

॥ नमस्ते ॥

A close-up photograph of a hydraulic pump assembly. The image shows several metallic gears of different sizes and a large, polished cylindrical component, likely a reservoir or accumulator, which is the central focus. The lighting is dramatic, highlighting the metallic surfaces and the intricate details of the machinery.

HYDRAULIC
RESERVOIR &
ACCUMULATOR

RESERVOIRS

RESERVOIRS

- The reservoir is a tank in which an adequate supply of fluid for the system is stored

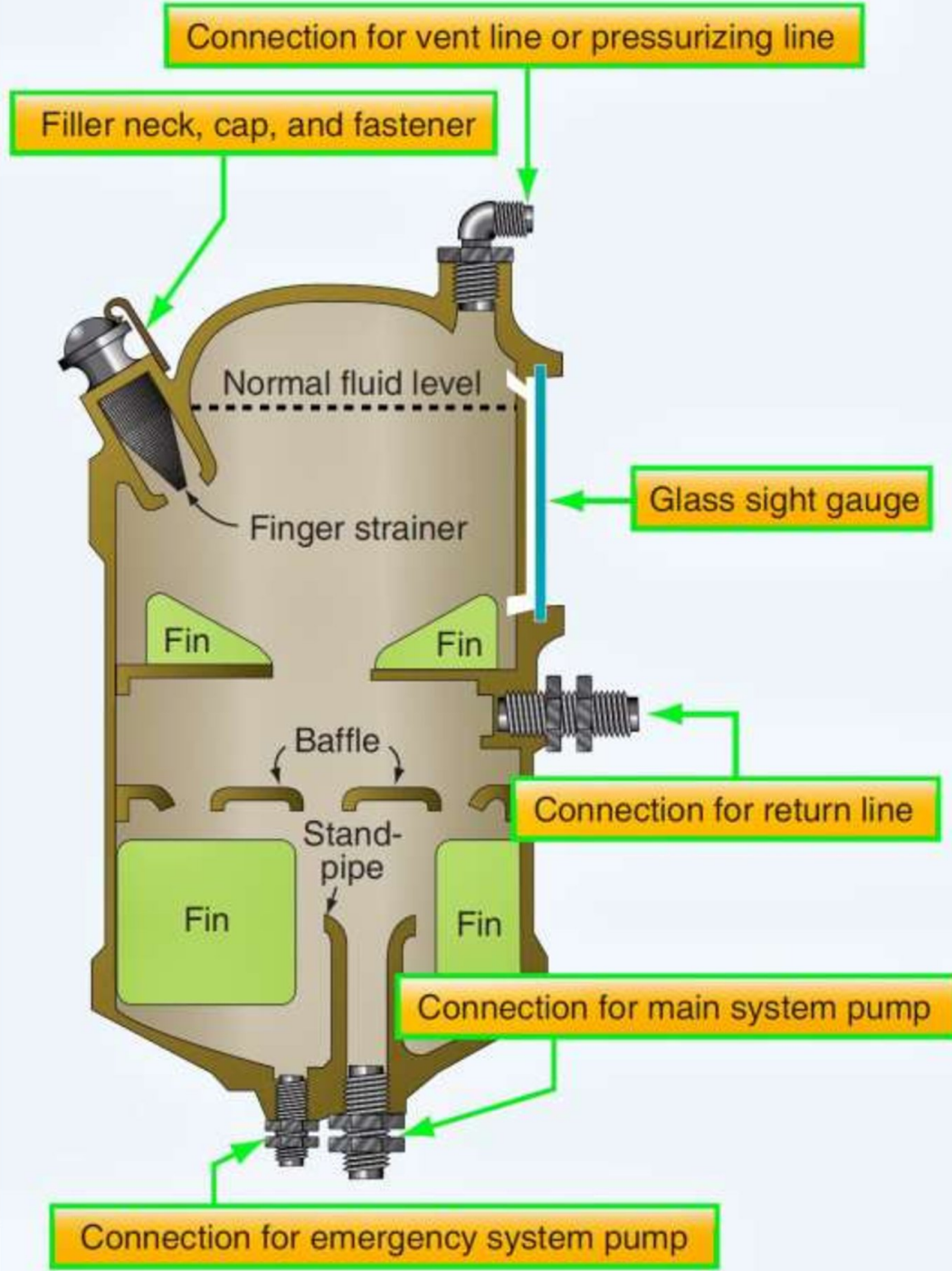
Functions:-

1. Supply the fluid to the system in adequate quantity.
2. Replenishes (Fill Again) fluid lost through leakage.
3. Collect the fluid from the Return Line.
4. It Remove the Air Bubbles from the fluid.

