G550 AIR CONDITIONING SYSTEM

Cockpit  FWD Cabin  AFT Cabin
71°  73°  70°
Cockpit  FWD Cabin  AFT Cabin
G550 Air Conditioning System

Cool, conditioned, dehumidified Air

10.17 Psi TROV

Exhausted overboard

L Pack

R Pack

ECS
Pneumatic System

Provides

High Pressure
Temperature

Air Conditioning System
Air Conditioning System

Controls

Quality and 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.
Environmental Control System (ECS)

Cool, conditioned, dehumidified Air

Trim Air

35°F

L Pack

R Pack

Common Cold Air Manifold

High Pressure

Temperature

Air

35°F

Up to 10 psi

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  OR  CRANK MASTER  =  R Pack

ON  OR  ON  =  OFF

L Eng Start  R Eng Start  =  L Pack

ON  ON  =  OFF

L/R Eng Start Complete  +  CRANK MASTER  =  L Pack

ON  OR  OFF  =  ON

* Prevents large pressure bumps during engine start
RAM AIR

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

Control

Cooling fans

Provide cooling to:

DU 1

LEER
PDB

Cockpit Center Pedestal

DU 2

LU 3

PSUs

DU 4

REER
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. **Internal Baggage Door Opening**
   - ≤ 45,000'
Questions, comments or errors?
ivan.luciani@ gmail.com

Thank you!