature Booster
  - Steam
  - Electric
- Drain Discharge Cool Down
- Interior Light
- Seismic Design

**ACCESSORIES\***

- Barrier Wall Flange Kit
  - 470 Qty. \_\_\_\_\_
  - 570 Qty. \_\_\_\_\_

\* See separate product literature for Material Handling Accessories.

Item \_\_\_\_\_  
Location(s) \_\_\_\_\_

## THE PRIMARY CONTROL

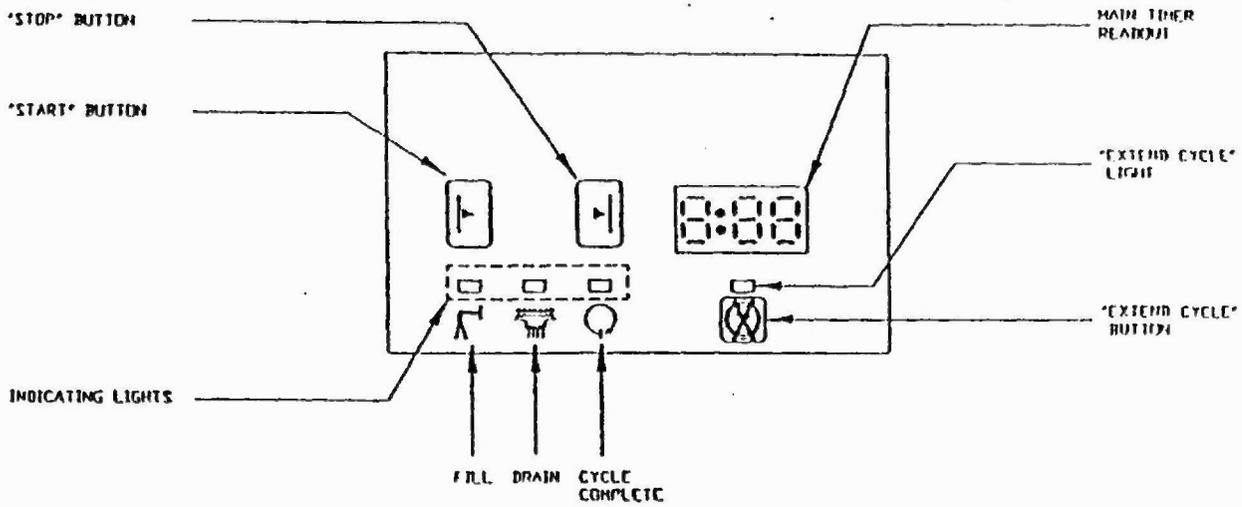


Figure 3-3

## SECONDARY CONTROL

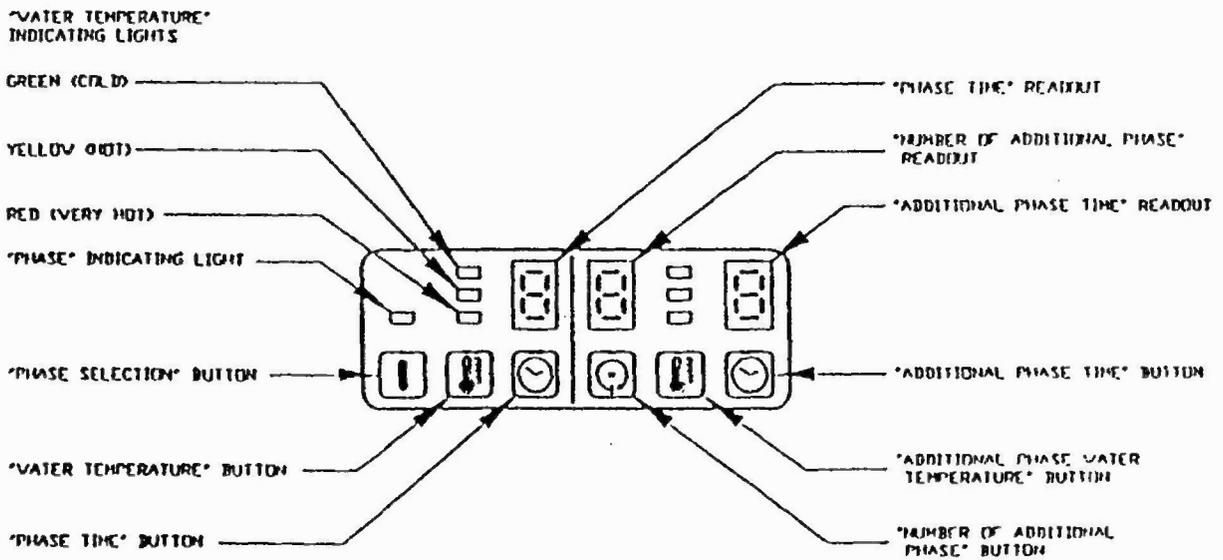


Figure 3-4

MAIN CONTROL PANEL

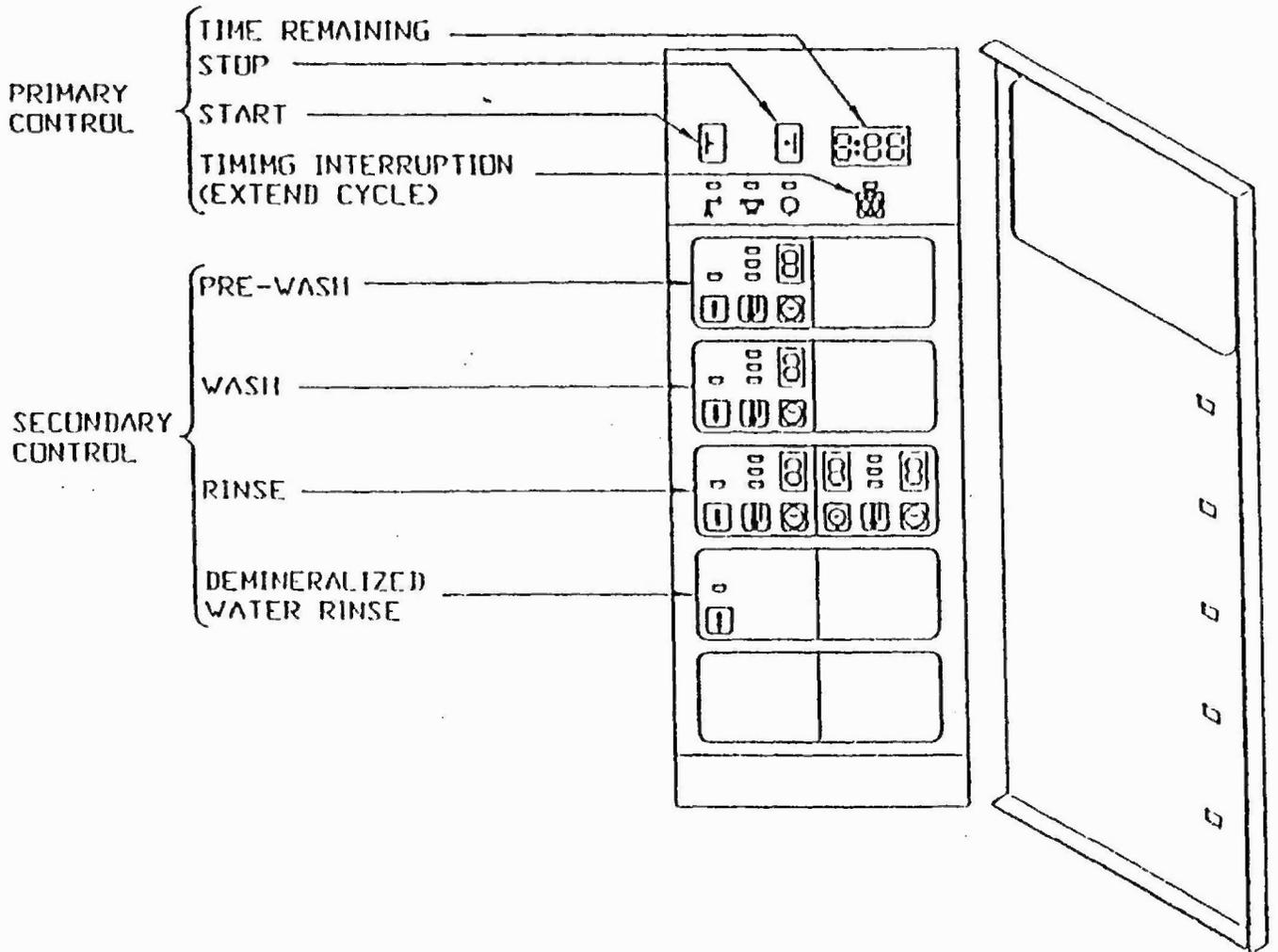


Figure 3-1.

The cycle phases must be set before pressing the START touch-pad (Figure 3.3). Make all selections (time & temperature) for a phase before moving on to the next phase.

#### Temperature Selection (Figure 3-4):

The appropriate water temperature can be selected for each phase. An LED lights-up, each time the Water Temperature button or touch pad is pressed. The Water Temperature LEDs light-up following a GREEN-YELLOW-RED repetitive sequence. Only one LED is on at a time.

GREEN	=	Cold Water
YELLOW	=	Hot Tap Water
RED	=	Very Hot Water (VHW or 180°F)

Depending on the model and it's options, some phases may be limited to two or even one temperature. Therefore, pressing WATER TEMPERATURE may have no effect on the display.

#### Time Selection (Figure 3-4):

Press the TIME touch-pad to "fix" the desired phase time. The time will be displayed above the touch-pad. The time will increase by one minute each time the touch-pad is pressed. The digital readout goes to "9" and then back to "0". A "0" time selection gives a 20 seconds phase.

