

# 611-2225 (30-265) Force Pump

## Additional Materials Required

- Water
- Food coloring

## Warranty, Replacement Parts:

We replace all defective or missing parts free of charge. Additional replacement parts may be ordered toll-free. We accept MasterCard, Visa, checks and School P.O.s. All products warranted to be free from defect for 90 days. Does not apply to accident, misuse or normal wear and tear. Intended for children 13 years of age and up. This item is not a toy. It may contain small parts that can be choking hazards. Adult supervision is required.

## Introduction:

A water pump is a great instrument to demonstrate a simple hydraulic system. Our 30-265 force pump will allow viewing of the actual operation of this classic pump design.

## Assembly:

The Force Pump will need to be set up prior to use. After removing the parts from the package, slide the end of the handle into the top of the pump plunger. Insert the bolt through the hole and secure it with the nut. Do not overtighten, the handle must move freely in the joint. The hole in the middle of the handle must be secured in the same manner, again, do not overtighten the bolt; the handle must move freely in the joint.



## Care and Storage:

Completely dry the unit after use. Light oil may be applied to the metal parts. The plunger and seals should be lubricated with water just prior to use. This is accomplished by pouring a small amount of water directly down the plunger shaft.

## How to use:

1. Fill the reservoir in the basin of the frame until it is about one inch deep. The inlet tube must be at least 1/2 inch underwater.
2. The pump may be hard to start when it is dry. To ease the initial pump action, pour a small amount of water down the top of the plunger shaft. This will lubricate

the pump, and help it to draw water up.

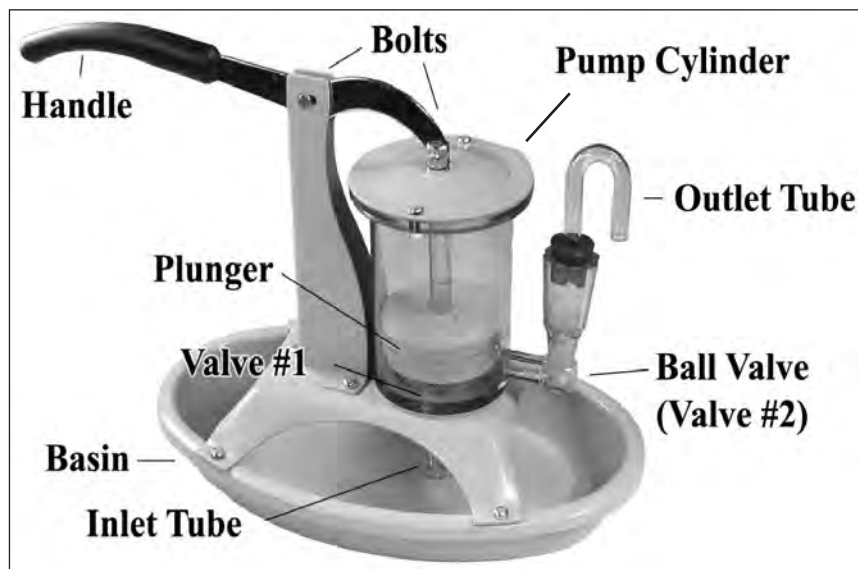
3. Food coloring may be added to help an audience view the pumping action, keep in mind that an overzealous "pumper" may pump hard enough to splash water right out of the basin.

4. Pump the handle up and down to begin the water flowing.

## How it works:

The Force pump demonstrates a simple well pump at work. The system utilizes a one way flutter valve and a one way ball valve which draw and discharge the water.

**Step 1:** Push the handle down, the lever action will force the plunger upwards. As the plunger moves up, pressure causes valve #1 to open, and valve #2 to close. As a result, water is drawn up into the pump cylinder.



**Step 1**

**Step 2:** Pull the pump handle back up, the lever action will force the plunger down. As the plunger moves down, pressure causes valve #1 to close, and valve #2 to open. As a result, water is forced into the outlet tube and back into the basin.



**Step 2**

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