

॥ नमस्ते ॥

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# HYDRAULIC PRESSURE CONTROL



# PRESSURE CONTROL

The safe and efficient operation of fluid power systems, system components require a means of controlling pressure.

- The Following ways are to control pressure

- 1. RELIEF VALVES**

- 2. PRESSURE REGULATORS**

- 3. PRESSURE REDUCERS**

# 1.PRESSURE RELIEF VALVES

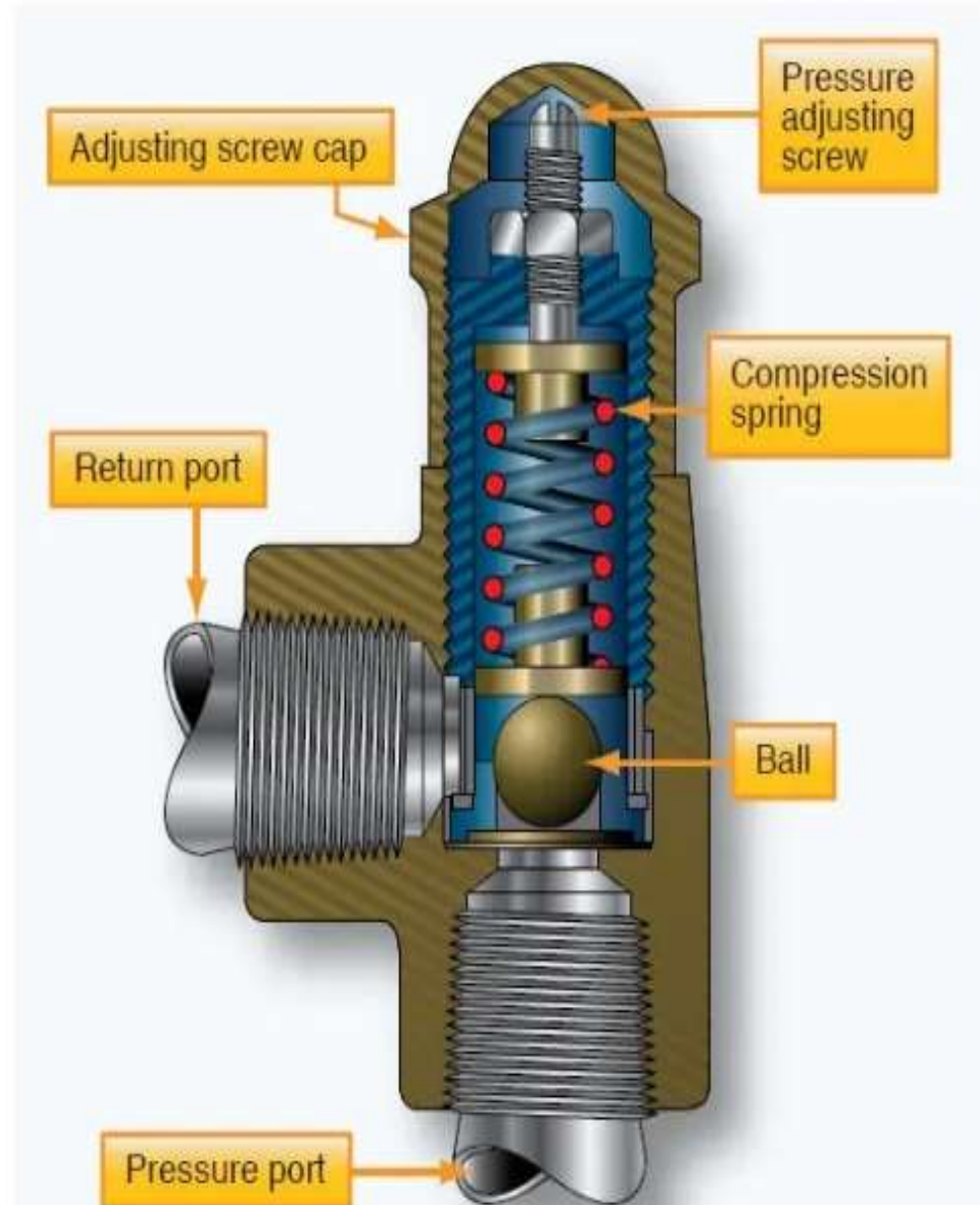
- A pressure relief valve is used to limit the amount of pressure being exerted on a confined liquid. This is necessary **to prevent failure** of components or rupture of hydraulic lines under excessive pressures.
- The pressure relief valve is, in effect, **a system safety valve.**
- The design of pressure relief valves incorporates adjustable spring-loaded valves.
- They are installed in such a manner as to discharge fluid from the pressure line into a reservoir return line when the pressure exceeds the predetermined maximum for which the valve is adjusted.

