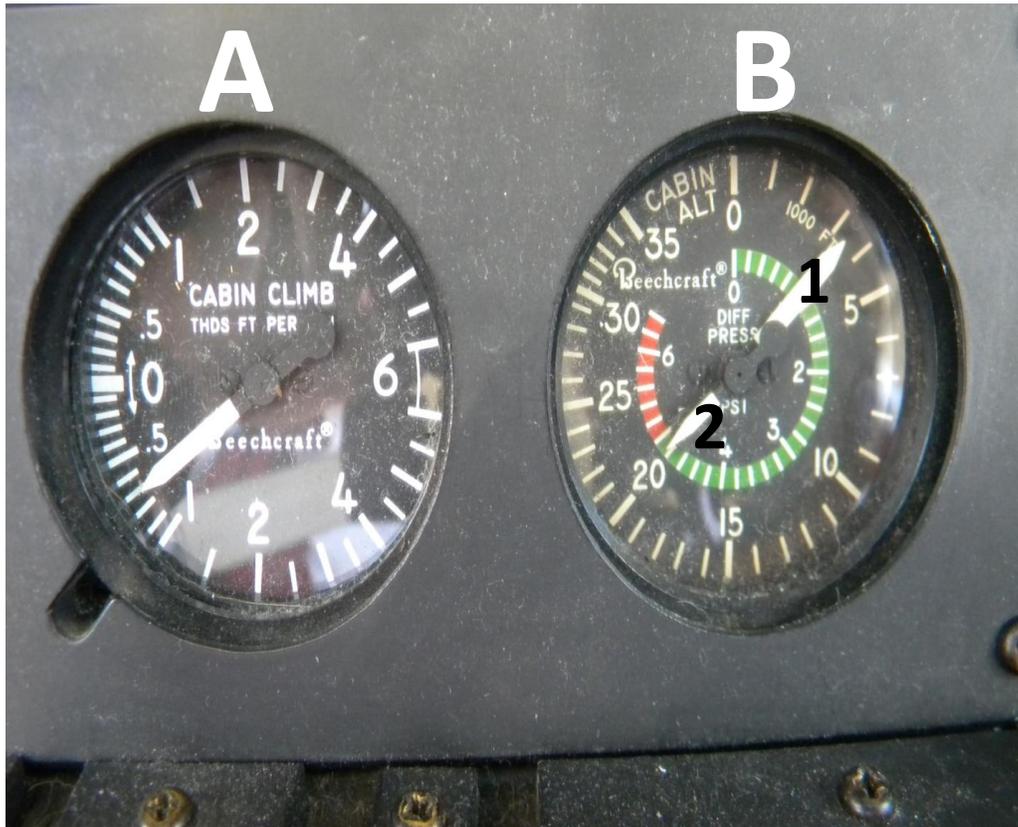


Practical Application of Pressurization Systems

Pressurization Instruments



- A. Cabin Rate of Climb Indicator – Similar to VSI, shows rate at which cabin altitude is climbing or descending (in this example the cabin is descending at 700 feet per minute).
- B. Cabin Altitude and Pressure Differential Indicator
 - 1. Outside ring (long needle) shows cabin altitude in thousands of feet (in this example cabin altitude is a little over 3,000 feet).
 - 2. Inside ring (short needle) shows the pressure differential in inches of mercury between the air in the cabin and the outside atmosphere (in this example, pressure differential is 4.8 inches)

Pressurization Controller Setting Prior To Takeoff



- A. Cabin Altitude Control – Prior to takeoff, set to 1,000 feet above cruise altitude on the inner ring.* The outer ring indicates what the cabin altitude will be when reaching cruise altitude. In this example the aircraft is climbing to 16,000 feet, so the altitude is set at 17,000 feet. The cabin altitude at cruise will be 4,100 feet.
- B. Cabin Rate of Climb/Descent Control: Usually set in the “12 O’clock” position which causes the cabin to climb at about ½ the rate at which the aircraft climbs.
- C. Cabin Pressure Dump Valve – Dumps cabin pressure

* Setting altitude 1,000 feet above cruise altitude will prevent the cabin from climbing or descending if the aircraft climbs or descends a few hundred feet when at max pressure differential. This prevents cabin pressure changes and discomfort the crew and passengers.

Pressurization Controller Setting Prior to Descent



- A. Cabin Altitude Control: Prior to descent, set to 500 feet above field elevation on the outer ring. In this example field elevation is 900 feet, so 1,400 feet is set on the outer ring.
- B. Cabin Rate of Climb/Descent Control: Set in the “12 O’clock” position. As the aircraft descends, the cabin will then descend at about 1/2 the rate of descent of the aircraft. When the aircraft arrives at 500 feet above field elevation the cabin and aircraft altitude will be the same and the cabin will be depressurized for landing.

NORMAL INDICATIONS

How do I know if the aircraft is pressurizing during climb? You should see that cabin rate of climb is less than aircraft rate of climb, cabin altitude is less than aircraft altitude and pressure differential is increasing.

How do I know if the aircraft is depressurizing during descent? You should see the cabin rate of climb showing a descent – about 1/2 of aircraft rate of descent. Cabin altitude should decrease accordingly. Pressure differential will slowly drop to zero. At 500 AGL cabin and aircraft altitude will be the same and pressure differential will be zero.

ABNORMAL INDICATIONS and ACTIONS

During climb, cabin rate of climb and aircraft rate of climb are the same. Cabin altitude and aircraft altitude are the same. Pressure differential remains at zero. The cabin is not pressurizing. Ensure pressurization source (bleed air valves or turbocharger) is activated. If pressurization source is activated and the cabin is not pressurizing, outflow valve is probably stuck open and you are flying an unpressurized aircraft. Supplemental oxygen must be used, or stay below 12,500 feet.

During cruise, cabin pressure differential goes above red line. Cabin altitude is less than indicated on the outer ring of the altitude controller. Cabin rate of climb shows a descent. The cabin is over-pressurizing. First, try setting altitude (inner ring) to a higher value. This will increase cabin altitude and lower pressure differential. If this does not work the outflow valve may be stuck closed. Don oxygen masks (crew and passengers). Deactivate the pressurization source (bleed air valve or turbocharger) if possible. Activate the cabin pressure dump switch to depressurize the cabin. If impractical to continue using supplemental oxygen, descend below 12,500 feet.

During cruise, you feel your ears popping. Cabin rate of climb and cabin altitude are increasing quickly. Pressure differential is quickly falling toward zero. The cabin is depressurizing. Don oxygen masks (crew and passengers). If impractical to continue using supplemental oxygen descend below 12,500 feet.