# Aircraft SYSTEM PRESENTATION:

BASIC PRINCIPLE

Hot air coming from the air bleed system is flow regulated before entering the packs in order to be temperature regulated. Hot air pressure is maintained above the cabin pressure allowing the hot airflow to join the pack air supply when necessary. A part of cabin air is recirculated to decrease air supply demand.

NOTE: Note: The lavatories and galleys are ventilated with air coming from zones and main distribution ducts.

PACK UNITS

The airflow from the air bleed system is regulated by two pack Flow Control Valves (FCVs). Then two independent packs supply regulated temperature air to the mixer unit. Both packs supply air at the same temperature.

MIXER UNIT

The mixer unit mixes temperature-regulated air from the packs with part of the cabin air supplied by recirculated fans. The mixer unit may also receive conditioned air from a LP ground connection or fresh outside air from the emergency ram air inlet. The emergency ram air inlet supplies outside fresh air for ventilation of the A/C in emergency conditions when there is loss of both packs or smoke removal.

HOT AIR PRV

Hot air tapped upstream of the packs supplies the trim air valves through a hot air Pressure Regulating Valve (PRV). This valve regulates the downstream pressure above the cabin pressure.

HOT TRIM AIR

A trim air valve associated with each zone optimizes the temperature by adding hot air, if necessary, to the cold air coming from the mixer unit.

AIR DISTRIBUTION

The conditioned air is distributed to three main zones:

- cockpit,

- FWD cabin,

- aft cabin.

Normally the mixer unit lets the cockpit be supplied from pack 1 and FWD and aft cabins from pack 2.

LAV AND GALY VENTILATION

The Lavatory and Galley ventilation system uses air from the cabin zones. A fan extracts this air through the outflow valve.

NOTE: Note: The LAV and GALY extract air is also used to ventilate the cabin zone temperature sensors.

TEMPERATURE REGULATION

The pack outlet temperature regulation is automatic and controlled by the related Pack Controller (PC) which in turn is controlled by the Zone Controller (ZC). This optimizes the temperature regulation. Each zone and PC have one primary channel and one electrically independent secondary channel respectively called primary and secondary computers. The secondary computer acts as a back-up in case of failure of the primary computer.