# Types of the Pressure Relief valve

1. Ball Type
2. Sleeve Type
3. Poppet Type

# 1. Ball Type

In pressure relief valves with a ball type valving device, the ball rests on contoured seat. Pressure acting on the bottom of the ball pushes it off its seat, allowing the fluid to bypass.

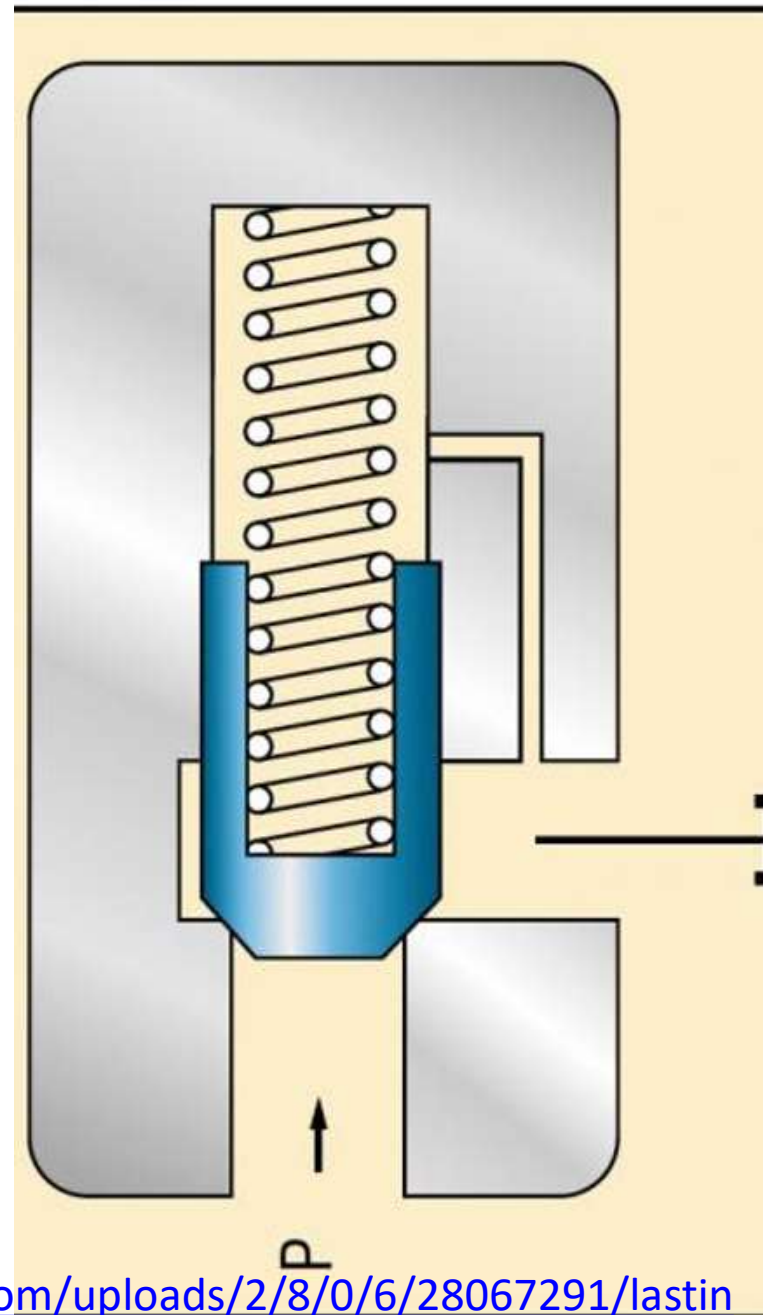


[http://pankajsalunkhe.weebly.com/uploads/2/8/0/6/28067291/lastin\\_gjoyfulcapeghostfrog-small.gif](http://pankajsalunkhe.weebly.com/uploads/2/8/0/6/28067291/lastin_gjoyfulcapeghostfrog-small.gif)

## 2.Sleeve Type

In pressure relief valves with a sleeve type valving device, the ball remains stationary and a sleeve type seat is moved up by the fluid pressure.

