

## Background information on Fluid Power

Fluid Power - using either a liquid (hydraulics) or gas (pneumatics) to move objects or do work.

### **Advantages to using fluid power**

- They are not as complicated as gears and levers.
- There is no slack in the system between parts.
- Parts don't easily break down or wear out.
- These forces can be used up and down or around corners
- Little of the energy is wasted in a fluid power system. Most of the energy goes right into the work needed, and not as much is lost to friction or heat.
- A small amount of force can be easily changed into a large amount of force.
- Fluid power parts are cheaper than other energy components
- Using fluid power is less polluting than other energy systems (such as burning fuels)

### **Problems in using fluid power**

- The fluid must be contained inside for the entire system
- There can be no leaks
- The system must not have too much pressure

### **Uses of fluid power:**

- Ancient people built irrigation systems to water crops and aqueducts to carry water from mountains or lakes to cities.
- Hydraulic jack.
- Dentists and barbers chairs
- Automatic doors
- Hydraulic brakes
- Automatic transmissions
- Manufacturing, particularly food and clothing because it is a clean power
- Power steering
- The blade of a bulldozer or steam shovel
- The up and down movement in a forklift
- Anchor windlasses, cranes, steering gear, remote control devices, and power drives for elevating and training guns and rocket launchers on ships.
- Elevators on aircraft carriers use hydraulic power to transfer aircraft from the hangar deck to the flight deck and back to storage.
- Amusement park rides.