

## Sequences/scenarios of actions on oxygen mask and mask storage box

An MXP801 oxygen mask storage box equipped with an MF20-534 mask was supplied with 5-bar compressed air. The following actions were carried out:



- Seq.0 / Reproduction of the before flight oxygen system test procedure.
- Seq.1 / The mask EMERGENCY knob was pressed (2.6 s) after door was opened.
- Seq.2 / The mask EMERGENCY knob and the PRESS TO TEST pushbutton on the box door were simultaneously pressed (2.6 s).
- Seq.3 / The PRESS TO TEST pushbutton on the box door was pressed (2.6 s) with the mask knob in the EMERGENCY position.
- Seq.4 / With the mask knob in the EMERGENCY position, the door of the oxygen mask storage box was opened (2.6 s).
- Seq.5 / With the mask knob in the EMERGENCY position, the door of the oxygen mask storage box was opened and supplied with air for 2.6 s.

Each of these sequences was carried out with the oxygen dilution set to Normal (Test 8a). The sequences were then repeated with the dilution set to 100% (Test 8b).

**Result:** from an audio point of view - and in these test conditions - the actions on the oxygen assembly, whether it be pressing the EMERGENCY knob to carry out a mask test or pressing the PRESS TO TEST pushbutton on the box, or both, produce an audio event which differs in terms of the duration of the transient noise at the end of the oxygen flow (transient noise release) and the noise of bleeding of the system (reverberation). The acoustic signature of the leak produced during sequences 2, 3 and 4 was identical.

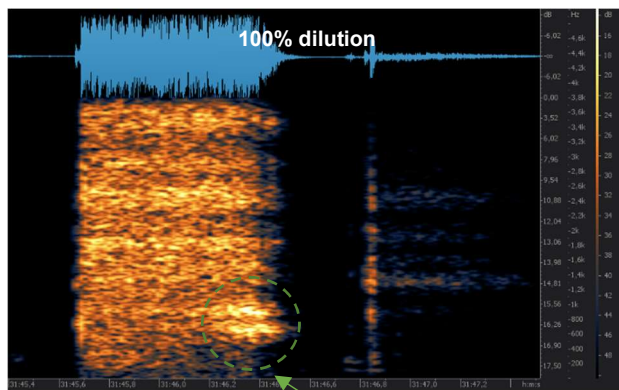
## Comparison\_\_\_\_Signature differences - Mask dilution set to 100% then normal



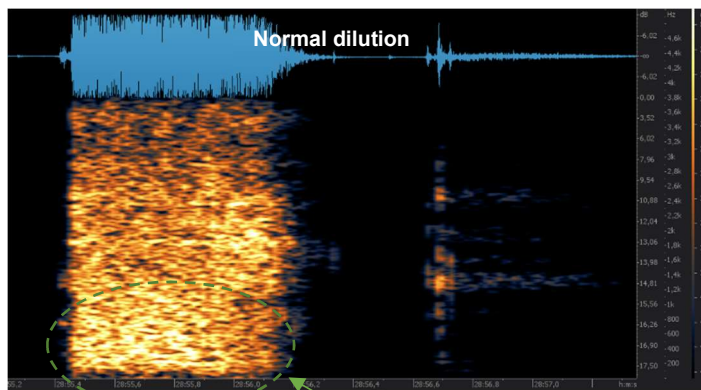
Box test control

Door Press To Test PB / pushbutton to obtain a temporary oxygen flow and to RESET after opening the oxygen box

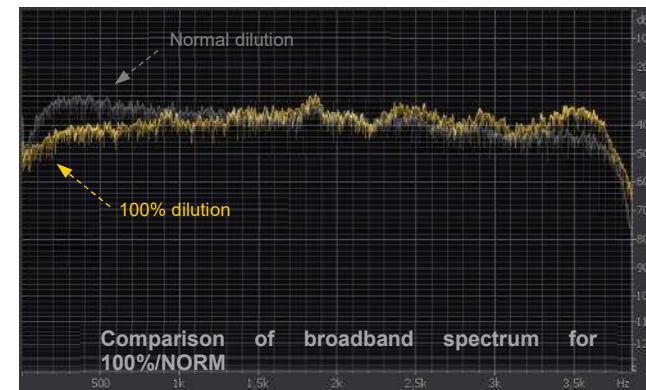
**Test procedure:** The Press To Test pushbutton on the left door of the oxygen mask storage box was pressed and held, and then released.



