

BOEING 737-800

TECHNICAL REVIEW - CHAPTER 2

AIR CONDITIONING & PRESSURISATION

OVERVIEW

Bleed air supplies the following systems:

- Air conditioning
- Pressurisation
- Engine / Wing Anti-ice
- Engine Starting
- Hydraulic tank pressurisation
- Water tank pressurisation

Bleed air is supplied normally by the engine 5th stage low pressure area, additionally 9th when demand is high. Any over pressure or over temperature will cause the valve to close and illuminate the **BLEED TRIP OFF** light.

Duct Pressure is measured after the bleed air valve and before the pack valve.

ISOLATION VALVE

3 positions : - Close, isolates both sides of the bleed air system

- Auto, opens the valve if any bleed or pack switches are moved to OFF, otherwise valve is closed
- Open, isolation valve is open

OUTFLOW VALVE

Cabin pressurisation is controlled by the outflow valve. Maximum differential pressure is 9.1 psi.

The outflow valve can be controlled by 3 DC motors, 2 Automatic controlled and 1 Manually controlled.

There are 2 positive pressure relief valves, and one negative pressure relief valve.

PACKS

Air from the left pack is supplied to the flight deck, any excess air is returned to the mix manifold.

Air from the right pack supplies the mix manifold

The mix manifold air is then passed through the trim air system and distributed to the forward and aft cabin.

Trim air is used to adjust zone temperatures. The 3 zones are the flight deck, the forward cabin and the aft cabin.

If a pack is not operating, the other pack will regulate in high flow (except on ground or inflight with flaps extended)

If a pack fails or is turned off, the other pack will produce air to satisfy the coolest zone temperature demand.

If the trim air system is failed, each pack will operate in isolation of the other.

RECIRCULATION FANS

Recirculation fans reduce the load on the air conditioning system. Air from the cabin and E&E bay is drawn and circulated around the cargo bay before being filtered and returned to the mix manifold.

GROUND AIR SUPPLY

Ground air conditioning: feeds into the mix manifold, temperature control from the ground unit.

External air cart: feed into the pneumatic bay, permits engine air start, temperature can be controlled in flight deck.