Appendix 2

Air-Conditioning: Air-Distribution Principle Sum-Up

EC130 / EC135 / EC145 / EC175 / AS365 N3 & EC155

Table of Contents

1 – Note Objective

In the context of Coronavirus crisis, the objective of this note is to sump-up the air distribution principle of the Air-Conditioning System (ACS) installed on EC130 (B4 and T2), EC135, EC145 family, EC175, AS365N3 / EC155 (Dauphin) and NH90.

2 - Acronyms

ACS	Air-Conditioning Systems
ECS	Environmental Control Systems
CHCU	Cooling and Heating Control Unit
HVAC	Heating, Ventilation & Air Conditioning
CK	Cockpit
CA	Cabin
SACS	Supplemental Air-Conditioning System
HC	Helicopter

3 – Clarification

- Fresh Air = external air = outside air : Means air coming from outside the helicopter
- Recirculated air : Means air coming from inside the helicopter

4-1– EC130 T2 with air-conditioning system

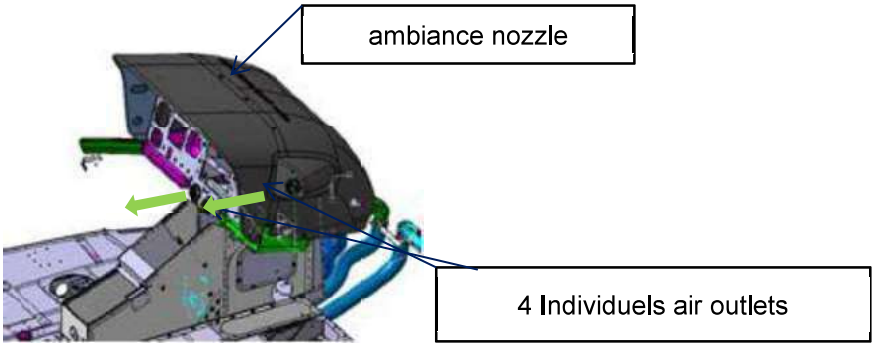
❖ Air-Distribution principle:

The air distribution is ensured by 2 fans, one for the cabin and one for the cockpit.

There are 2 flaps, one for the cabin and one for the cockpit. The 2 flaps operate in the same time and in the same position (fresh air or recirculation air).

Cockpit:

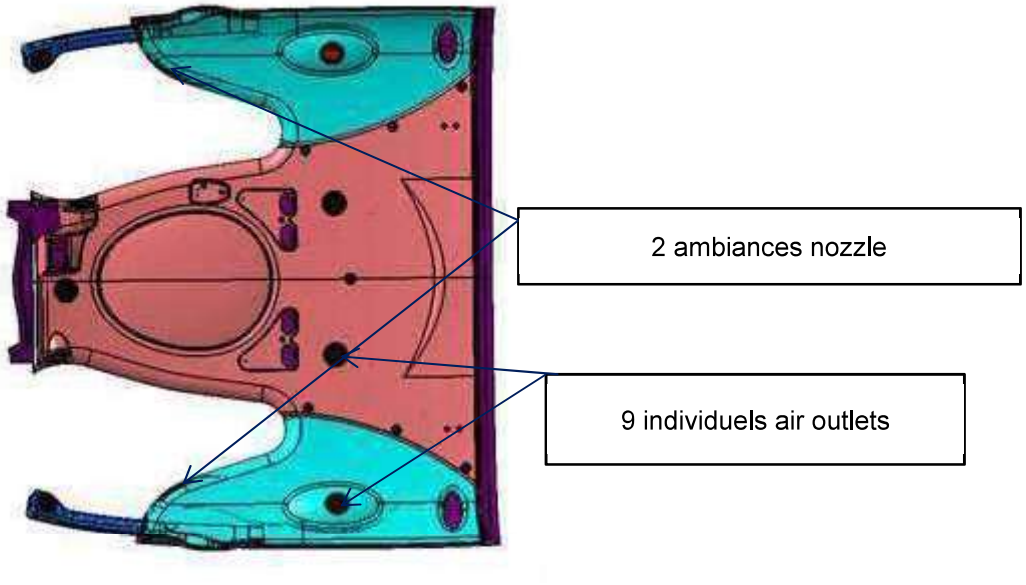
The air distribution on cockpit is assured by 4 individuals outlets and 1 ambiance nozzle:



⇨ Conclusion: Only fresh Air possible ?: Yes (see detail below)