This allows the fluid to bypass between the ball and the sliding sleeve type seat.



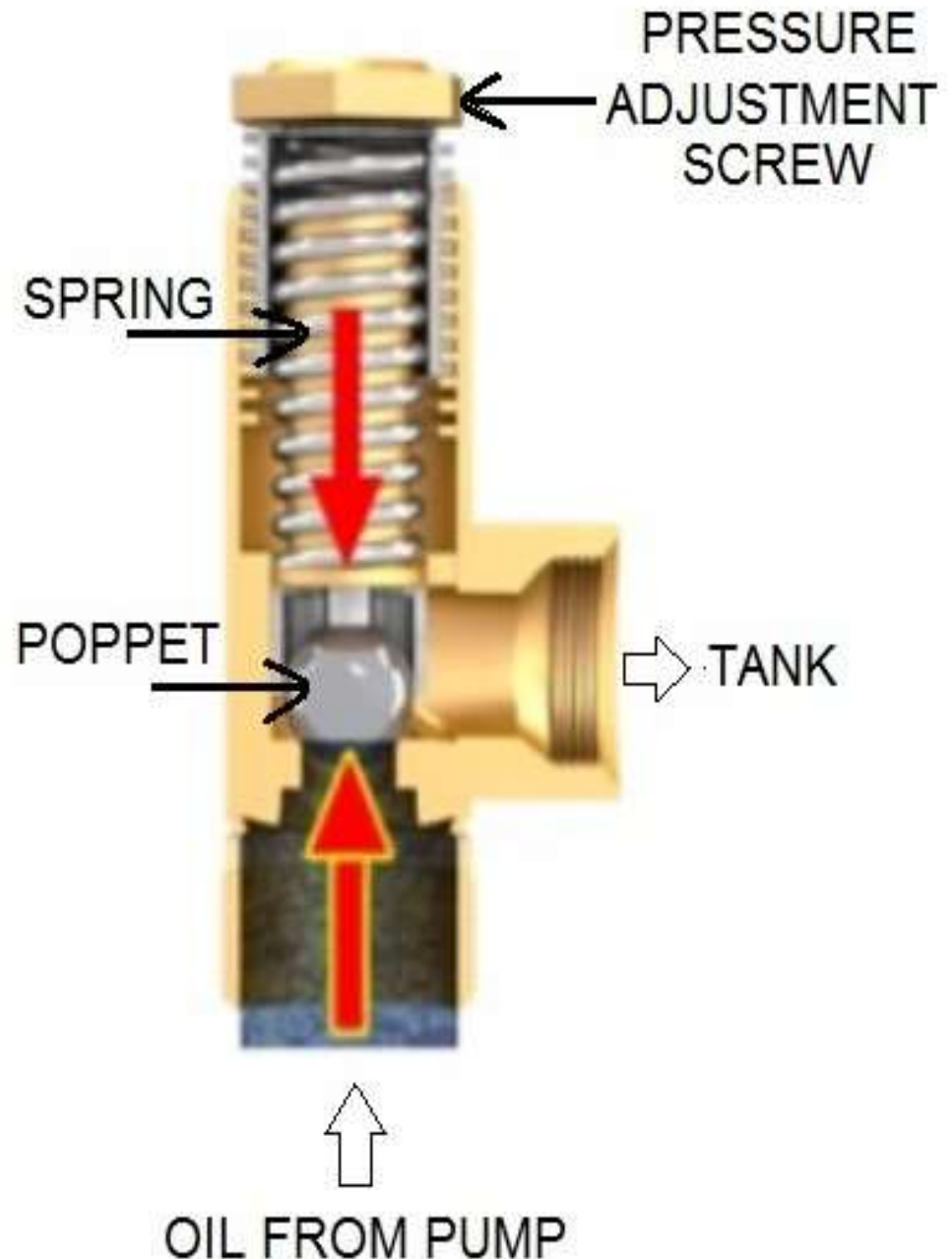
### 3.Poppet Type

In pressure relief valves with a poppet type valving device, a cone shaped poppet may have any of several design configurations;

however, it is basically a cone and seat machined at matched angles to prevent leakage.

As the pressure rises to its predetermined setting, the poppet is lifted off its seat, as in the ball type device.

