

	AIR COND/PRESS/VENT VENTILATION		1.21.30	P 1
			SEQ 001	REV 09

GENERAL

The ventilation system includes ventilation for :

- the avionics,
- the batteries,
- the lavatories and galleys,
- the pack bay.

Note : *For a description of the cargo ventilation see 1.21.40.*

Two computers are provided :

- the Avionic Equipments Ventilation Controller (AEVC),
- and the Ventilation Controller.

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AVIONICS VENTILATION

GENERAL

The avionics ventilation system is fully automatic.

It cools the electrical and electronic components, in the electronic bay and flight deck (including the instruments).

It uses air recirculated from the cabin, and extracts air from the different panels and equipments racks.

MAIN COMPONENTS

THREE CABIN FANS

Three electric fans operate continuously, as long as the aircraft's electrical system is supplied. The fans operate at a variable speed, except when AIR FLOW MAN mode is selected. These fans can be simultaneously cut off via the CABIN FAN pushbutton.

Two of them circulate the air around the avionics equipment, but all three blow to the mixer unit of the air conditioning system through the recirculation valves.

RECIRCULATION VALVES

The recirculation valves are normally open, and are partially closed automatically by the ventilation controller, when both packs are OFF (provided CABIN FANS are ON) to ensure sufficient air flow to avionic.

EXTRACT FAN

The extract fan operates continuously, as long as the aircraft's electrical system is supplied, and it blows air through the underfloor extract or overboard extract valve.

UNDERFLOOR AND OVERBOARD EXTRACT VALVES

These valves are fitted with actuators, controlled by the Avionics Equipment Ventilation Computer (AEVC), or by the EXTRACT pushbutton from the flight deck.

Air is blown overboard through the overboard extract valve.

Through the underfloor extract valve, air is blown under the forward cargo compartment, then overboard through the outflow valve.

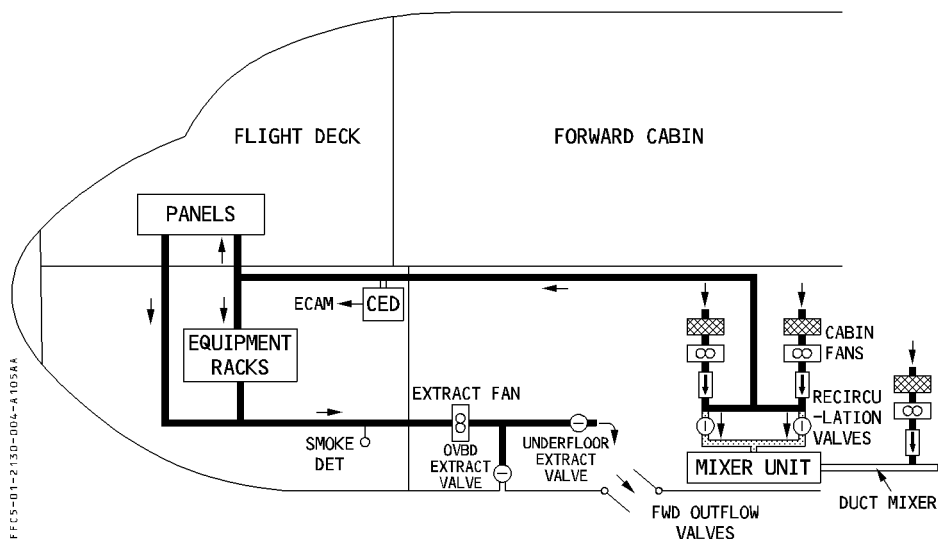
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COOLING EFFECT DETECTOR (CED)

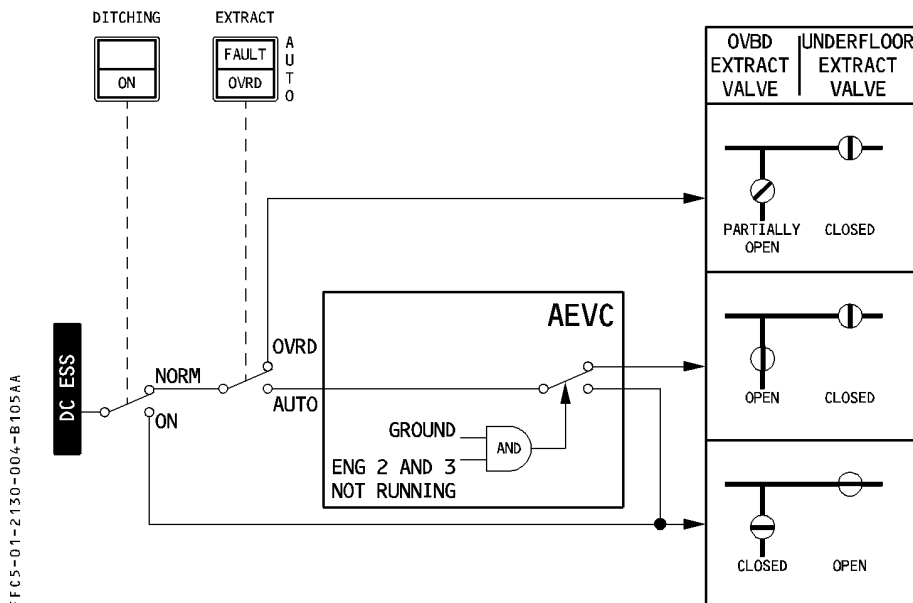
This detector triggers an ECAM caution when the cooling capacity (flow and temperature) of the blown air is abnormal. On ground, it also activates the external horn and the external warning light.

