

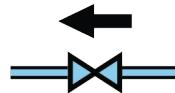
# Symbols & Labeling

## Diagram Symbols and Notation

<span style="background-color: #ADD8E6; border: 1px solid black; display: inline-block; width: 20px; height: 20px;"></span>	Water	<span style="background-color: #800000; border: 1px solid black; display: inline-block; width: 20px; height: 20px;"></span>	Valve
<span style="background-color: #2E8B57; border: 1px solid black; display: inline-block; width: 20px; height: 20px;"></span>	Dirty Water	<span style="background-color: black; border: 1px solid black; display: inline-block; width: 20px; height: 20px;"></span>	Stop-Check Valve
<span style="background-color: #DC143C; border: 1px solid black; display: inline-block; width: 20px; height: 20px;"></span>	Air Low Pressure	<span style="background-color: black; border: 1px solid black; display: inline-block; width: 20px; height: 20px;"></span>	Filter
<span style="background-color: #800080; border: 1px solid black; display: inline-block; width: 20px; height: 20px;"></span>	Air Ambient Pressure	<span style="background-color: black; border: 1px solid black; display: inline-block; width: 20px; height: 20px;"></span>	P/V Pressure/Vacuum Sensor
<span style="background-color: #800000; border: 1px solid black; display: inline-block; width: 20px; height: 20px;"></span>	Air High Pressure	<span style="border: 1px solid black; display: inline-block; width: 20px; height: 20px;"></span>	Pipe
<span style="background-color: #DAA520; border: 1px solid black; display: inline-block; width: 20px; height: 20px;"></span>	Clothing Item	<span style="border: 1px solid black; border-radius: 50%; display: inline-block; width: 20px; height: 20px;"></span>	Pump

## Flow Diagram Key

← Flow Arrow shows the direction of fluid flow through a pipe



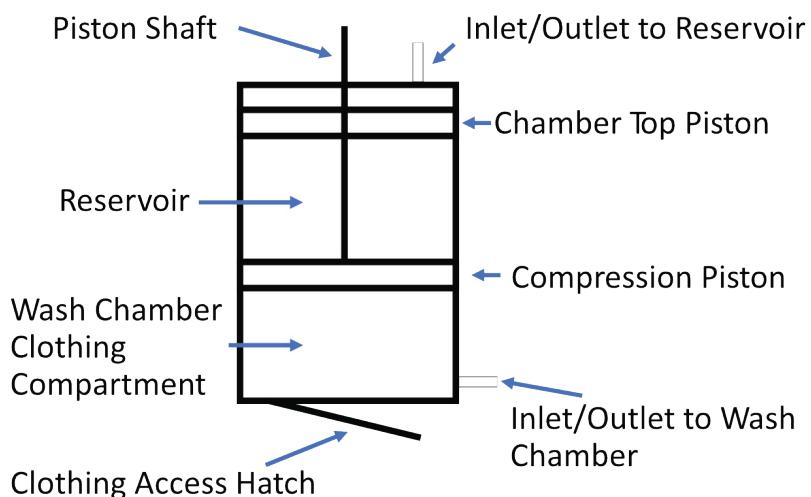
Example of water flowing through open valve