Cabin:

The air distribution on cockpit is assured by 9 individuals outlet and 2 ambiances nozzle:



⇨ Conclusion: Only fresh Air possible ?: Yes (see detail below)

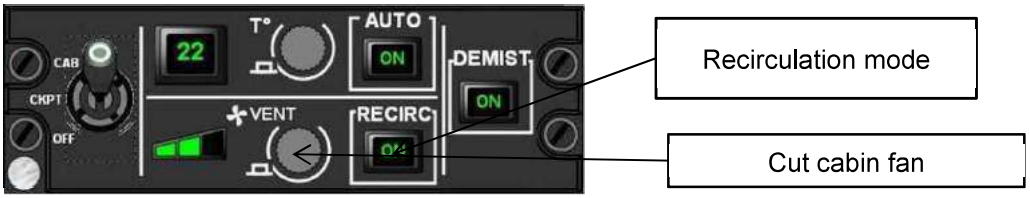
Minimise or avoid the circulation from Cabin to Cockpit:

⇨ Avoid: No

⇨ Minimise:

From the ACS control, turn-off the ventilation cabin area and put the control in fresh air .

You can also stop the cabin fan to avoid air recirculation from cabin to the cockpit.



Avoid to use the heating mode, because in this mode the CHCU put the system in recirculation mode, air comes from the recirculation box installed on the cabin area.

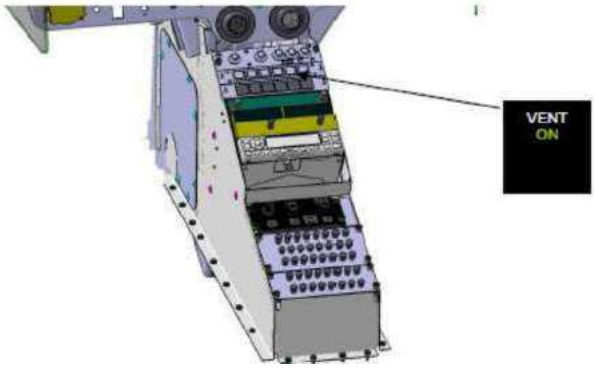
If you need heating capacity, use mainly the demisting mode, the air is taken from outside.

4-2– EC130 T2 without air-conditioning system

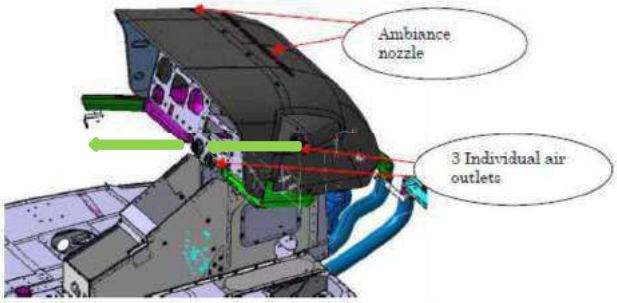
❖ Air-Distribution principle

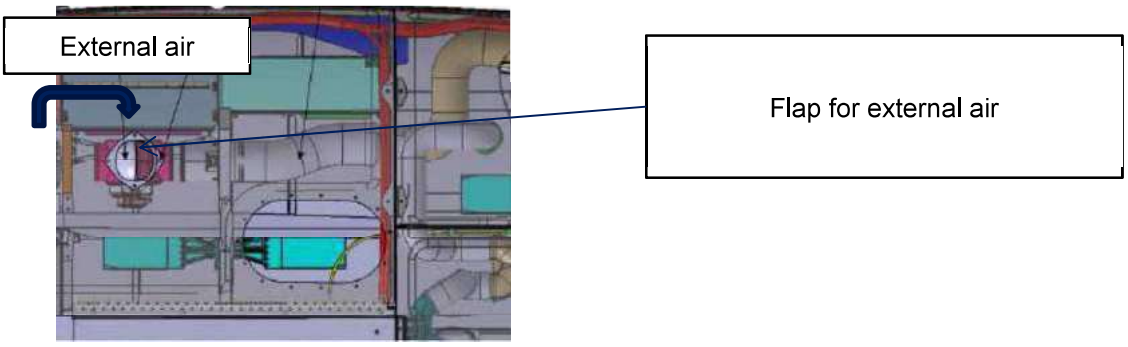
On the EC130T2 basic, only dynamic air: no fan. No H/C speed, no ventilation.

