G650 Air Conditioning System

- **Cockpit**: 71°F
- **FWD Cabin**: 73°F
- **AFT Cabin**: 70°F
Cool, conditioned, dehumidified Air

All cabin air is replaced with fresh air every two (2) minutes

Exhausted overboard

No air recirculation
Pneumatic System

Provides

High Pressure Air Temperature

(Bleed Air Manifold)

Air Conditioning System
Air Conditioning System

controls

quality and quantity of air entering vessel
Pressurization System

Controls

Cabin air exiting vessel via:

Thrust recovery:
Outflow valve
(TROV)

In order to achieve optimum cabin pressure
The Air Conditioning System has three (3) main functions:

1. *Airflow control for use by the Pressurization System*

2. *Cabin and Cockpit Temperature Control*

3. *Equipment cooling*
Air Conditioning Controllers (ACCs)

The Air Conditioning System is regulated by two identical and interchangeable microprocessors:

- Brains of the Air Conditioning System
- Located in the AEER near the BACs
The \text{ACC} \text{L} \text{ACC} \text{R} \text{ACC} make all the logical decisions associated with the \text{Air Conditioning System}.
Air Conditioning Packs

- Commonly referred to as Environmental Control System (ECS) packs

- The L Pack and R Pack are identical and are located in the tail compartment

- The L Pack and R Pack are pneumatically powered by High Pressure Air (5th or 8th stage bleed air) downstream from the Precoolers
The L Pack and R Pack produce:

Cool, conditioned, dehumidified air

Trim Air

Common Cold Air Manifold

35°F

Ozone Converter

Up to 400°F

Hot Air Manifold

L Pack Valve

R Pack Valve

High Pressure

Air

40 PSI
TEMPERATURE / ZONES

AUTO
60 - 90°F

MAN
35 - 230°F

3 X ZONES

Cockpit
71°F

FWD Cabin
73°F

AFT Cabin
70°F

Cold / Hot Knobs

Common Cold Air Manifold + Trim Air = Zone Temperature
ENGINE START

START MASTER  CRANK MASTER  R Pack
ON  OR  ON  =  OFF

L ENG START  R ENG START  L Pack
ON  ON  =  OFF

L/R ENG START COMPLETE

START MASTER  CRANK MASTER  R Pack
OR
ON  OFF  ON

L Pack
ON

MAXIMIZES AIR FLOW TO AIR TURBINE STARTER
**Main Entrance Door**

**MED Switch** selected closed

- **L Pack**: OFF
- **R Pack**: OFF

MED closed and locked > 10 seconds

- **L Pack**: ON
- **R Pack**: ON
RAM AIR

- RAM AIR intake is located on top of the fuselage and in front of the tail.

- Outside air forced into Dorsal Fin Air Intake in flight.

- Delivered via dual ducted plenum to:
  - Primary and secondary heat exchangers on L Pack, R Pack.

- Air enters through RAM AIR check valve.

- When selected on
  - Shuts off both packs.
  - TROV auto closes.
  - Check valve opens only when RAM AIR pressure exceeds cabin air pressure.
- Ram air is used:
  - Over pressurization due to loss of system control
  - Aircraft interior smoke removal
  - Ditching
Equipment Cooling Sub-system

The ECS packs provide airflow to equipment cooling fans for various sections of the aircraft that build up heat.

Two-speed fans (35K relay)
Cooling fans

LEER REER PDB

Personal Service Units (PSUs)

Low speed

High speed

> 35,000'

< 35,000'

High speed

Low speed
Single ECS Pack

1. Maximum Altitude

2. Maximum Wing Anti-ice ON

3. Bleed Air Manifold Set Point 35 Psi ± 3
Questions, comments or errors...please send me an email: ivan@code7700.com

Thank you!