

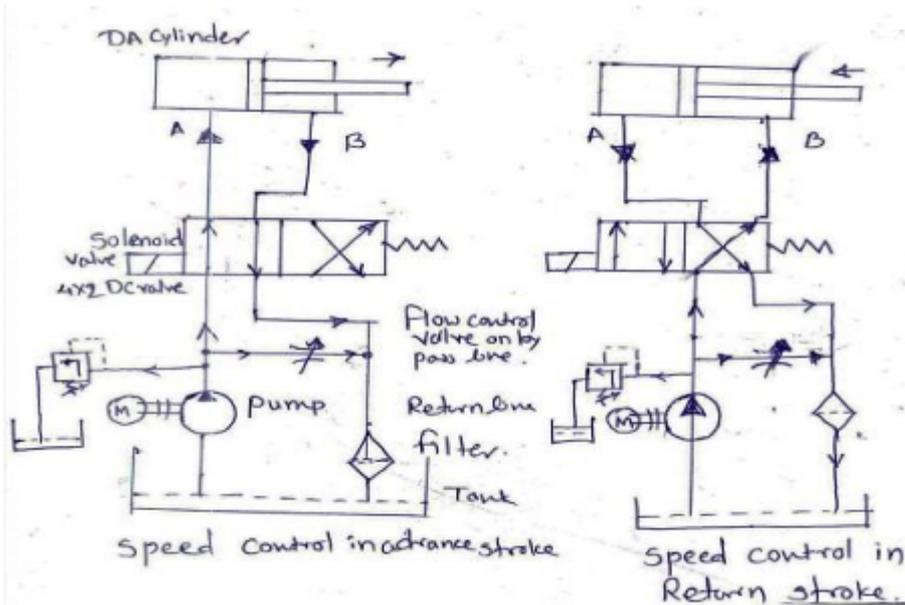
### What are the limitations of pneumatic system?

1. Relatively low accuracy: As pneumatic systems are powered by the force provided by compressed air, their operation is subject to the volume of the compressed air. As the volume of air may change when compressed or heated, the supply of air to the system may not be accurate, causing a decrease in the overall accuracy of the system. 2. Low loading: As the cylinders of pneumatic components are not very large, a pneumatic system cannot drive loads that are too heavy. 3. Processing required before use Compressed air must be processed before use to ensure the absence of water vapour or dust.

[Read more about What are the limitations of pneumatic system?](#)

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Draw bleed off circuit and label it



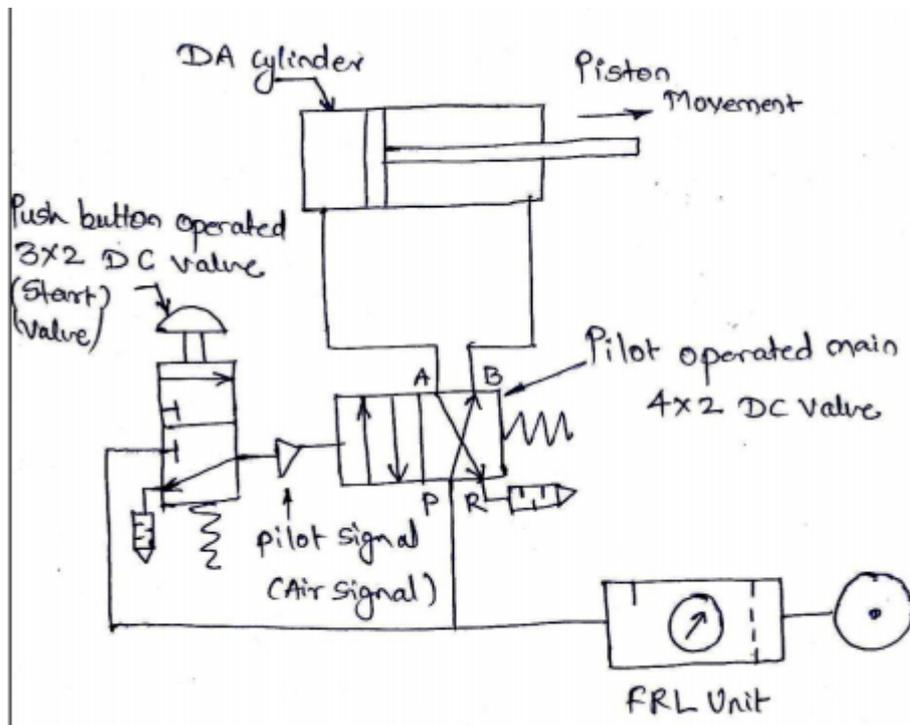
[Read more about Draw bleed off circuit and label it](#)