☒ Open Valve has fill color corresponding to the fluid passing through it



Example of closed valve blocking flow

## Washing Machine Pipe Symbol

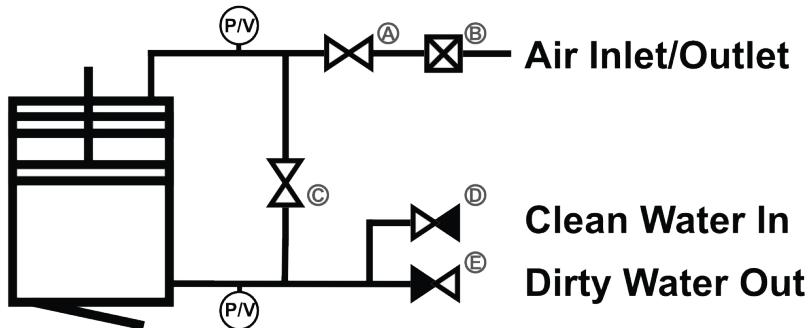


# Washing Machine P&ID

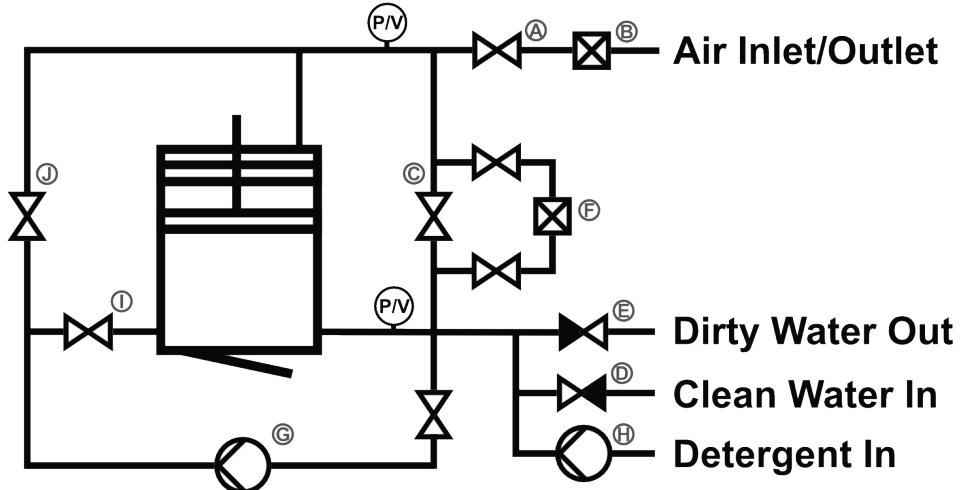
## Basic Washing Machine Cycle Piping Diagram

Labeled Components:

- A: Air Valve
- B: Water Trap/Sensor
- C: Isolation Valve
- D: Clean Water Valve
- E: Dirty Water Valve



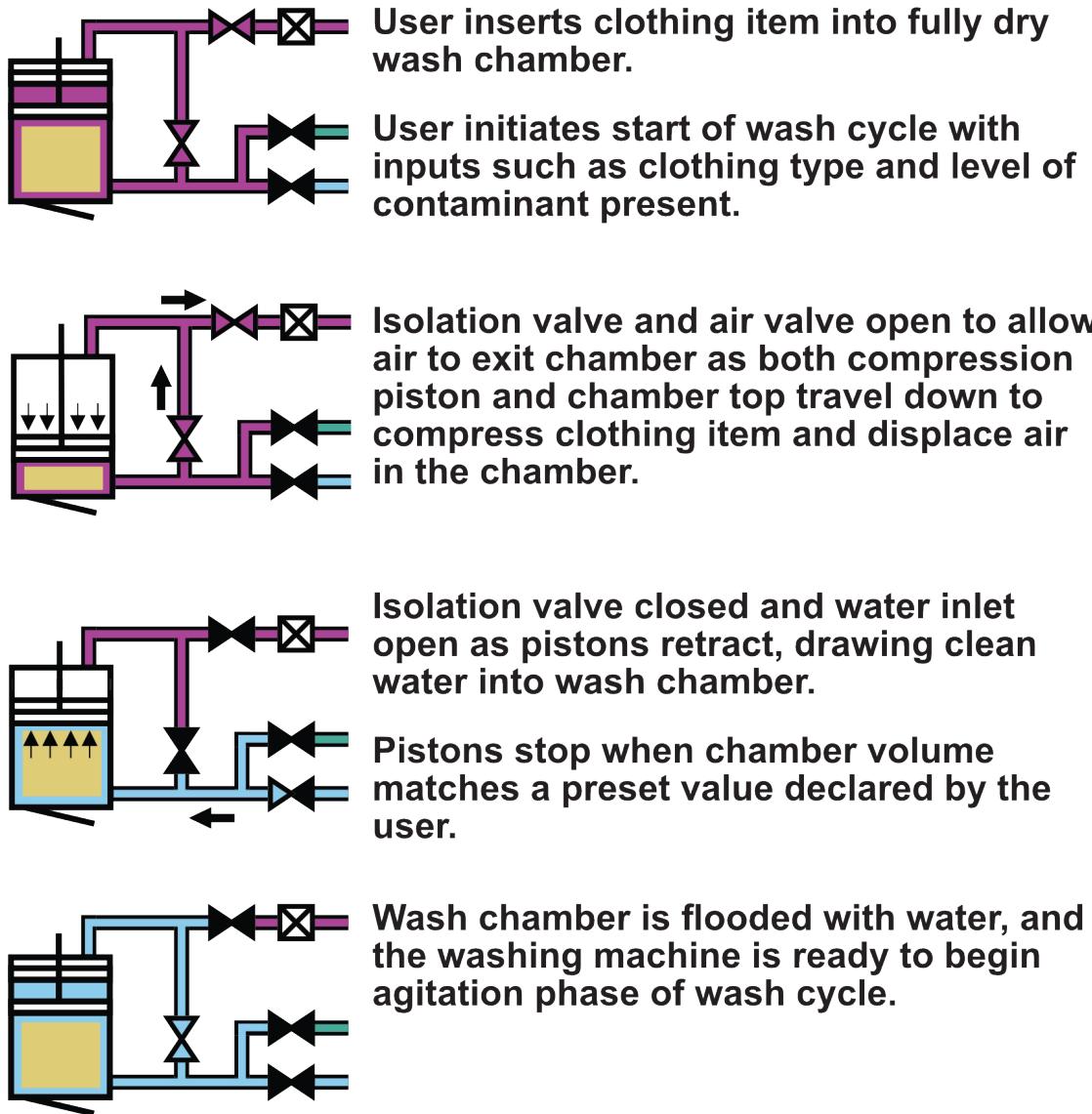
## Piping Diagram with Potential Improvements to Design Through Additional Design Spaces