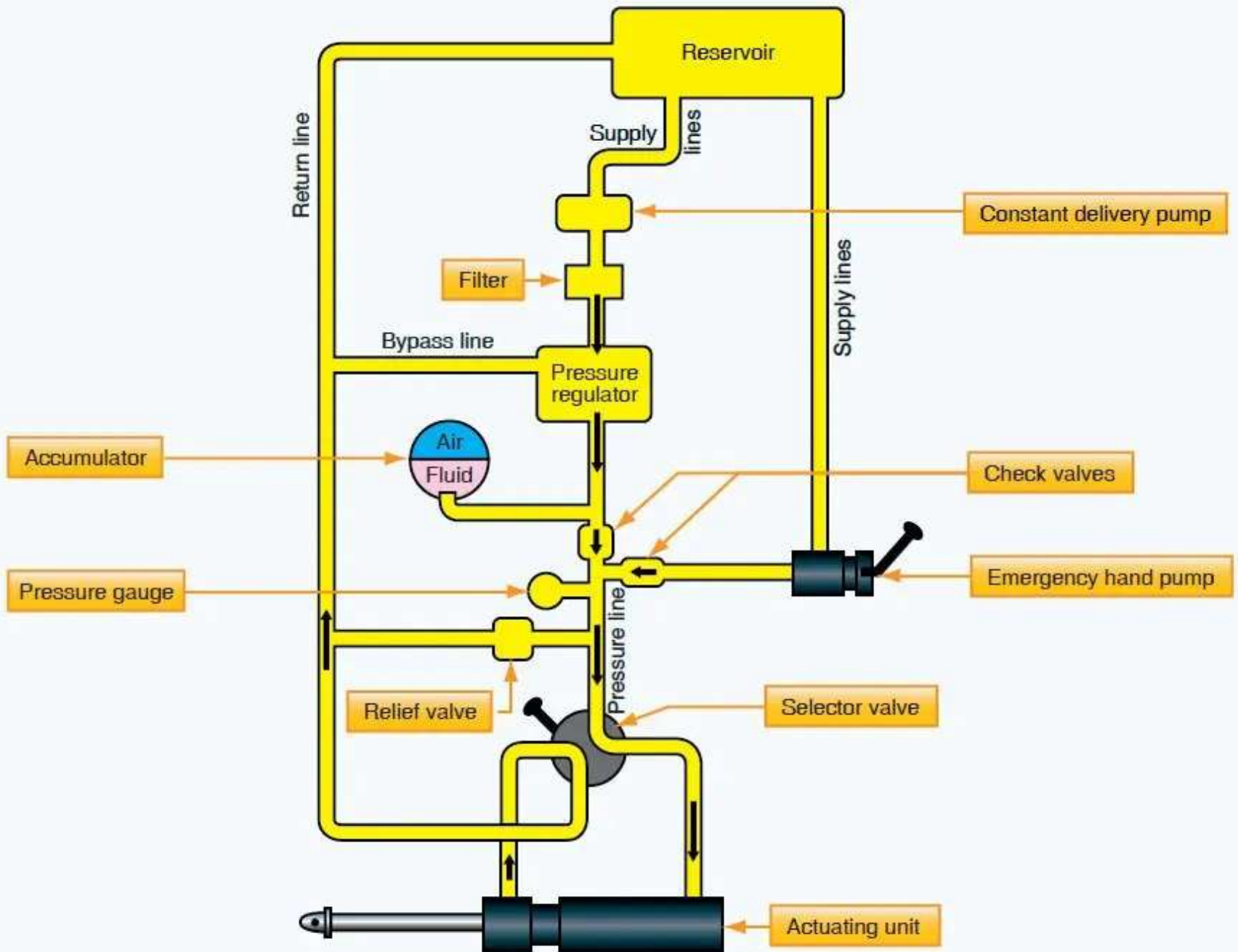
This allows the fluid to pass through the opening created and out the return port.

