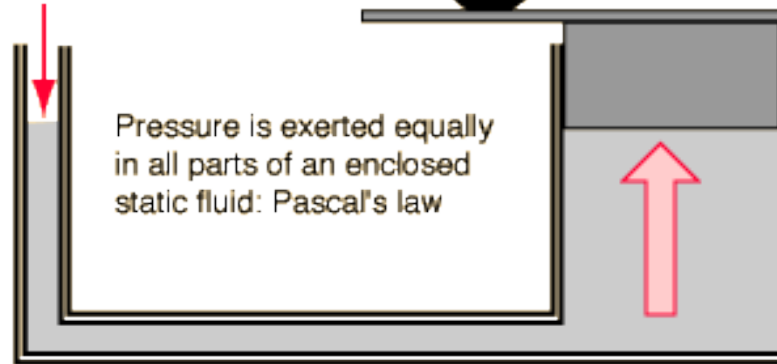


Warm Up

Pressure is exerted on fluid in small cylinder, usually by a compressor.



Though the pressure is the same, it is exerted over a much larger area, giving a multiplication of force that lifts the car.

The force in the small cylinder must be exerted over a much larger distance. A small force exerted over a large distance is traded for a large force over a small distance.

A hydraulic lift is used to lift a heavy machine that is pushing down on a 5 m^2 piston A_1 with a force F_1 of 700 N . What force F_2 needs to be exerted on a 0.007 m^2 piston A_2 to lift the machine?