Short presence of two noise bumps (average 600 and 900 Hz) which appeared during the transient noise release, producing a hollow hiss. This signature was observed in all the tests carried out with the dilution set to 100%.



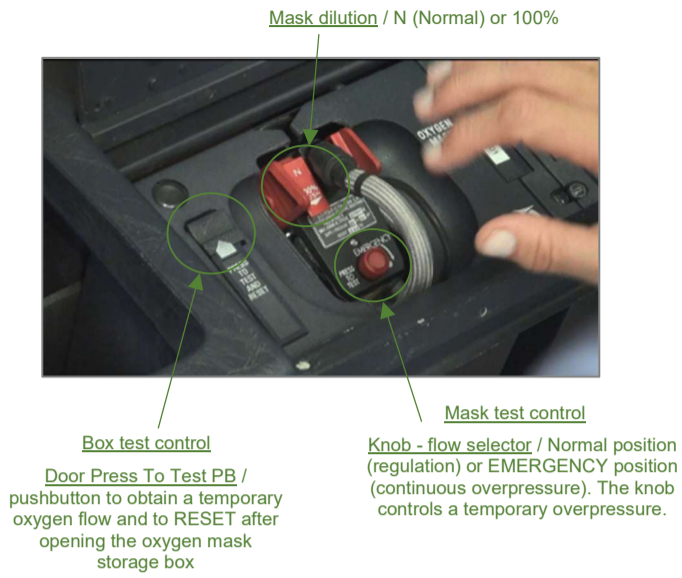
Low-frequency contribution to the spectrum. This contribution was observed in all the tests carried out with the dilution set to Normal.



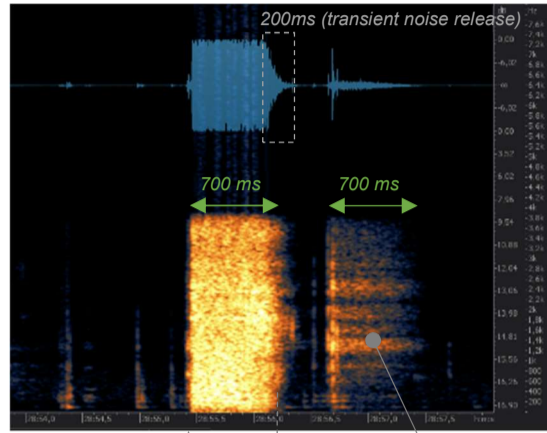
**Comparison \_\_\_\_\_ Spectrum of oxygen mask and storage box handling sequences**

**Test conditions:** the test sequences were carried out on an assembly composed of an MXP801 box and an MF20-534 mask. The assembly was supplied with air at 5 bar (an additional test on another model of box and mask gave different duration values).

Note: tests 8a (regulator set to NORMAL) and 8b (regulator set to 100 %) produced the same data in terms of the duration of the transient noise and reverberation (bleeding noise).