## What is the use of direction control valve...

1. DC valves are used to release, stop or redirect the fluid that flows through it.
2. DCV is used to control the direction of fluid flow in any hydraulic system and changing the position of internal movable parts.
3. To start, stop, accelerate, decelerate and change the direction of motion of a hydraulic actuator.
4. To permit the free flow from the pump to the reservoir at low pressure when the pump's delivery is not needed into the system.
5. To vent the relief valve by either electrical or mechanical control.
- 6.

[Read more about What is the use of direction control valve...](#)

## Draw pilot operated DA cylinder circuit .....



[Read more about Draw pilot operated DA cylinder circuit .....](#)

## What is FRL unit? Explain its function

FRL unit means Filter Regulator and Lubricator Unit Function of FRL unit Filter (F) - 1) To remove the micron and sub-micron particles present in the entering air of compressor 2) Used to separate out contaminants like dust, dirt particles from the compressed air Regulator (R)-In pneumatic system the pressure of compressed air may not stable due to possibility of line fluctuation. Hence there is a need to maintain and regulate the air pressure. This function is performed by regulator. Lubricator (L) - Sliding components like spool, a pneumatic cylinder has sliding motion between parts.

[Read more about What is FRL unit? Explain its function](#)

## Explain the principle of regenerative circuit.....

Principle of regenerative circuit is recovering the energy available with returning oil by using regeneration technique. The concept of regenerative circuit is explained from following figure. Consider the double acting cylinder. Pressurized oil from pump is admitting in cylinder cavity through port (A). Due to pressure force piston is moving from right to left. During this movement, the oil present on piston rod side of piston starts coming out through port (B). This oil will return to the oil reservoir via DC valve.

[Read more about Explain the principle of regenerative circuit.....](#)

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## Draw symbols of.....

(i) Oil Reservoir		(iii) Heat Exchanger	
(ii) Oil Filter		(iv) Unidirectional fixed displacement pump	

[Read more about Draw symbols of.....](#)

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## Write any four advantages of oil hydraulic system.

We can generate very high pressures in hydraulic system. Due to this nature of hydraulic system we can use this power to lift, hold, press very heavy loads 2) Weight to power ratio of a hydraulic system is comparatively less than that of an Electro-Mechanical System.

Electric motor weigh appropriately 8.5 Kg/kW whereas, same power

hydraulic motor weighs 0.85 kg/kW only. 3) The speed control of linear as well as rotary actuators can be achieved with ease. By merely adjusting small flow control valve, wide range of speed and feed can be obtained.

[Read more about Write any four advantages of oil hydraulic system.](#)

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Explain the construction and working of doubled acting reciprocating compressor with neat sketch.

Double acting reciprocating air compressor is similar to double acting reciprocating pump. It is comprised of following parts: 1) Cylinder 2) Piston and piston rod and connecting rod. 3) Crank and crank case 4) Two suction valves and two delivery valves. 5) One inlet port and one outlet port It uses four bar mechanism. There are 4 valves (2 suction valves and 2 delivery valves) shown at A, B, C, D in figure. There are cooling fans similar to single acting compressors. The crank rotates on electric motor/engine/turbine.

[Read more about Explain the construction and working of doubled acting reciprocating compressor with neat sketch.](#)

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Why pressure relief valve is used in hydraulic circuit.....

Pressure Relief Valve used because; 1. To Maintain desired pressure levels in the circuit. 2. To set maximum pressure in hydraulic system. 3. Protect the pump and other system components from overloading. 4. It acts as a relief and safety device Explanation Simple pressure

relief valve is also a Direct operated pressure relief valve. It consists of Poppet, spring, pressure setting knob and valve body.

[Read more about Why pressure relief valve is used in hydraulic circuit.....](#)

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