The pilot can choose the external air when the button is selected



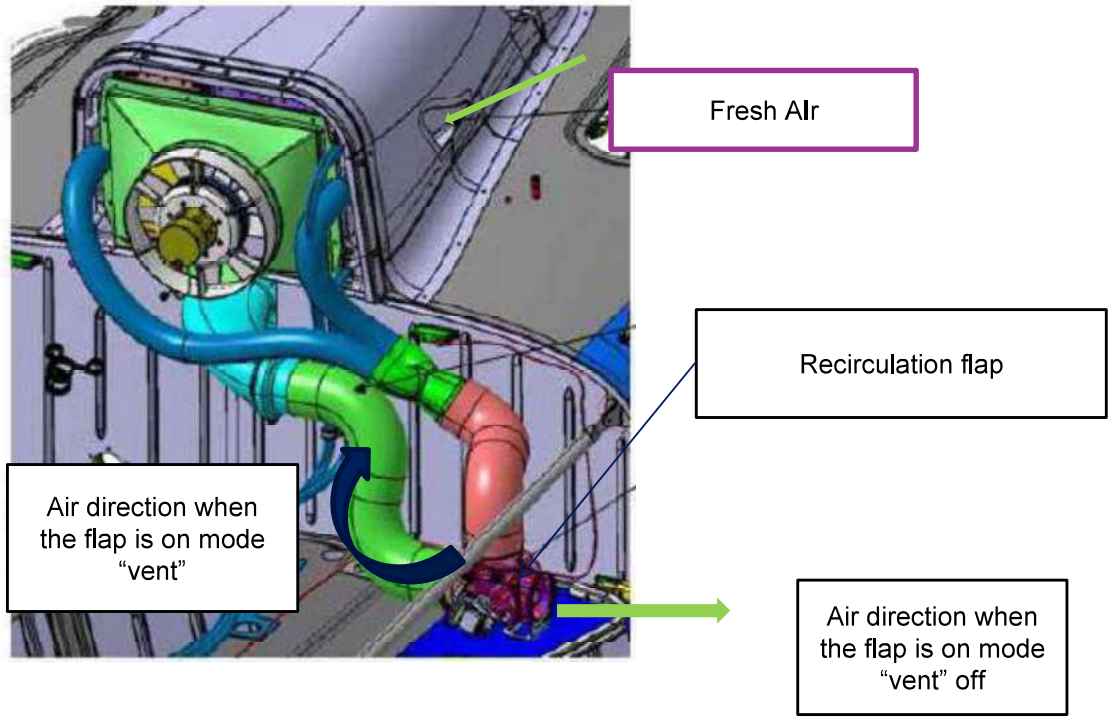
Cockpit:





⇨ Conclusion: Only fresh Air possible ?: Yes

Cabin:



The panel roof is identical to the air conditioning version.

⇨ Conclusion: Only fresh Air possible: Yes

Minimise or avoid the circulation from Cabin to Cockpit:

⇨ Avoid: No

⇨ Minimise: No (without hardware impact)

"Heating" and "Demisting" can be used because, in these two modes, the air comes from outside of the aircraft.

4-3 - EC130 B4 with air conditioning system

❖ Air-Distribution principle

Cockpit / Cabin :

1 circuit only.

The system only works in recirculation mode, the air is taken in the recirculation box installed on the rear bulkhead in the cabin area and the air is distributed by the roof panel for the crew and passages.

⇨ Conclusion: Only fresh Air possible: No

Minimise or avoid the circulation from Cabin to Cockpit:

⇨ Avoid: No

⇨ Minimise:

Some recommendations:

- Don't use the air conditioning system, use the bad weather window to have fresh air for the crew.
- In " Heating" or "Demisting" mode, the air is taken under the cabin floor (all fresh air)

4.4 - EC130 B4 without air-conditioning system

❖ Air-Distribution principle

The system has two modes:
- ⇨ Recirculation
- ⇨ External air

The flap manually operated is installed in the MGB compartment, the pilot before landing has to choose the mode (recirculation or external).

He has a button on the control panel installed on the roof panel to operate the fan (2 speeds).

⇨ Conclusion: Only Fresh Air possible ?: Yes

Minimise or avoid the circulation from Cabin to Cockpit:

⇨ Avoid: No

⇨ Minimise:

Some Recommendations
- ➢ Use the mode “external air”
- ➢ Close the cabin outlet to minimize the circulation between the 2 areas.
- ➢ In “ Heating” or “Demisting” mode, the air is taken under the cabin floor (all fresh air)