

## **Experiment No: 04**

**Experiment Name:** Study on Garments Washing Machine & its Function.

### **Theory:**

#### **Washing Machine:**

### **Objectives:**

1. To identify different parts of the machine.
2. To draw the diagram of the machine.
3. To observe function of different parts of the machine.
4. To run the machine and check different functional parameters of the machine.

### **Requirements:**

### **Machine Specification:**

### **Working Procedure:**

1. Find the specification of washing machine.
2. Observe different parts of the washing machine.
3. Draw a diagram of the washing machine by labeling different parts of the washing machine.
4. Observe functions of different parts of the machine.
5. Then run the machine.
6. Check different functional parameters of the machine.

**Diagram:**

## Machine Description:

Sl. No	Name of Parts	Description and Function
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## **Working Principle of the Machine:**

This type of machine is widely used in Bangladesh. It is made of stainless steel. In the machine, there are two stainless steel cylinders one inside the other. The outer cylinder is solid and has one sliding door like microbus at the upper middle half position of the cylinder. The cylinder is fixed on the machine frame and the machine frame is tightly fixed on the floor with heavy foundation to avoid jerking during operation of the machine. There are also one chemical dosing door on the sliding door to facilitate chemical addition during machine running. The inner stainless steel cylinder is perforated having two stainless steel side shafts. The side shafts are fixed with the machine frame through ball bearing. Two machine pulleys are fixed on the two side of the side shafts. With the help of high power motor & motor pulley, the machine pulley is rotated. As a result the inner perforated cylinder can rotate freely inside the outer cylinder. The perforated inner cylinder has also one spring loaded door. The door of the inner cylinder and outer cylinder is aligned to the same position by the use of an inching motion switch, to load and unload garments to be washed. The inner cylinder can be rotated at 5 to 35 rpm through control panel of the machine. The rotation of the inner cylinder is automatically controlled for clock-wise and anti-clockwise direction by reversal driving unit which is simple electronic circuit. The dual direction movement of the inner cylinder is used to avoid roping effect of the garments during dyeing. The inner cylinder is about different sizes. The exact size of the inner cylinder depends on machine capacity. There are three to four inches gap between the inner and outer cylinder. A solid steam pipe is situated between the gap. Steam is supplied from the boiler through the steam pipe of the gap. Hence, liquor is indirectly heated by the steam pipe to use desired dyeing temperature of the dye liquor. Dyeing temperature is controlled by a dial & indicator situated in the panel board of the machine. Garments movement during garments dyeing is performed by the three triangular shape bars inside the inner cylinder. From the overhead water tank a water pipe is connected to the bottom side of the outer cylinder with gate valve for loading and drained-out water from the machine. The machine automatically stops rotation with alarm sound to attract the attention of the operator for the next operation. The capacity of the dyeing machine is 60 kg to 500 kg.

## **Conclusion and Comments:**