

AIR SYSTEMS

- Hot bleed air
- Cold air from fan / outside
- Cold air from packs
- Mixed conditioned air
- Cabin recirculated air

BLEED
Regulated pressure 44-52 psi

Leak detection
Single loop for pylon ducts.
Double loop for wing and APU ducts

Temperature control
200°C normal temperature
150°C if wing a/ice OFF and enough for zone controller demand

PACK CTL channels
1 failed => no effect
both failed => temp 1-15°C by anti-ice valve. no ECAM indication.
Flow 120% of NORM

ZONE CTL channels
1 failed => no effect
both failed => Packs deliver 20°C.
ECAM ind lost & display PACK REG

AIR CYCLE MACHINE failure
Pack operates in heat exchanger cooling mode in-flight only

HOT AIR VLV failure
failed open => no effect
1 vlv failed closed => no effect (X-hot)
2 vlv failed closed => reg by PACKS

TRIM AIR VLV failure
1 failed closed => half this zone lost
1 failed open => half each zone lost

ENGINE

RR RB 211 TRENT
Thrust 71100lbs = ~32.2t = ~28400HP
N1: FAN + 4 Turb, 100%=3300rpm
N2: 8 Comp + 1 Turb, 100%=7000rpm
N3: 6 Comp + 1 Turb, 100%=10600rpm
24 Fuel nozzles + 2 Igniters
Warm-up time 5' before T/O thrust
Cool-down time 1'

EIUs [DC BAT]

IGNITION A [AC ESS]

on gnd:
B ENG1 [AC1]
B ENG2 [AC2]

FADECs
N3>8% CHA [AC ESS]
N3>8% CHB [AC2]
N3>8% CH AB by own GEN

inflight:
B [AC ESS]

N1 MODE
A/THR & ALPHA FLOOR are lost. (JHA-J)

ALPHA FLOOR available and A/THR may be recovered if one ENG in unrated N1 mode (JHK-L)

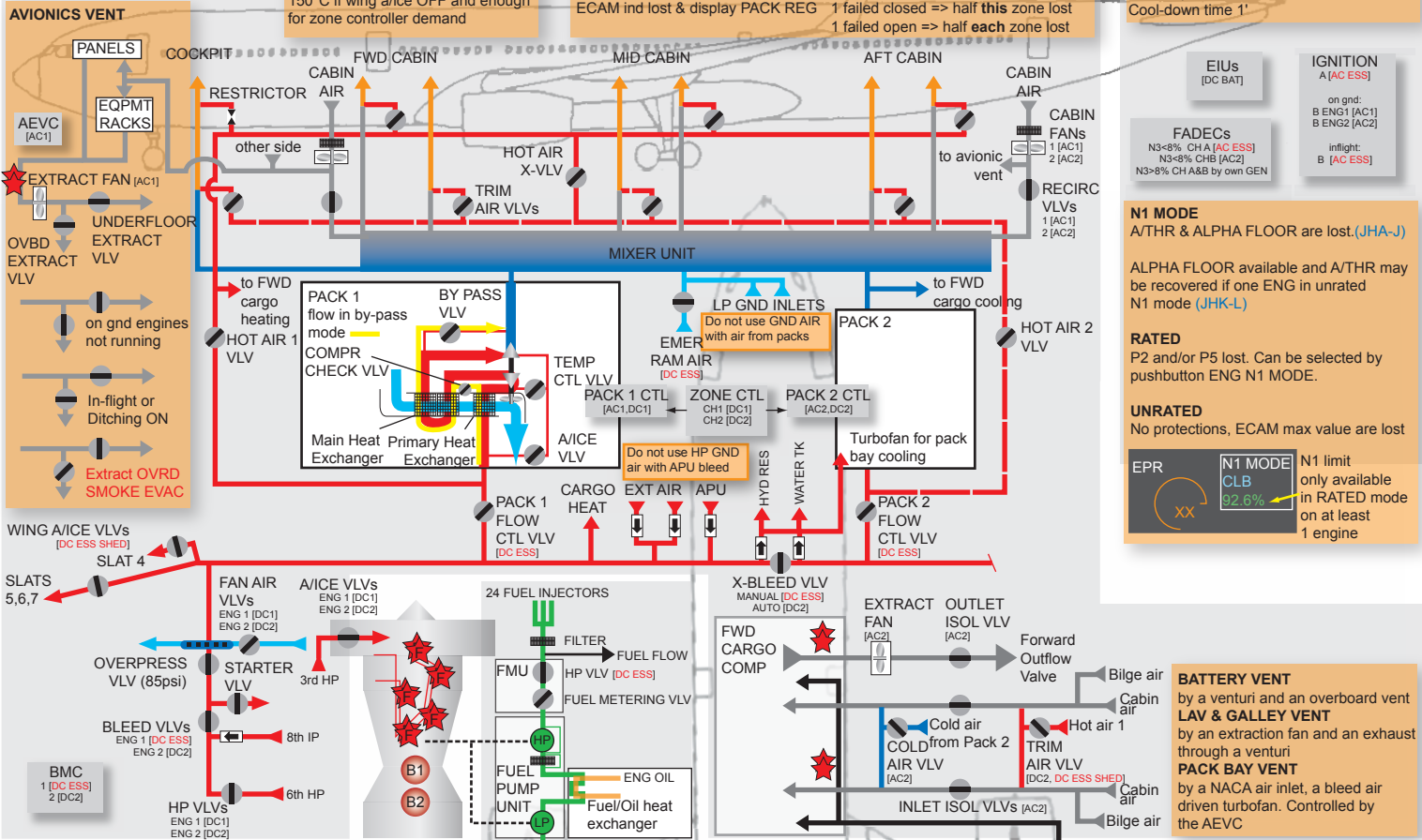
RATED
P2 and/or P5 lost. Can be selected by pushbutton ENG N1 MODE.