Types of the Reservoir

- Non-pressurized.
- Pressurized
 1. Air Pressurized
 2. Fluid Pressurized

Non Pressurized Reservoir

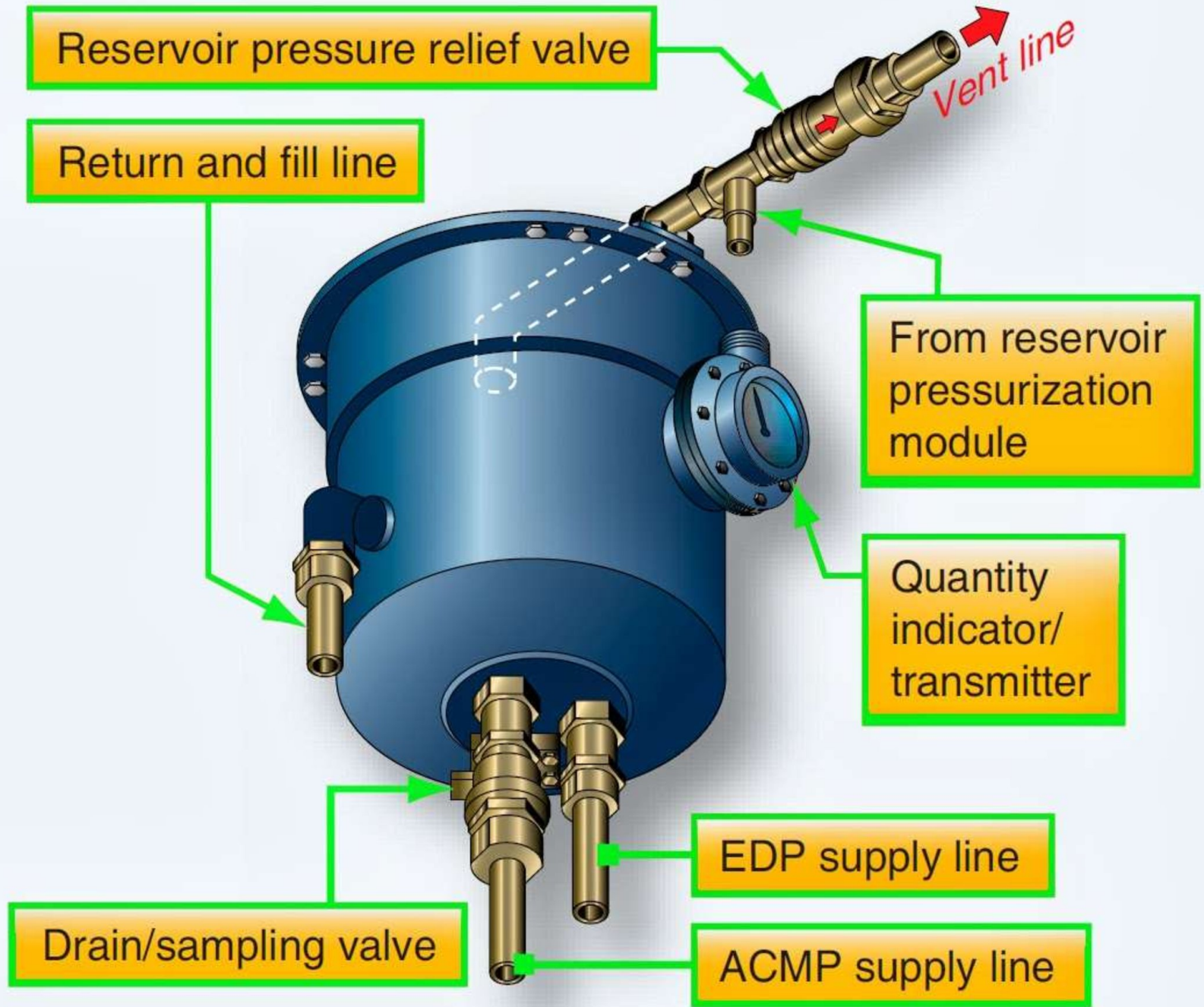


Non-pressurized Reservoir

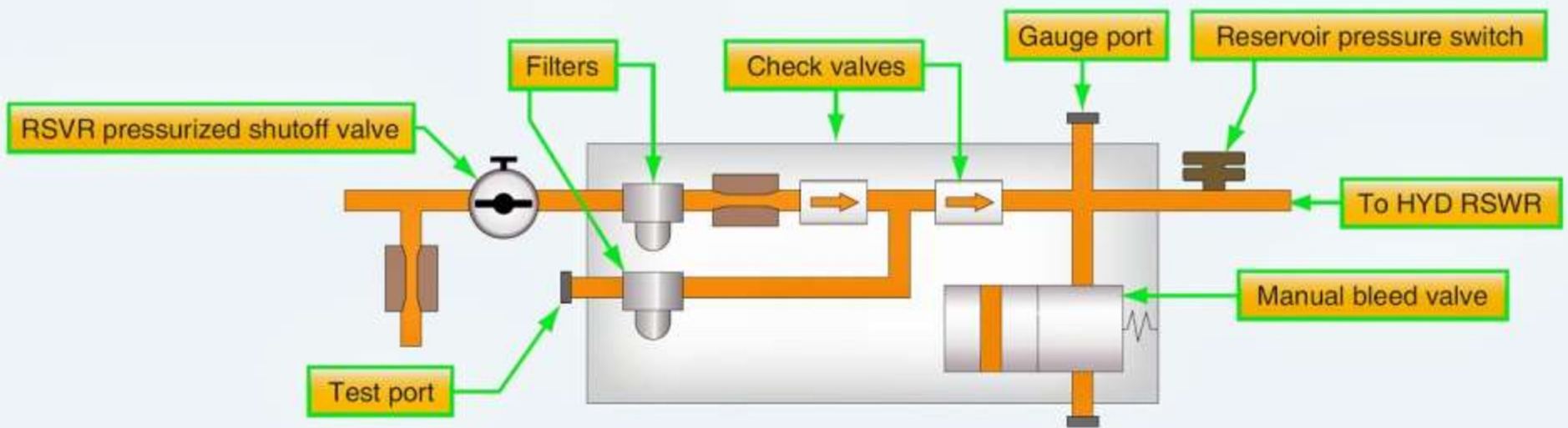
- Used for Low Altitude Aircraft

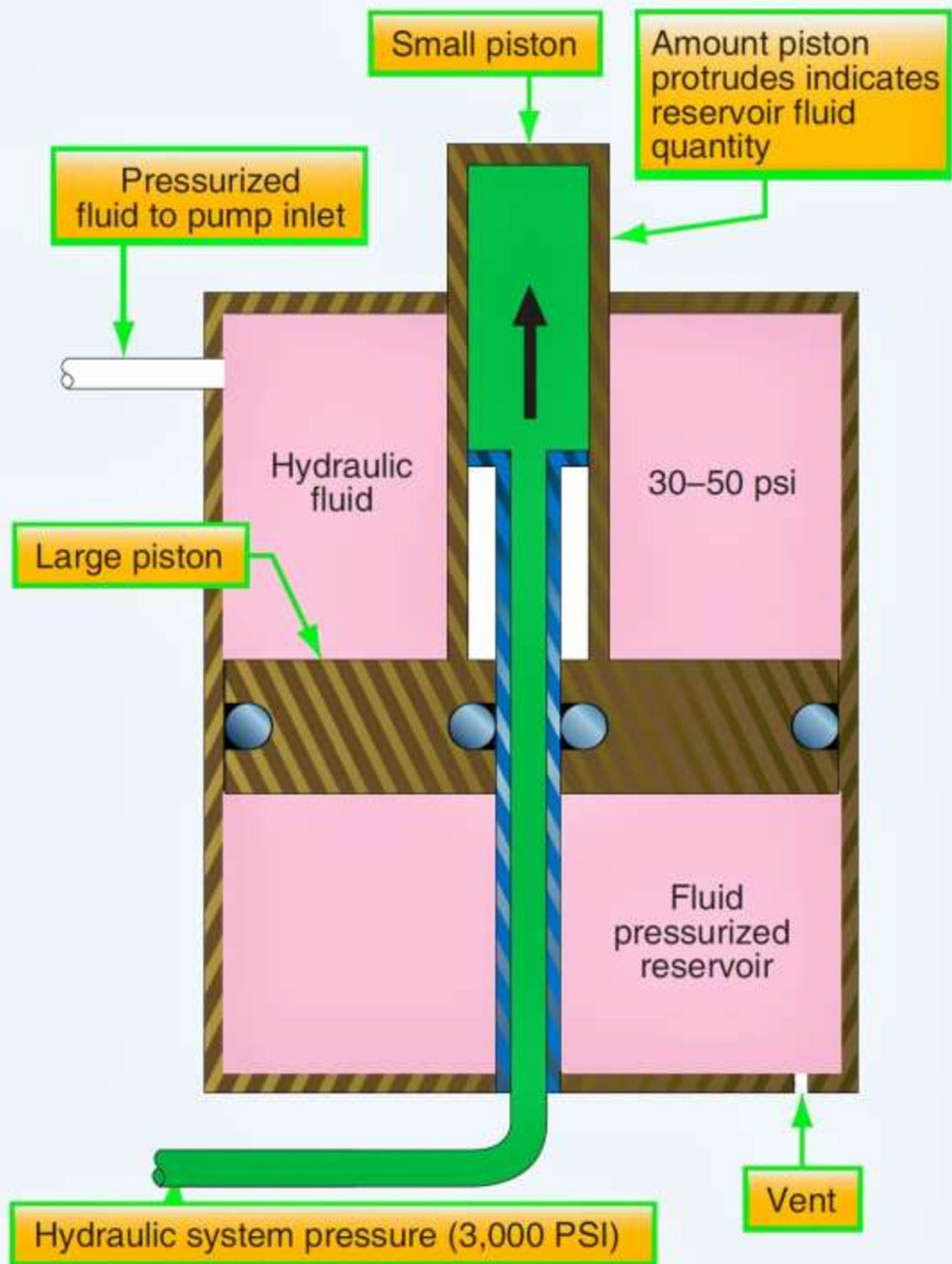
Pressurized Reservoir











Accumulators

What is the need of the Accumulator?

- ① **Dampen pressure surges** in the hydraulic system caused by actuation of a unit and the effort of the pump to maintain pressure at a preset level.
- ② **Aid or supplement the power pump** when several units are operating at once by supplying extra power from its accumulated, or stored, power.
- ③ **Store power for the limited operation** of a hydraulic unit when the pump is not operating.
- ④ **Supply fluid under pressure** to compensate for small internal or external (not desired) leaks that would cause the system to cycle continuously by action of the pressure switches continually kicking in.

