

SUBJECT : **Sailplane Sustainer Supported Aerotow**

REQUIREMENTS incl. Amdt. : **CS 22.51, 22.65, 22.151, 22.901, 22.1518, 22.1563 22.1581, 22.1583, 22.1585, 22.1587 amdt. 2**

ASSOCIATED IM/MoC¹ : Yes ☒ / No ☐

ADVISORY MATERIAL : **n/a**

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:


Sailplanes being towed by another aircraft is a usual take-off method, called aerotow. However, CS 22 covers only the case where any engine of the towed powered sailplane is not in operation and retracted, where applicable.

An applicant has applied to support an aerotow by having the engine of the towed sailplane in operation. This aims to increase the safety margin in terms of take-off distance and climb rate compared to the aerotow where the towed powered sailplane has its engine inoperative and retracted, if applicable. While no credit is taken for take-off and climb performance.

This scenario is called 'Sustainer Supported Aerotow'. The requirements of CS 22 do not address the case of Sustainer Supported Aerotow.

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

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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Special Condition “SC-B22.151-01” to CS 22.1581 Amdt 2

Sustainer Supported Aerotow

SC-B22.01 - Applicability:

The Special Condition is only applicable to powered sailplanes in sustainer supported aerotow operations with a controllable power of the propulsion.

SC-B22.02 - Performance

- a) It has to be demonstrated that the use of the propulsion of the towed sailplane has no negative impact on both the take-off distance and the climb rate of the towing combination (tow plane and towed powered sailplane) compared to the aerotow where the towed powered sailplane has its engine inoperative and retracted, if applicable.
- b) Credit shall not be taken for any performance increase by the use of the propulsion of the towed powered sailplane regarding both the take-off distance and the climb rate of the towing combination.

SC-B22.03 - Flight test

- a) The towed powered sailplane with its engine in operation must comply with CS 22.151 up to V_{TS} as specified in SC-B022.05.
- b) Flight testing referred to in a) has to cover engine failure of the towed powered sailplane during the different phases of the towing.

SC-B22.04 - Powerplant

- a) The operation of the engine must be allowed up to V_{TS} as specified in SC-B22.05
- b) There has to be a clearance between the propeller, if applicable, and the towing cable within the cone as specified in CS 22.581 (a).

SC-B22.05 - Operating Limitations


CS 22.1518 is amended by the following point:

- (c) a maximum airspeed for sustainer supported aerotow V_{TS} shall be established and shall be at least 20 km/h higher than the minimum recommended airspeed for aerotow at maximum take-off mass.

SC-B22.06 - Aircraft Flight Manual

- a) CS 22.1563 (b) - the maximum airspeed for supported aerotow V_{TS} is added to the paragraph.
- b) CS 22.1583 (a) (2) - V_{TS} is added to the paragraph.
- c) CS 22.1585 is complemented by the following points:
 - (o) The normal procedure for sustainer supported aerotow has to be established.
 - (p) the estimated impact to the performance of the towing combination (towing plane and powered sailplane) has to be established for the case of loss of power of the towed powered sailplane.
 - (q) Emergency procedures for engine failure of the towed powered sailplane in different phases of the towing shall be established.




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d) CS 22.1587 is amended by the following point:

- (d) Performance information shall state that there is no performance credit for sustainer supported aerotow operations.



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Associated Interpretative Material and Means of Compliance

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

Interpretative Material

1. Procedures of the Aircraft Flight Manual should address in particular:
 - a. Procedure and Checklist for engine starting on ground
 - b. Minimum powerplant temperatures for take-off
 - c. Minimum powerplant energy quantity (fuel, battery capacity) necessary for a sustainer-supported aerotow
 - d. The towing hook to be used for sustained supported aerotow
 - e. Recommended engine power settings during the different phases of the towing, in particular to prevent a slack towing cable.

Means of Compliance

2. AMC 22.1581 is amended in point 2.2:

V _{TS}	Maximum airspeed for sustained aerotow	Do not exceed this airspeed during sustained aerotow
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