UNRATED
No protections, ECAM max value are lost

EPR [DC ESS]

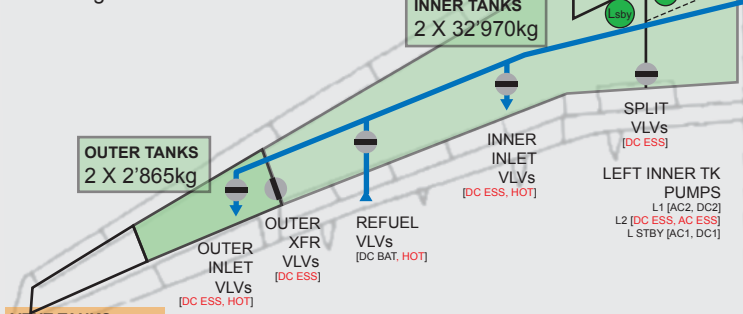
N1 MODE CLB 92.6%

N1 limit only available in RATED mode on at least 1 engine



FUEL
x/r / refueling / defueling lines
feeding lines

TOTAL TANKS CAPACITY (den 0.8kg/l)
78'024kg



VENT TANKS
accept 2% increase of full tanks capacity

OUTER TO INNER XFR
Each Outer TK cycle its Inner TK between 3500kg and 4000kg until it is empty. The valves then close after 5min. If no AUTO XFR available, manual xfr via refueling pipe and inlet valve possible.

LIMITATIONS
Take-off fuel: min 5200kg and WING TK LO LVL not displayed on ECAM

FUEL IMBALANCE

INNER TK	Full	max 2900kg
	Half	max 4800kg
OUTER TK	7500kg	max 7500kg
	Full	max 1480kg
	2400kg	max 1580kg
	1730kg	max 1730kg

FUEL TEMPERATURE
JETA A1 min -47°C max +60°C
JETA A min -40°C max +60°C

REFUELING
Distribution trim TK 2400kg if more than 36.5t FOB

FCMC 1 MAIN [DC ESS SHED] LVL Sensing [DC ESS SHED]

FCMC 2 MAIN [HOT] (refuel on BAT) LVL Sensing [DC ESS SHED]

CG CONTROL
AFT XFR starts if:
Gear up, Slats in, Trim TK not full, Inner > 6250kg, above FL255 and CG not on target

AFT XFR stops if:
CG = target CG - 0.5% or Trim TK full or Inner < 6250kg or FWD button pushed or MAN xfr outer-inner or center-inner.

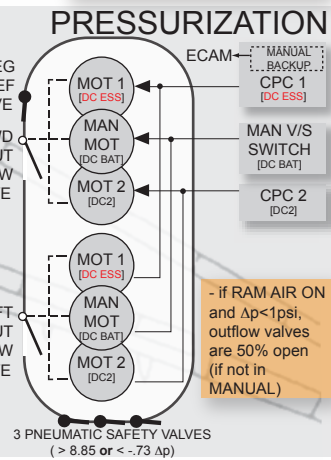
FWD XFR starts if:
CG = target inner = 4000kg

stops if:
CG = target - 0.5% inner = 5000kg
- 35' to dest or FL245 (or 75' if XFR PUMP u/s)
- in EMER ELEC

BATTERY VENT
by a venturi and an overboard vent

LAV & GALLEY VENT
by an extraction fan and an exhaust through a venturi

PACK BAY VENT
by a NACA air inlet, a bleed air driven turbofan. Controlled by the AEVC



FIRE PROTECTION & CARGO VENT

- SMOKE DETECTORS Type optical
- FIRE (HEAT) DETECTORS
- FIRE BOTTLES

ELECTRICAL SUPPLY
ENG loop A [DC ESS], loop B [DC2]
ENG BTL 1 squib A [HOT2], squib B [DC2]
ENG BTL 2 squib A [HOT1], squib B [DC2]
APU loop A [DC ESS], loop B [DC BAT]
APU BTL squib A [HOT1] squib B [DC BAT]
APU auto extinguish [HOT2]
CARGO squib A [HOT1], squib B [DC2]

APU LIMITATIONS

RPM	min 95%	max 107% (auto shut down)
running EGT		max 650°C
start EGT		max 1250°C

Minimum oil level for start: ADD at APU level indicator
Cooling after 3 start attempts: 60min
APU FUEL FLOW ~200 kg/hr

ENVELOPE
START with AC pwr up to 41'450ft
START with EMER ELEC pwr up to 25'000ft
BLEED ON 2 packs max 17'500ft, 1 pack max 22'500ft
BLEED ON for engine start max 20'000ft

A333 AIR/FIRE/FUEL/APU/ENG

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