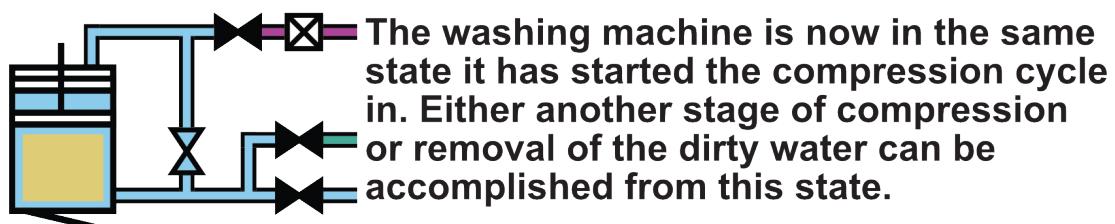
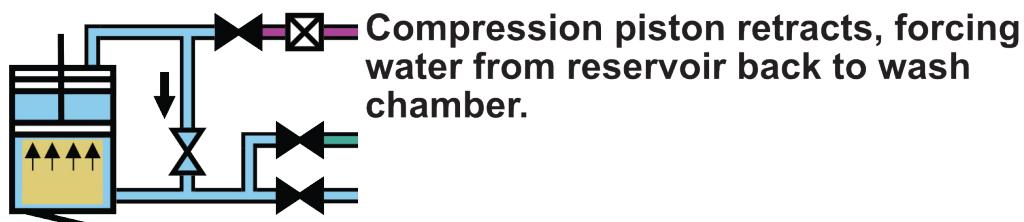
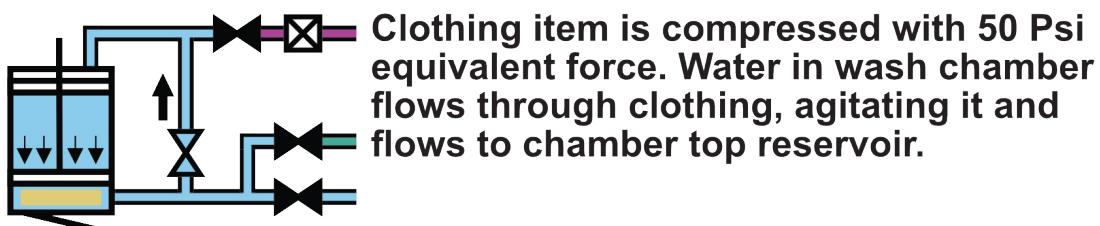
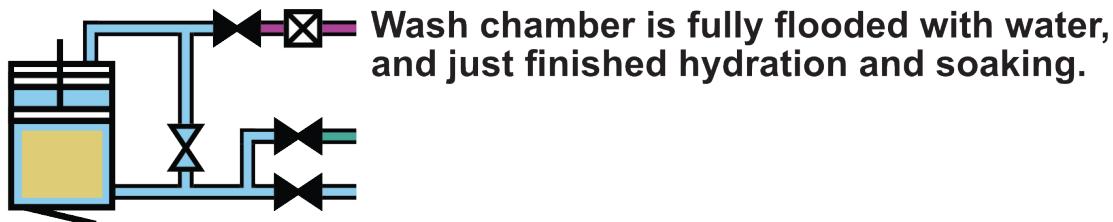
Labeled Components:

- F: Water Filter
- G: Water Circulation and Vacuum Pump
- H: Detergent Dosing Pump
- I: Water Circulation Valve
- J: Vacuum Valve

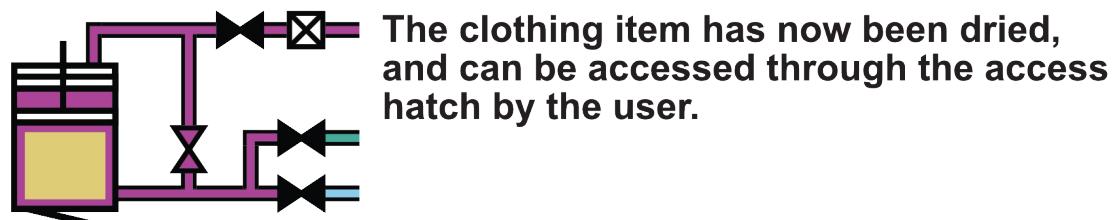
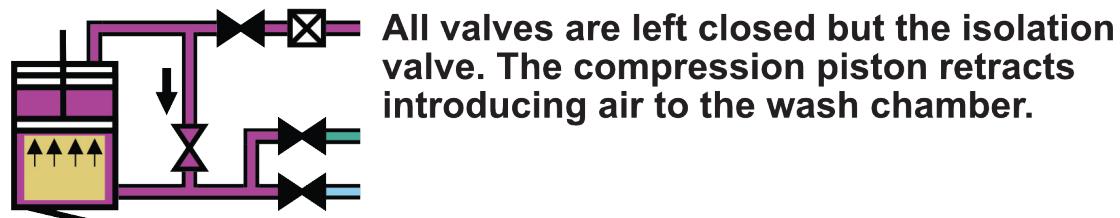
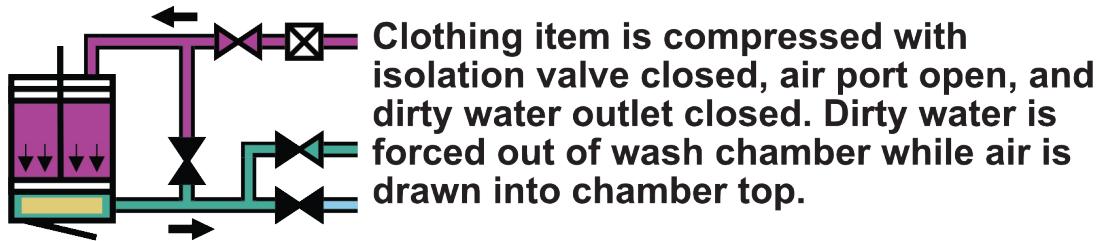
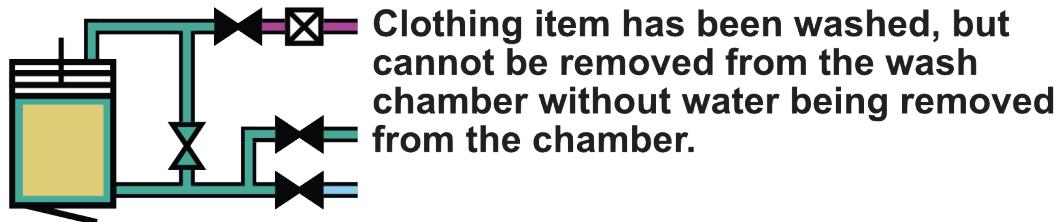
# Hydration Phase Flow Diagram



