

SUBJECT : **Installation of a therapeutic oxygen system**

REQUIREMENTS incl. Amdt. : CS 25.1445(a), CS 25.1447(c)(1) Amendment 23

ASSOCIATED MOC¹ : Yes ☒ / No ☐

ADVISORY MATERIAL : AMC 25.1447(c)(1)

INTRODUCTORY NOTE:

The following Special Condition (SC) has been classified as important and as such shall be subject to public consultation in accordance with EASA Management Board decision 12/2007 dated 11 September 2007, Article 3 (2.) which states:

"2. Deviations from the applicable airworthiness codes, environmental protection certification specifications and/or acceptable means of compliance with Part 21, as well as important special conditions and equivalent safety findings, shall be submitted to the panel of experts and be subject to a public consultation of at least 3 weeks, except if they have been previously agreed and published in the Official Publication of the Agency. The final decision shall be published in the Official Publication of the Agency."

IDENTIFICATION OF ISSUE:

The Agency proposes a special condition for certification of an interior which includes the installation of a therapeutic oxygen distribution line which shares the same supply of oxygen with the passenger system for supplemental usage.

CS 25.1445 defines requirements for the design of oxygen distribution system when supplemental oxygen is provided to both the flight crew and passengers. However, there are no similar requirements when oxygen is supplied to passengers for supplemental usage during a cabin decompression event and to permit its use at any time during the flight for discretionary/first-aid/therapeutic scope.

This special condition addresses designs which provide supplemental and therapeutic oxygen to passengers from the same source and addresses the two following subjects:

- 1) Separation of passenger supplemental and therapeutic oxygen sources.

Therapeutic oxygen systems have been previously certified and were generally considered an extension of the passenger oxygen system for the purpose of defining the applicable regulations. As a result, the applicable regulations included those that applied to oxygen systems in general, or supplemental oxygen systems.

CS 25.1445 includes standards for oxygen distribution systems when oxygen is supplied to crew and passengers. If a common source of supply is used, CS 25.1445(a)(2) requires a means to separately reserve the minimum supply required by the flight crew. This requirement was included in CS 25.1445 when the regulations were

¹ In case of SC, the associated Interpretative Material and/or Means of Compliance may be published for awareness only and they are not subject to public consultation.

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codified and was originally added to CAR 4b.831 at amendment 4b-13, effective September 21, 1949. The regulation is intended to protect the flight crew by ensuring that an adequate supply of oxygen is available to complete a descent and land following a loss of cabin pressure. When the regulation was written, the only passenger oxygen system designs were supplemental oxygen systems intended to protect passengers from hypoxia in the event of a decompression. Existing passenger oxygen systems did not include design features that would allow the crew to offer oxygen to passengers during flight.

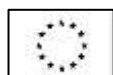
There are no specific regulations for this unusual/novel design features that address oxygen distribution systems intended to supply oxygen to passengers during a decompression as well as making the same supply available to passengers at the discretion of the flight crew during flight.

To ensure that a minimum level of safety is achieved for Aircraft oxygen design which utilise a therapeutic oxygen system to allow passenger use of oxygen during flight that is otherwise intended for supplemental purposes, special conditions (per point 21.A.16B) are needed which require the distribution system for those oxygen systems to be designed and installed to ensure the minimum supply required by the passengers for hypoxia protection is maintained during a decompression event.

2) Use of adequate oxygen dispensing units in case of cabin depressurization.

CS 25.1447(c)(1) prescribes the automatic presentation of oxygen masks in case of cabin decompression but does not consider there might be additional oxygen supply masks installed in the cabin for other purposes. For this unconventional use, special condition (per Point 21.A.16B) is needed to ensure that in case of cabin decompression and the therapeutic oxygen is in use by some occupant, he/she shall be aware of the need to change over from the therapeutic oxygen mask to the supplemental oxygen dispensing unit.

Considering all the above, the following Special Condition is proposed:



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Special Condition SC-F25.1445-01

Installation of a therapeutic oxygen system

1. When oxygen is supplied to passengers for both supplemental and therapeutic purposes, the distribution system must be designed for either:
 - i. A source of supplemental supply and a separate source for therapeutic purposes; or
 - ii. A common source of supply with means to separately reserve the minimum supplemental supply required for the passengers.
2. If any therapeutic oxygen system can be used by the occupants during the flight, means shall be provided to warn the occupant to use the supplemental oxygen mask in case of depressurisation instead of the mask connected to the therapeutic oxygen system.

Associated Means of Compliance

The associated Means of Compliance is published for awareness only and is not subject to public consultation.

In showing compliance to SC-F25.1445-01 (1)(ii) for designs with a common source of oxygen, the “means” to separately reserve the minimum supplemental supply required for the passengers should include physical means (i.e isolation valve) and may include monitoring procedures by the operator based on the minimum supplemental supply for the planned route, occupant count and segment of flight.

In showing compliance to SC-F25.1445-01 (2) the following may be considered:

- If Cabin Crew is required, procedures for use of therapeutic and supplemental oxygen shall be included in the Cabin Crew Operating Manual (CCOM).

or

- Pre-flight briefing must be provided to the passengers on the use of therapeutic oxygen and supplemental oxygen and
- Clear indications (e.g. oxygen mask drop down) must be provided to the passengers when supplemental oxygen shall be used.

