



Request for Interpretation No. 94

of

AC Class Rule Version 1.8: November 18th 2016

Rule References:

12.9 A flap shall only rotate, or twist as a result of the differential rotation at the top and bottom of the flap, and:

- (a) that rotation shall be about the flap pivot points that shall be centered within 0.004 m of the **wing centerplane** and specified in Appendix E; and
- (b) the horizontal sectional shape of a flap shall not be adjusted.

No other flap movements are allowed, except for incidental movements caused by normal **wing** deformations while sailing.

Interpretation 28 (excerpt)

Except for the pivot points of the flap, which are defined by position only, competitors decide upon the devices required to control the aerodynamic surfaces of the wing. Control could include providing additional support to the flaps to maintain the IGES defined shape. Accordingly, a passive (applying no moment) hinge on the flap which “controls” the bending of the flaps is permitted.

Attention is drawn to Rule 12.9. which states that “A flap shall only rotate, or twist as a result of the differential rotation at the top and bottom of the flap”. The passive hinge shall be co-axial with the rotation of the flap pivot points.

Background:

Rule 12.9 requires flap twist to be induced by differential rotation of the top and bottom of the flap. Interpretation 28 permits a mid span hinge to control the “bending” of the flap, but reiterates that twist shall only be induced by differential rotation at the top and bottom of the flap.

An FEA analysis of a typical load case (16 knot true wind speed reaching case, which results in flap load of approximately 4kN) shows that the twist of a flap with and without a mid span hinge (co-linear with the axes of rotation at the top and bottom of the flap) differs by approximately one degree at mid-span. This contravenes Rule 12.9.

Questions:

- 1. If the addition of a mid span hinge, that complies with Interpretation 28, alters the twist distribution of the wing flap, is it permitted by the AC Class Rule.
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Preamble:

Interpretation 28 specifies conditions to be met by a midpoint hinge in order to be compliant.

Interpretation:

- 1. Yes. A mid point hinge complying with the requirements of Interpretation 28 complies with the **AC Class Rule**.

END

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