

MD-80 Systems

Bibliography: SAS AOM, Delta AOM, LSH AOM

Pneumatics

Which systems does the pneumatic system provide power for?

Four systems:

- Air Conditioning and Pressurization;
- Ice and Rain Protection;
- Engine Start;
- Potable Water Tank.

How many pneumatic systems does the aircraft have?

Two pneumatic systems that are interconnected.

How is crossfeed achieved

There is one crossfeed valve in each system

Which stages supply low and high pressure bleed air?

Low pressure is supplied by the 8th stage and high pressure is supplied under demand from the 13th stage.

Are both low and high pressure supply needed for normal operations?

Normally, low pressure is enough to supply normal operations. High pressure is supplied automatically when required through an augmentation valve.

How are the crossfeed valves normally operated on the ground?

They are normally open to provide bled air from the APU for normal engine start.

How are the crossfeed valves normally operated in flight?

They are normally closed, however they need to be open to provide bleed air supply for the airfoil anti-ice

What is the function of the augmentation valve during airfoil anti-ice system usage?

It works as a **temperature control valve** and responds to a thermostat in the anti-ice ducting.

Air Conditioning and Pressurization

What are the 3 possible sources of AC & P?

The engines, APU and ground supply.

How many AC systems does the aircraft have?

Two identical AC systems.

Are both systems required to pressurize the aircraft?

No, one system is sufficient to maintain the airframe pressurized

What are the required conditions for an auto-shutoff of the respective AC system for an engine fire?

Auto shutoff switch in AUTO position and ΔP less than 1.3 PSI.

How is cabin pressurization maintained?

Through automatic or manual regulation of the amount of air being let into the cabin by the AC system and the amount of air being let out by the outflow valve.

Where are the outflow valve controls and indications located in the MD-80 flight deck?

The yellow and black wheel in the throttle quadrant.

When do the pressure relief valves start to relieve pressure?

ΔP 7.95 - 8.27 PSI

What is the maximum limit of the pressurization system?

$\Delta P = 8.32$ PSI

How many pressurization systems does the aircraft have?

Two: one active, one standby. The systems are independent, alternate automatically between flights and are supplied by different electrical sources.

What is the maximum **normal** differential pressure and when is it normally reached?

$\Delta P = 7.7$ PSI, usually at FL320.