G650 Air Conditioning System
G650 Air Conditioning System

Cool, conditioned, dehumidified Air

Exhausted Overboard

10,69 Psi

L Pack

R Pack

ECS
Pneumatic System

Provides

High Pressure

Temperature

Air Conditioning System
Air Conditioning System

Controls

Quality X Quantity of Air Entering Vessel
Pressurization System

Controls

Air exiting vessel via:

Thrust recovery outflow valve (TROV)

Pressure relief valve (PRV) (backup)

In order to achieve:

Optimum cabin pressure
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
Air Conditioning Controllers (ACCs)

- The **L ACC** and **R ACC** make all the logical decisions associated with the **Air Conditioning System**

![Diagram of Modular Avionics Units](image)

**Cockpit/Cabin Temperature**

- Cool, conditioned, dehumidified air

**Cockpit**

- Cool, controlled environment

**Knobs**

- Control temperature settings: **31°C, 33°C, 30°C**
ENVIRONMENTAL CONTROL SYSTEM (ECS)

Cool, conditioned, dehumidified Air

Common Cold Air Manifold

35°F

L Pack

R Pack

High Pressure Air

Up to 40 psi and 400°F
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

ON

OR

CRANK MASTER

ON

=

R Pack

OFF

L ENG START

ON

R ENG START

ON

=

L Pack

OFF

L/R ENG START COMPLETE

R Pack

ON

OR

CRANK MASTER

OFF

+=

L Pack

ON

PREVENTS LARGE PRESSURE BUMPS DURING ENGINE START
**Main Entrance Door**

- **MED Switch** selected closed
- **L Pack** OFF
- **R Pack** OFF

**When MED closed and locked for > 10 seconds:**
- **L Pack** ON
- **R Pack** ON
- Guarded Switch
- RAM Air Valve opens if outside pressure is greater than inside pressure
  - Ram Air Pressure ≥ Cabin Air Pressure
  - High To Low

- Unpressurized Flight (MEL)
Equipment Cooling Sub-system

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

L ACC  R ACC

Control

Cooling fans

Provide cooling to:

DU 1  DU 2  DU 3  DU 4

* LEER  Cockpit Center Pedestal  REER  *

PDB  PSUs  PDB  

Two-speed fans (35K relay)
Equipment Cooling Sub-system

**LEER/REER/PDB:**
- High speed < 35,000 feet
- Low speed > 35,000 feet

**PERSONAL SERVICE UNIT (PSU):**
- Low speed < 35,000 feet
- High speed > 35,000 feet

**Single ECS Pack**

1. **Maximum Altitude**
   - 48,000'

2. **Bleed Air Manifold Set Point**
   - 35 PSI ± 3 PSI

3. **Wing Anti-icing**
   - 41,000' (M0.85 Minimum)
Questions, comments or errors?
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Thank you!