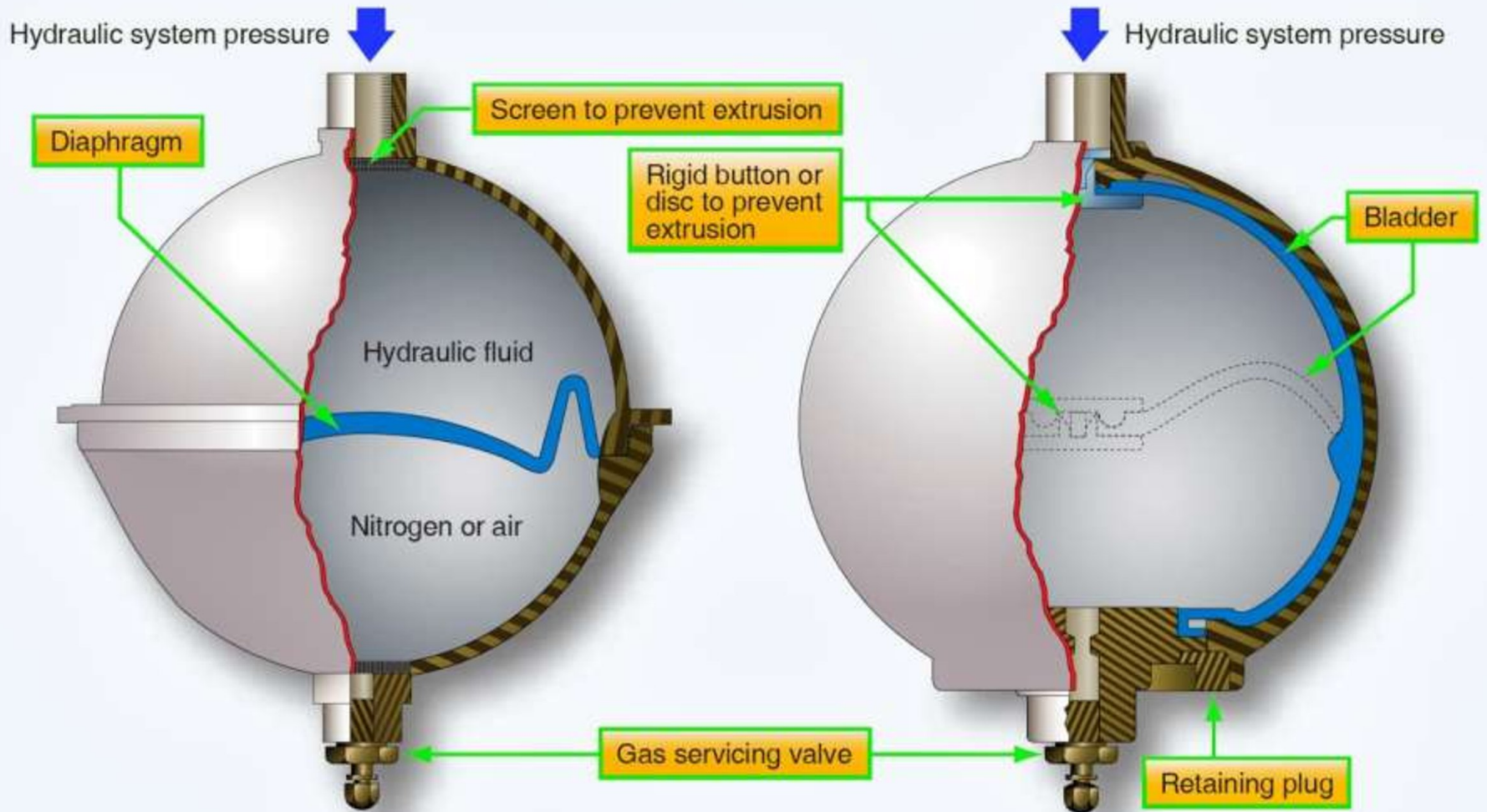
Types of Accumulators

1. Spherical and
2. Cylindrical.

1. Spherical Accumulators

- constructed in two halves that are fastened and threaded, or welded, together.
- Two threaded openings exist
- The top port accepts fittings to connect to the pressurized hydraulic system to the accumulator.
- The bottom port is fitted with a gas servicing valve, such as a Schrader valve.
- A synthetic rubber diaphragm, or bladder, is installed in the sphere to create two chambers.
- Pressurized hydraulic fluid occupies the upper chamber and nitrogen or air charges the lower chamber.

- ④ A screen at the fluid pressure port keeps the diaphragm, or bladder, from extruding through the port when the lower chamber is charged and hydraulic fluid pressure is zero.
- ④ A rigid button or disc may also be attached to the diaphragm, or bladder, for this purpose.
- ④ The bladder is installed through a large opening in the bottom of the sphere and is secured with a threaded retainer plug.
- ④ The gas servicing valve mounts into the retainer plug