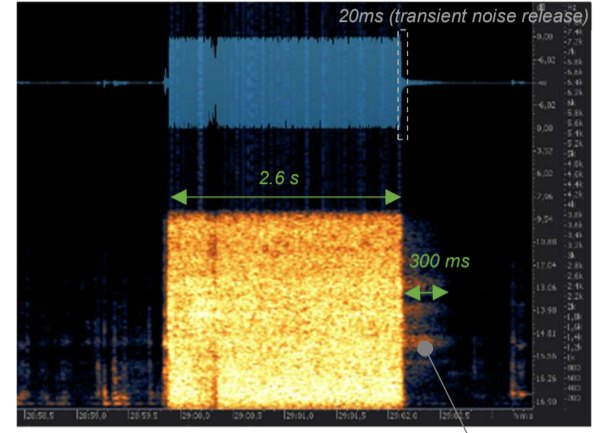


**Box Press To Test PB pressed and held / Mask set to Normal**



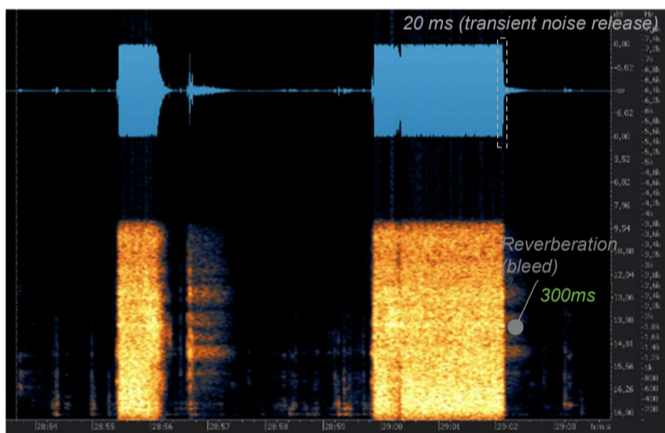
Door Press To Test PB pressed and held, Pressurization, System bleed (reverberation), Door Press To Test PB released

**Simultaneous pressing of box Press To Test PB and mask knob (EMERGENCY)**



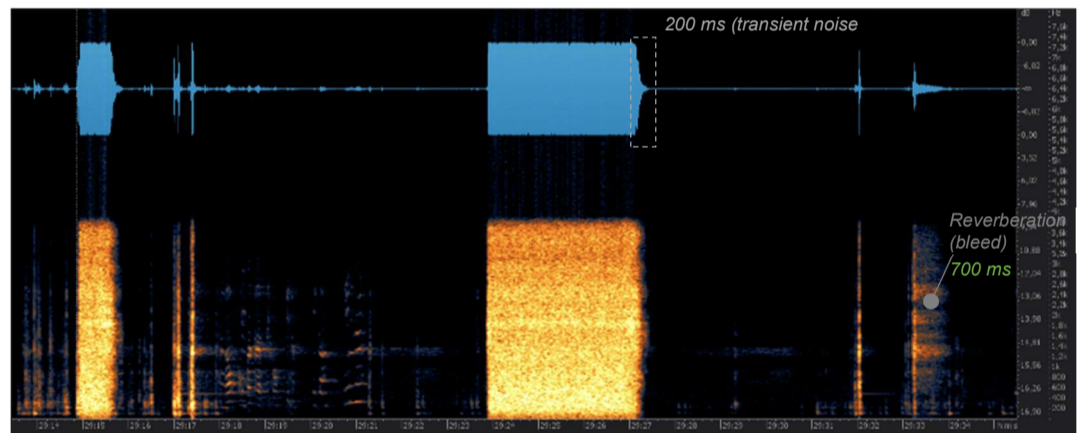
Door Press To Test PB and mask knob pressed and held, System bleed (reverberation), Door Press To Test PB and mask knob released

**Seq.0/** SOPs / Door Press To Test PB and mask knob pressed / released simultaneously



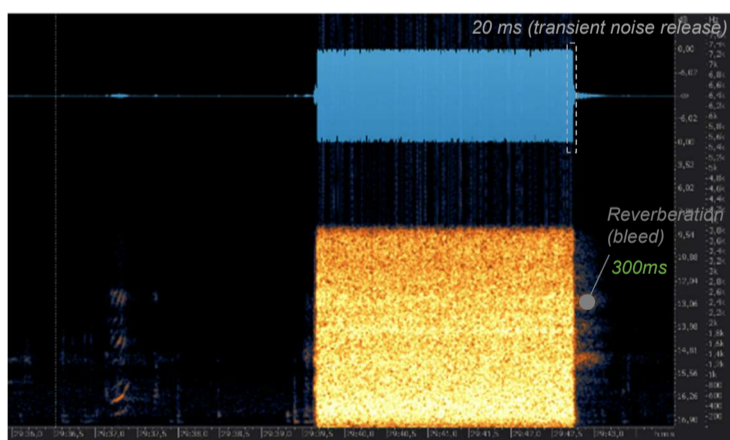
Door Press To Test PB pressed and released, Door Press To Test PB and mask knob simultaneously pressed (2.5 s), Door test PB and mask knob released