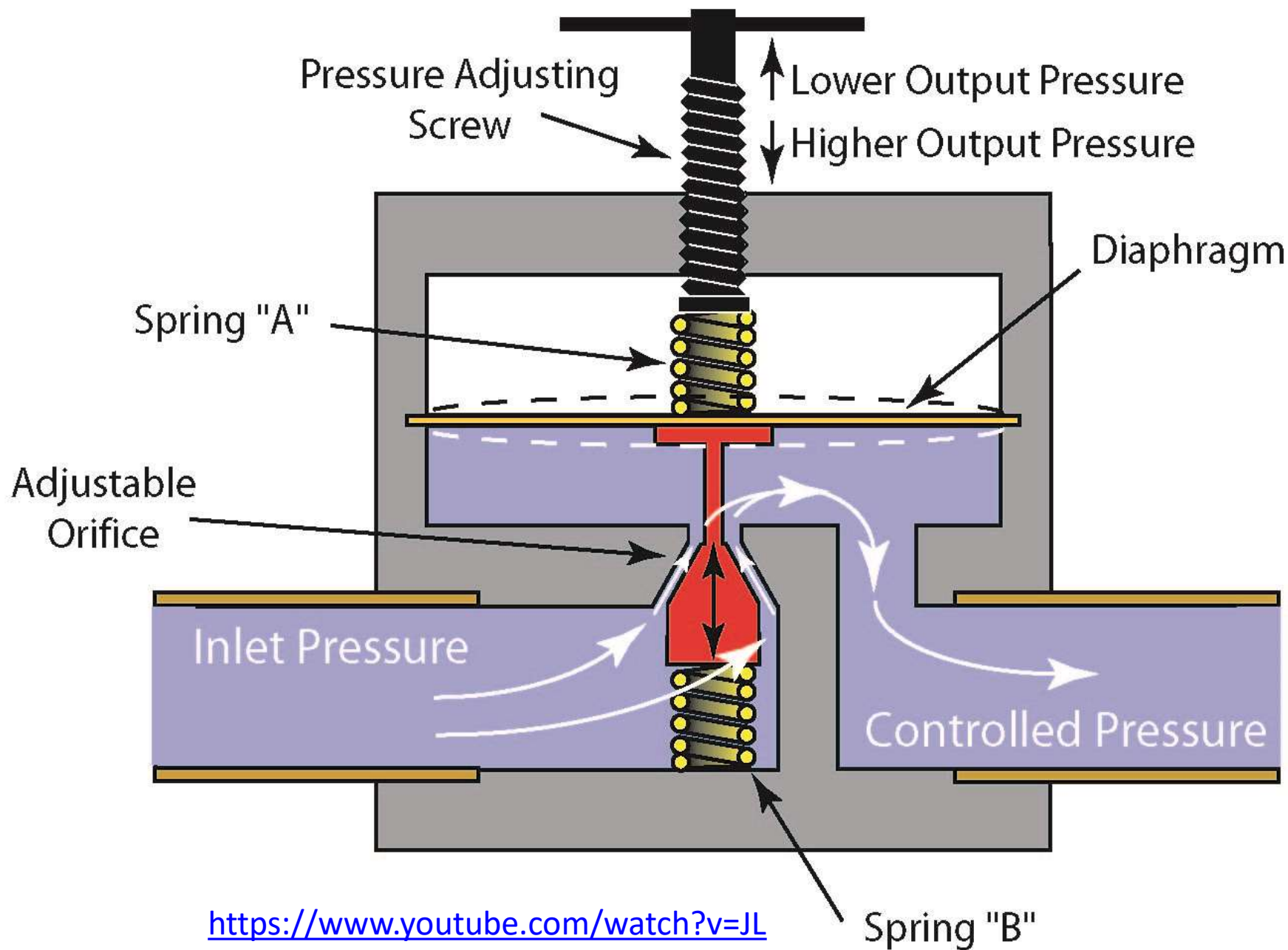




## 2. PRESSURE REGULATORS

- The term pressure regulator is applied to a device used in hydraulic systems that **are pressurized by constant-delivery type pumps.**
- One purpose of the pressure regulator is to **manage the output of the pump** to maintain system operating pressure within a predetermined range.
- The other purpose is to permit **the pump to turn without resistance** (termed unloading the pump) at times when pressure in the system is within normal operating range.
- The combination of a constant delivery type pump and the pressure regulator is virtually the equivalent of a **compensator controlled, variable-delivery type pump.**

