

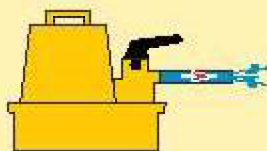


Basic hydraulics *Things to know*

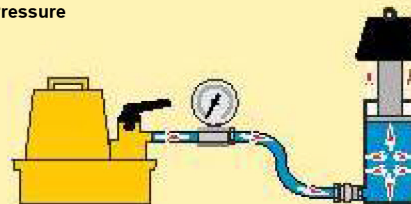
Oil Flow

A hydraulic pump produces flow. Flow is the amount of fluid coming out of the pump.

Oil Flow



Pressure



Pressure

Pressure occurs when there is resistance to flow.

Pascal's Law

Pressure applied at any point upon a confined liquid is transmitted undiminished in all directions (Fig.1). This means that when more than one hydraulic cylinder is being used, each cylinder will pull or push at its own rate, depending on the force required to move the load at that point (Fig. 2).

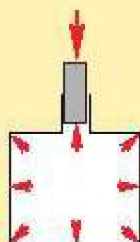


Figure 1

Cylinders with the lightest load will move first and cylinders with the heaviest load will move last (Load A), if the cylinders have the same capacity.

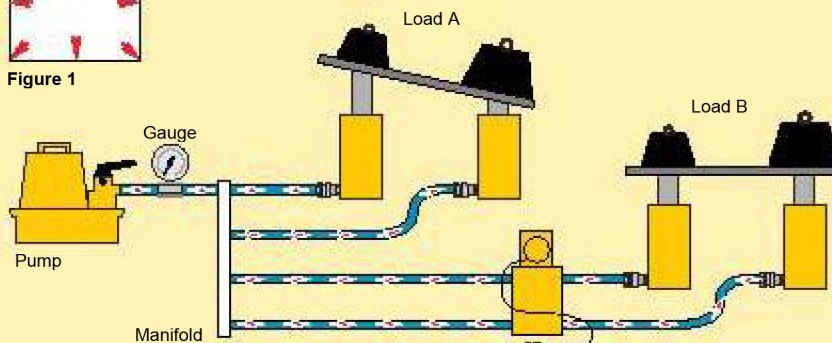


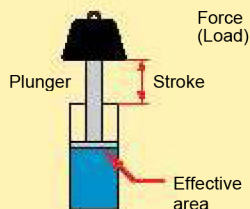
Figure 2

Control valve to provide uniform clamping of the work piece

To have all cylinders operate uniformly so that the load is being pulled or pushed at the same rate at each point, control valves (see Valve section) must be added to the system (Load B).

Force

The amount of force a hydraulic cylinder can generate is equal to the hydraulic pressure times the "effective area" of the cylinder (see cylinder selection charts).



Use the formula $F = P \times A$ to determine either force, pressure or effective area if two of the variables are known.

Force	=	Hydraulic Working Pressure	x	Cylinder Effective Area
F	=	P	x	A