**Seq.1/** Door opened and then closed / Mask knob pressed (3s) then oxygen box reset



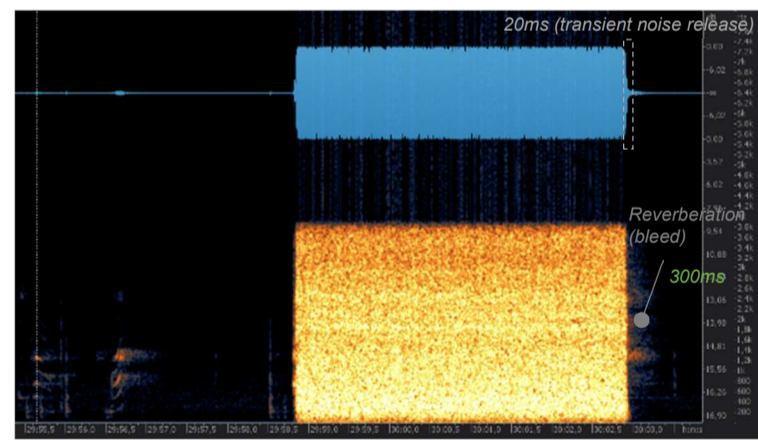
Door opened, Door closed (No reset), Mask knob pressed (3 s), Mask knob released, Door Press To Test PB pressed (Reset)

**Seq.2/** Door Press To Test PB and mask knob simultaneously pressed for 2.6 s



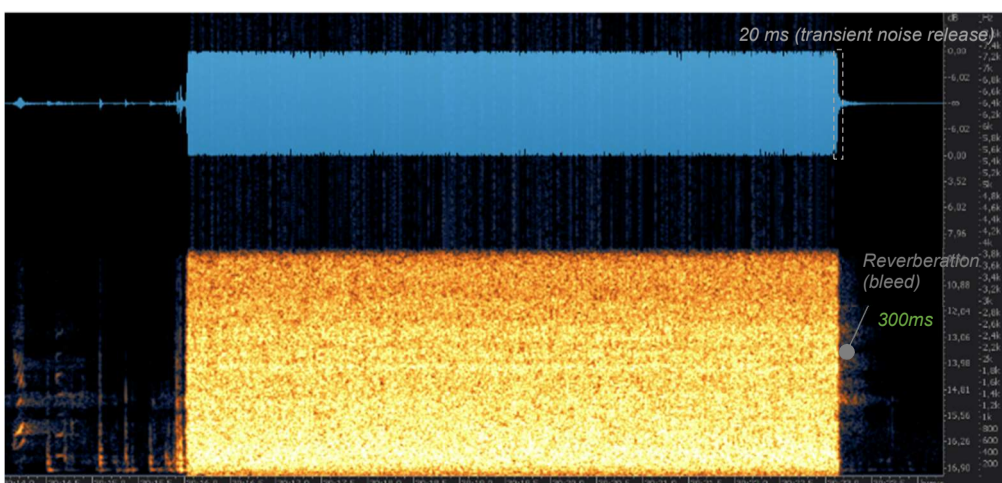
Door Press To Test PB and mask knob simultaneously pressed (2.6 s), Door test PB and mask knob released

**Seq.3/** Door Press To Test PB pressed for 2.6 s with mask in EMER



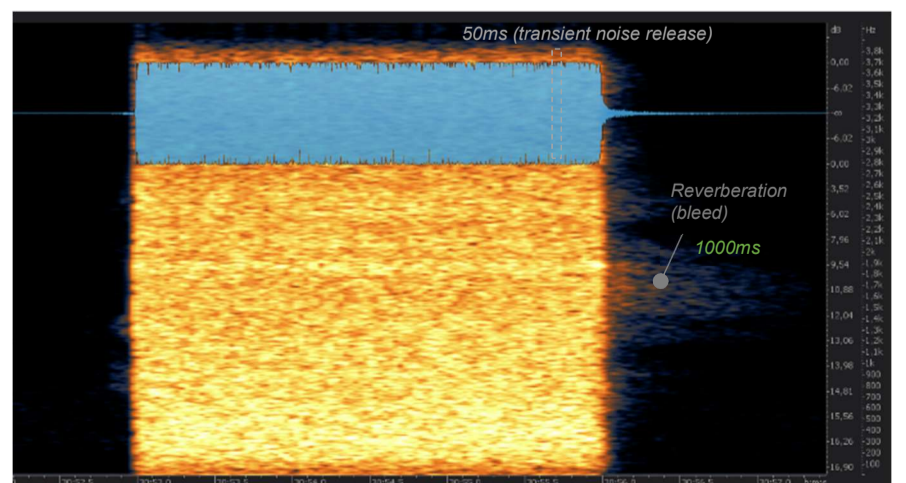
Door Press To Test PB pressed (2.6 s), Door Press To Test PB released