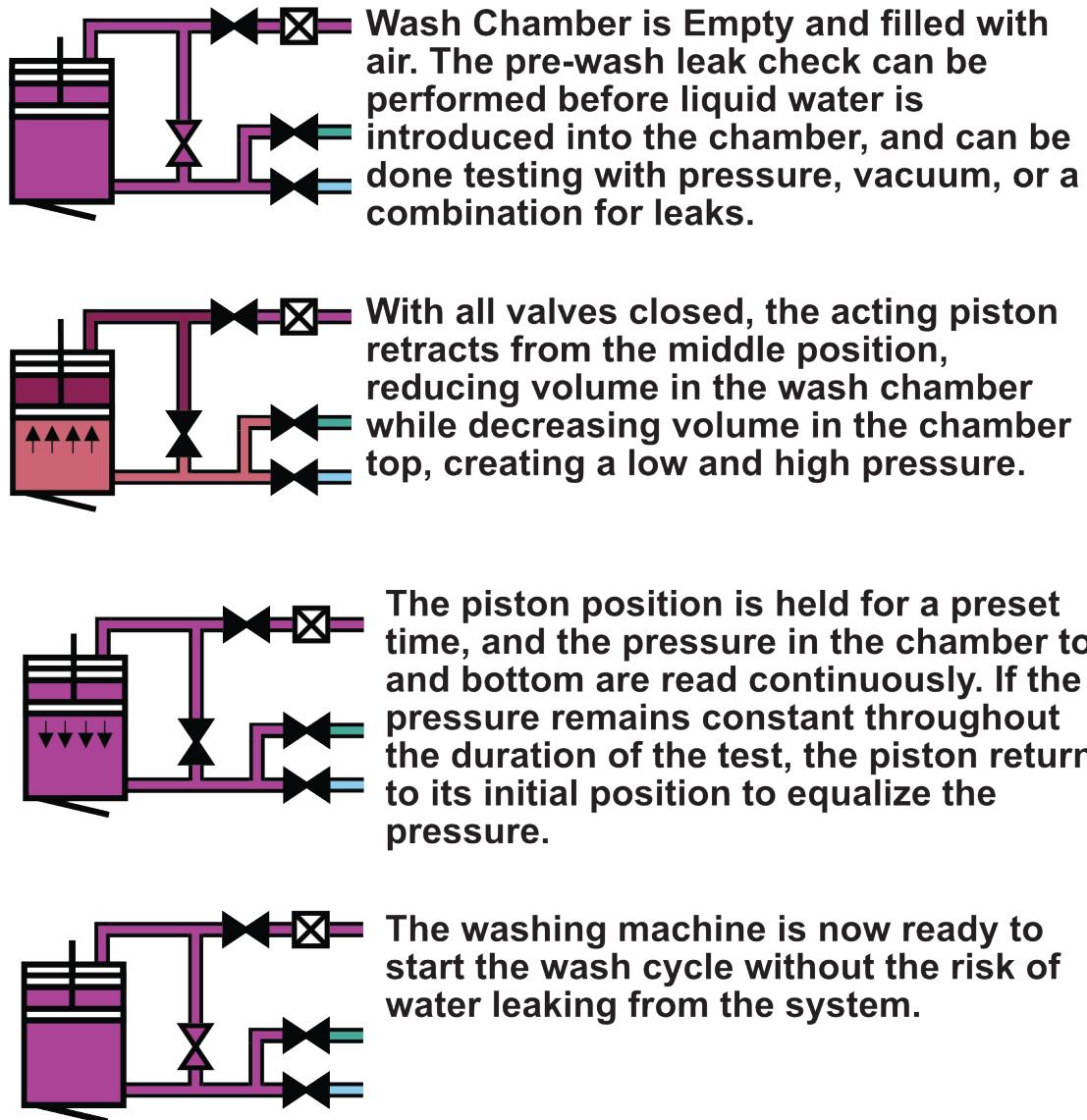
# Agitation Phase Flow Diagram



# Removal of Dirty Water Phase Flow Diagram



# Pre-Wash Leak Check Flow Diagram



# Flow Diagram for Drawing a Vacuum in Wash Chamber

Note: Drawing vacuum in the wash chamber could potentially be used to aid in the hydration and drying phases of the wash cycle, allowing the machine to draw more air and water out of the wash chamber than compression alone could achieve. Pictured alone would be the process of drawing a vacuum prior to the hydration phase of the wash cycle.