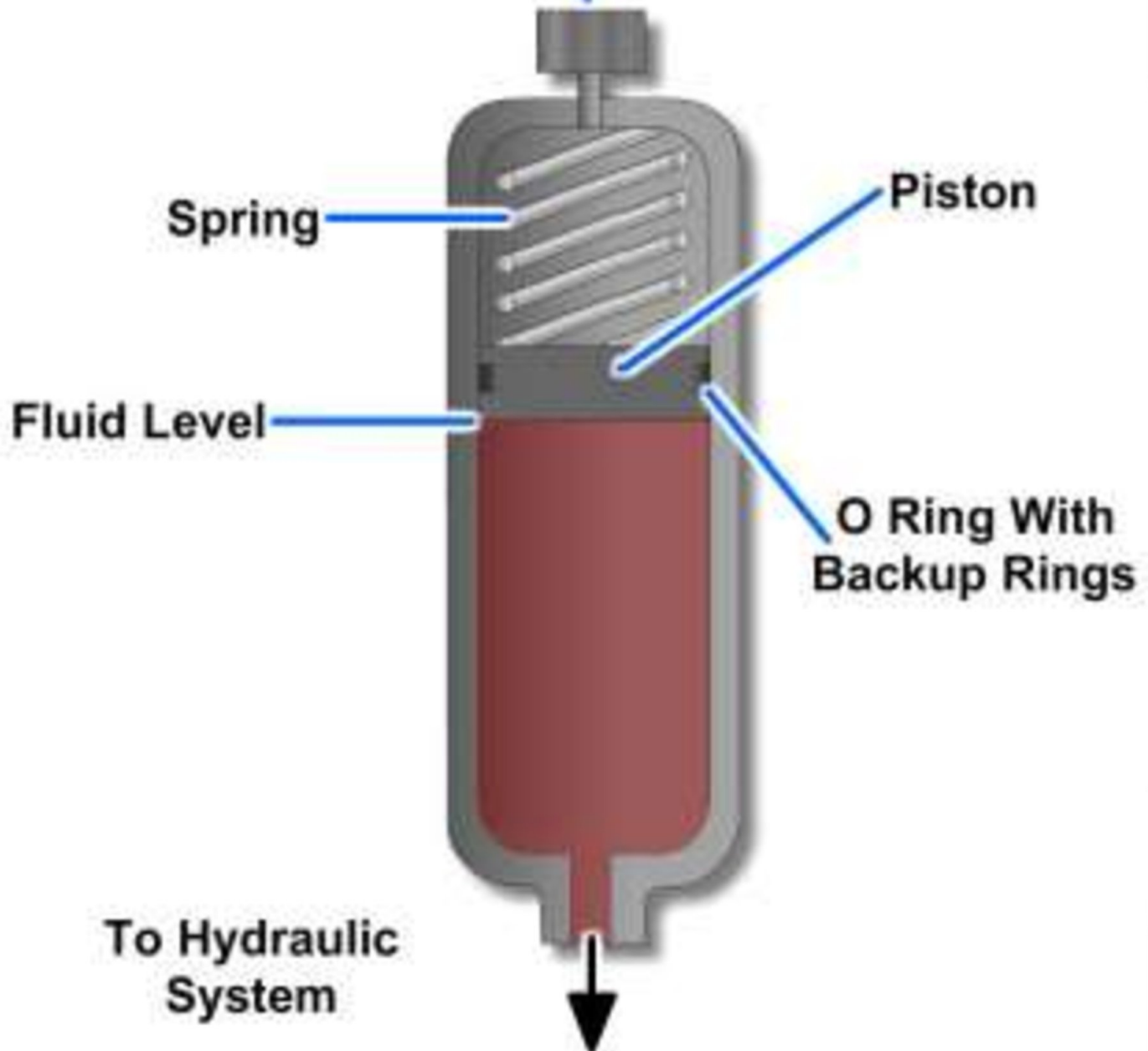


Cylindrical Accumulator

2. Cylindrical Accumulator

- Cylindrical accumulators consist of a cylinder and piston assembly.
- End caps are attached to both ends of the cylinder. The internal piston separates the fluid and air/nitrogen chambers.
- The end caps and piston are sealed with gaskets and packings to prevent external leakage around the end caps and internal leakage between the chambers.
- In one end cap, a hydraulic fitting is used to attach the fluid chamber to the hydraulic system.
- In the other end cap, a filler valve is installed to perform the same function as the filler valve installed in the spherical accumulator.

**Atmospheric
Air Filter**



Spring

Piston

Fluid Level

**O Ring With
Backup Rings**

**To Hydraulic
System**



Today's Amazing Fact???????

Bharat Need Rafale fighter plane because **It is only fighter which can carry Brahmos Missile.**



Any Questions?????



धन्यवाद

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