**Seq.4/** Door of mask storage box opened with mask in EMERGENCY position



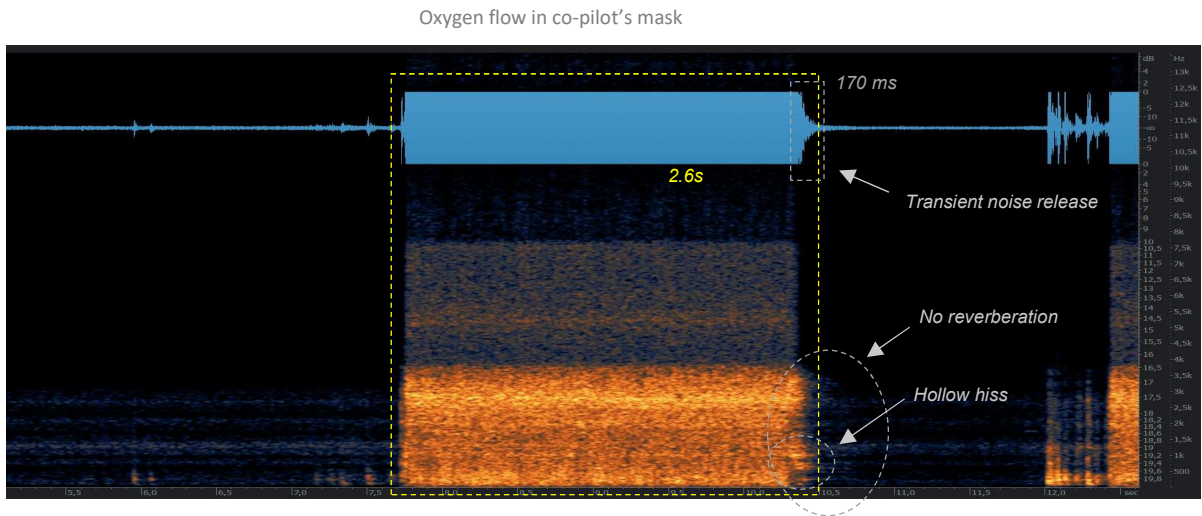
Oxygen box opened, Box reset (Press To Test PB) after closing door

**Seq.5/** Temporary oxygen supply (2.6 s via solenoid control\*) with door of mask storage box open and mask in EMERGENCY position



Solenoid valve ON (2.6 s), Solenoid valve OFF

## SU-GCC – CVR event sequence (first oxygen activity noise / co-pilot's mask)



Note 1: audio pick-up by oxygen mask microphone

Note 2: the co-pilot's fixed oxygen equipment on flight MS804 was composed of an MF20 oxygen mask and an MXP801 mask storage box.

### Synthesis

The flow time of 2.6 s indicates that oxygen was being expelled from the mask (via the regulator).

The duration of the transient noise release (200 ms) corresponds to the end of pressurisation to 5 bar of all the hoses upstream of the regulator:

- This is the case when the mask knob is not in the *EMERGENCY* position and the test pushbutton on the door of the oxygen mask storage box is pressed once.
- Or when the box is not reset after pressing the *EMERGENCY* knob of the mask.

The reverberation (bleed) corresponds to the evacuation of excess pressure.

- When the Press To Test button on the door of the storage box is released without the flow being evacuated via the mask regulator (700 ms).
- Or when the Press To Test button on the door of the storage box is released with evacuation via the mask regulator (300 ms).

The hollow hiss indicated that the co-pilot's mask was in the 100% oxygen position.