AVIONICS EQUIPMENT VENTILATION COMPUTER (AEVC)

The Computer controls the position of the INBD and OVBD valves.



FOR INFO



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SYSTEM OPERATION

The cabin and the extract fans operate continuously. Air, recirculated from the cabin, is provided to the avionics compartment and flight deck instrument panels.

Note : *In case of failure of two cabin fans, fresh air is blown from the packs.*

In normal operation, fresh air is blown by the extract fan :

- On the ground, engines not running : Through the OVBD extract valve (the underfloor extract valve is closed).
- In flight, or on ground, with inner engines running : Through the underfloor extract valve (the OVBD extract valve is closed).

If OVRD is selected on the EXTRACT pushbutton, air is blown through the OVBD extract valve which is partially open (the underfloor extract valve is closed).

When the DITCHING pushbutton is ON, the OVBD extract valve is closed, the cabin fans stop and the underfloor extract valve is open, whatever the position of the EXTRACT pushbutton.

AVIONICS GROUND COOLING

NOT APPLICABLE

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BATTERY VENTILATION

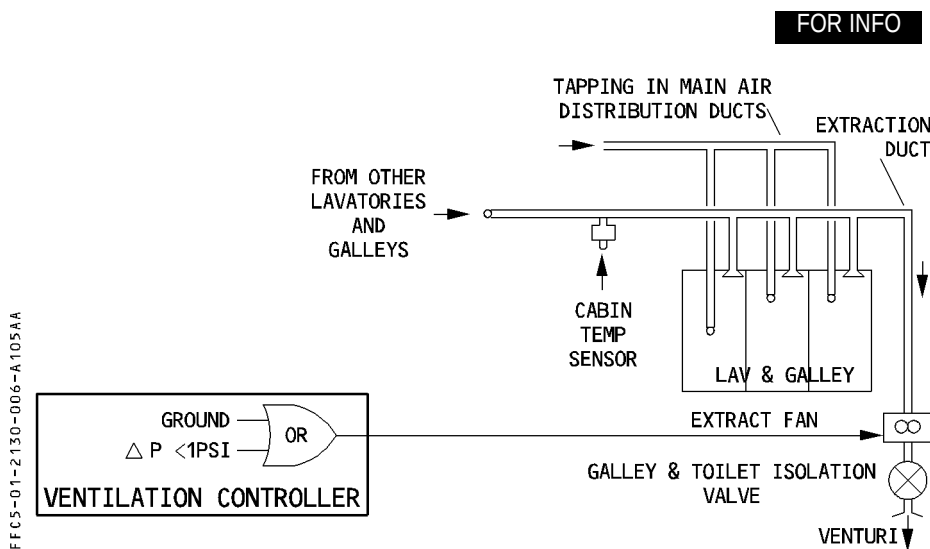
A venturi in the aircraft skin draws air from the space around the batteries and vents it overboard. The resulting airflow ventilates the batteries.

LAVATORY AND GALLEY VENTILATION

The lavatory and galley are ventilated with air from main cabin distribution system.

Air is discharged outside through a venturi. On ground, or when $\Delta P < 1$ psi, it is extracted by an electrical fan controlled by the ventilation controller.

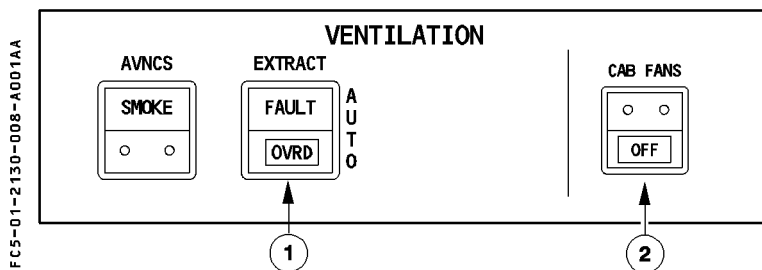
Ventilation of the cabin temperature sensors is connected to the extraction duct.