#### Additional Phases(if option applies) (Figure 3-4):

Each time the ADDITIONAL PHASES button is pressed, the display number increases by one until "6" is reached, then returns to "0" and increases again. If you want 2 additional phases and "3" is displayed, you will have to press the button six times before the "2" is displayed.

On some units, the maximum number of additional phases may be less than six. This depends on the model and its options.

Once the number of additional phases is selected, the Water Temperature (for these phases) may be fixed. The temperature will be the same for all additional phases.

### **FEATURES AND OPTIONS EFFECTING THE SOLID STATE CONTROL**

#### Automatic Detergent Dispenser

Detergent reservoir is located below the control panel in a pull-out drawer. It is equipped with a sight glass for checking detergent level. The control automatically injects a measured amount of detergent into the chamber at a factory preset time during the WASH phase.

### Detergent Low-Level Alarm

Some units are equipped with an alarm system that provides a flashing light and a buzzer to alert user of low or insufficient detergent supply.

### Pure or Demineralized Water Rinse System

A stainless steel pure water tank is mounted above the chamber. The Pure Water Rinse follows all other rinse phases and is for a factory set time and is not adjustable by the operator. The Pure Water phase may be selected or bypassed. A second pure water rinse is also available.

### Water Temperature Booster System

The stainless steel tank is mounted above the chamber and can be either electric or steam powered (depending on the model). The water is pre-heated to 180 F for WASH and FINAL or 2ND RINSE phases.

### Extend Cycle (Time Interruption)

The EXTEND CYCLE touch pad on the Primary Control Panel allows suspension of the initial time setting of any phase. When the touch pad is pressed, the phase in progress will continue until the touch pad is pressed again. Initial time setting will continue from suspension point until it times out.

## HOPLAB SOLID STATE CONTROLLER

### INTRODUCTION & CONFIGURATION

The controller used on the following Reliance models will be referred to as the Hoplab Solid State Controller or more simply, the Hoplab Controller.

#### THE MODELS

120/220	Cartwasher
470/570	Laboratory Glassware & Instrument Washer
370	Laboratory Glassware & Instrument Washer
150	Animal Cage & Rack Washer
410	Hospital Utensil Washer
650	Cage & Bottle Washer

The controller was designed and built by Hoplab and replaces the Hoplab electro/mechanical control. The control was used first on units sold in Canada before being introduced to the United States. The Hoplab solid state controller operates on 120 volts, 60 Hz power with quartz-crystal based timing. The controller monitors and controls all system operations and functions including the quantity of water, detergents, and other solutions entering the tank, tub, and/or chamber. The controller also makes the washer independent of building supply pressure.

The controller allows the cycle to proceed automatically through selected phases and the completion of the cycle is indicated visually. A typical cycle would go through the following phases:

- PRE-WASH
- WASH
- 1ST RINSE
- 2ND RINSE
- VAPOR REMOVAL or DRYING

Each model has a factory programmed cycle that is operator adjustable. Upon POWER-UP, the pre-programmed cycle is displayed. Times and temperatures can be changed and phases can be selected or cancelled according to the soil conditions. The actual cycle phases will vary according to the model and its available options.

## THE MAIN CONTROL PANEL (Figure 3-1)

NOTE: A symbol legend for the control panel is shown in Figure 3-2.

The Primary Control Panel contains the following (Figure 3-3):

- LEDs indicating:
  - Filling phase
  - Draining phase
  - Cycle Completion
- START/STOP Buttons
- Main Timer Readout
- Time Interruption (Extend Cycle)

The Secondary Control Panel (behind the hinged door) contains the selector touch pads and indicating LEDs for phases, times, temperatures, and additional phases (Figure 3-3).

A WATER ECONOMIZER (RETAIN/DUMP) button is located on the bottom portion of the control panel. (Water economizer feature is available on the 120/220, 150, and 650 models only.)

## MODIFYING THE PRE-PROGRAMMED CYCLE:

1. Select the phase.
2. Adjust the water temperature for phase selected.
3. Adjust the time for phase selected.
4. Move on to the next phase.

If a phase is ON, it has been SELECTED. If a phase is OFF, it has been CANCELLED.

5. Set the WE (water economizer) to ON or OFF. With WE turned ON, RINSE water will be kept in the tub or tank and reused for the next cycle's pre-wash (if option applies) or wash phase.

6. Set the WE to OFF before the last cycle of the day so unit will be drained every night.

## Phase Selection (Figure 3-4):

When power is turned on, whether at the main disconnect or on the unit itself (depends on the model), the pre-programmed or default cycle will be displayed. Phase selector touch-pads are located on the Secondary Control Panel. When the LED above the touch-pad is ON, then the phase has been selected. To bypass the phase, simply push the touch-pad and the LED will go out, indicating the bypass mode.