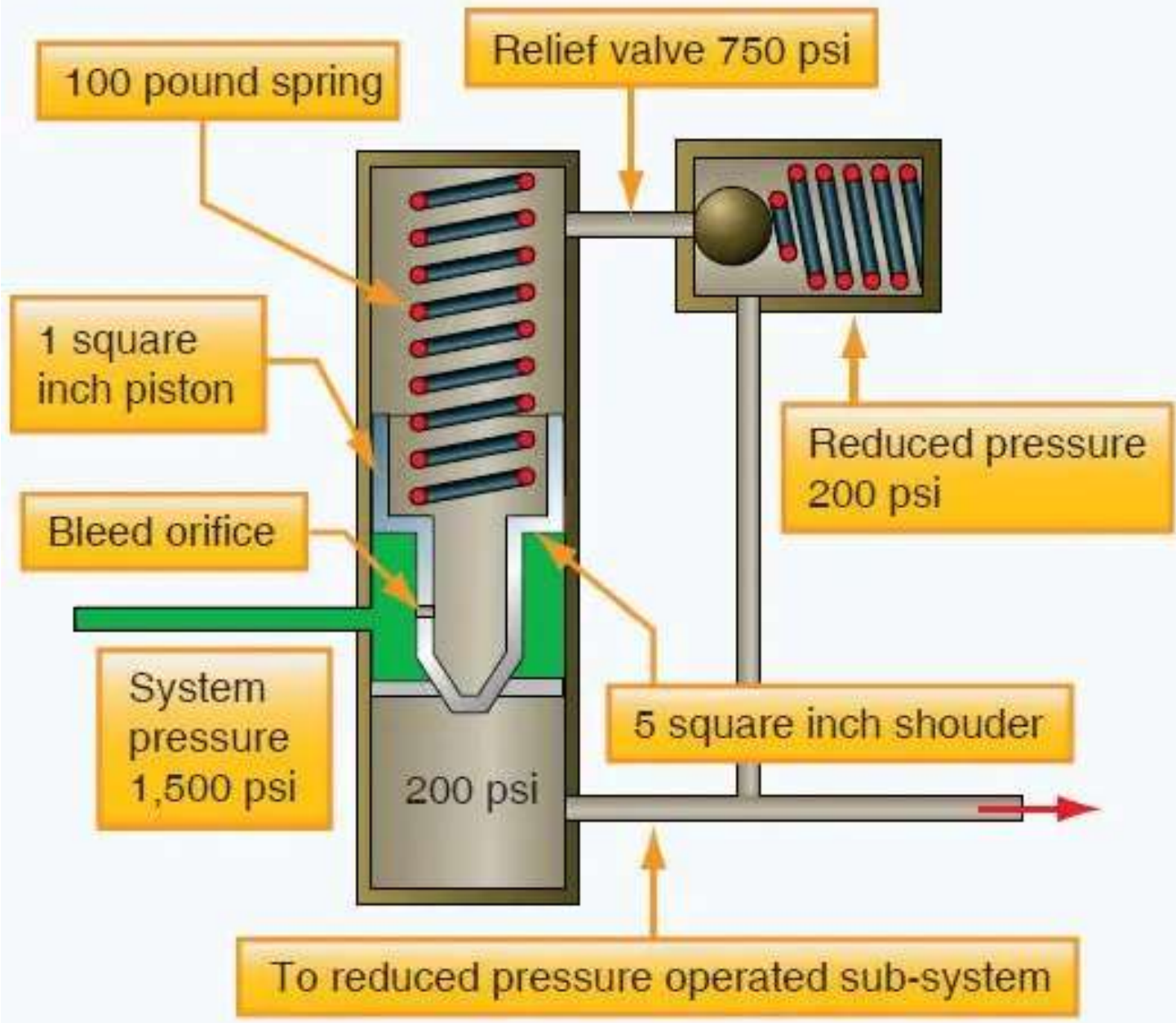




[https://www.youtube.com/watch?v=JL0kj\\_zZp1g](https://www.youtube.com/watch?v=JL0kj_zZp1g)

# 3.PRESSURE REDUCERS

- Pressure reducing valves are used in hydraulic systems where it is necessary to lower the normal system operating pressure by a specified amount.
- Pressure reducing valves provide a steady pressure into a system that operates at a lower pressure than the supply system.
- A reducing valve can normally be set for any desired downstream pressure within the design limits of the valve.
- Once the valve is set, the reduced pressure is maintained regardless of changes in supply pressure (as long as the supply pressure is at least as high as the reduced pressure desired) and regardless of the system load, if the load does not exceed the designed capacity of the reducer.



<https://www.youtube.com/watch?v=XhOqm6T5CcE>





## **Today's Amazing Fact???????**

**When person cries and a first drop of the tears come from right eye ,Its Happiness and when it comes from left, Its pain.**





**ANY QUESTIONS?????**

# धन्यवाद

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