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CONTROLS AND INDICATORS

OVERHEAD PANEL



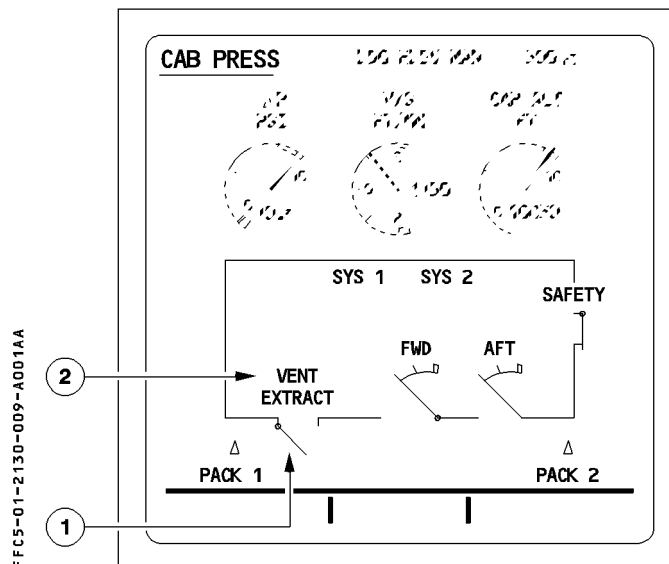
① EXTRACT pb

- AUTO** :
- On ground, with Engines 2 and 3 not running, the underfloor extract valve is closed and the OVBD extract valve is open, provided DITCHING is not selected.
- In flight, or on ground, with Engine 2 or 3 running, the underfloor extract valve is open and the OVBD extract valve is closed.
- OVRD** :
- The underfloor extract valve closes and the OVBD extract valve partially opens, provided DITCHING is not selected.
- FAULT It** :
- The amber light and associated ECAM caution come on, when an extract low flow is detected in the avionics compartment.
- The FAULT light goes out when OVRD is selected.

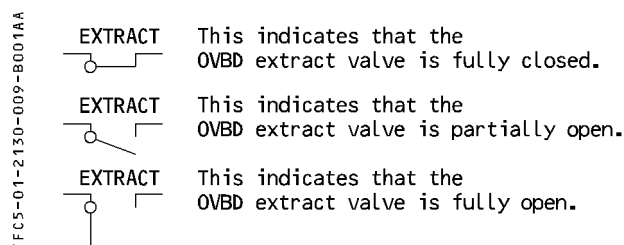
② CAB FAN pb

(Refer to 1.21.10)

ECAM CAB PRESS PAGE



①OVBD extract valve position indication



Normally, the EXTRACT indication appears in white and the valve symbol is in green. Both become amber in case of an abnormal position.

②VENT indication

This normally appears in white.
It becomes amber in case of extract low flow.



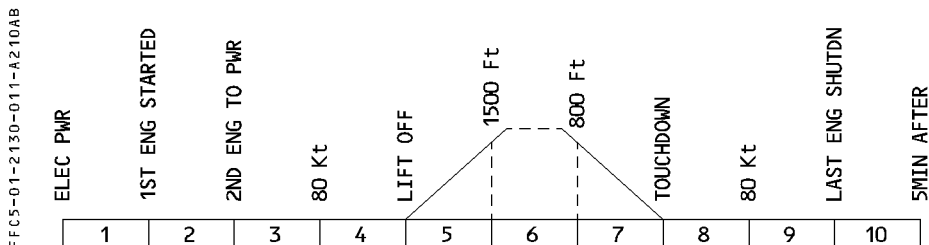
AIR COND/PRESS/VENT
VENTILATION

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WARNINGS AND CAUTIONS



E / WD: FAILURE TITLE conditions	AURAL WARNING	MASTER LIGHT	SD PAGE CALLED	LOCAL WARNING	FLT PHASE INHIB
BLOWING FAULT * Low cooling capacity detected by the CED.	SINGLE CHIME	MASTER CAUT	NIL	NIL	4, 5, 7, 8
EXTRACT FAULT * Low extract flow detected by the pressure switch.			CAB PRESS	EXTRACT FAULT light	3, 4, 5, 7, 8
OVBD VALVE FAULT Valve open at engine start, or not partially open after override.					
ONE CAB FAN FAULT Only one cabin fan is faulty.	NIL	NIL	COND	NIL	3, 4, 5, 7, 8
TWO CAB FANS FAULT Only two cabin fans are faulty.	SINGLE CHIME	MASTER CAUT	COND		4, 5, 7 8
CAB FAN VALVE FAULT	NIL	NIL	NIL		2 to 10
ALL CAB FANS FAULT All the cabin fans are faulty.	SINGLE CHIME	MASTER CAUT	COND		4, 5, 7 8
LAV+GAL VENT FAULT	NIL	NIL	NIL		2 to 9
PACK 1(2) VENT FAULT Low ΔP detected across the turbofan, with at least one pack in operation.	SINGLE CHIME	MASTER CAUT	BLEED		3, 4, 5, 6, 7, 8
LWR LAV+STW VENT FAULT	NIL	NIL	NIL		3, 4, 5 7, 8
VENT SYS FAULT Ventilation controller failed.	SINGLE CHIME	MASTER CAUT	COND		3, 4, 5, 7, 8
VENT CONT SYS 1 (2) FAULT Fault of lane 1 (2) deteted by the VC 1 (2).	NIL	NIL			3 to 8

* Associated with the ground external horn, triggered after a 5-minute time delay.