Review of Handicap Factors for FAI Club Class 2024

Report from Kai Rohde-Brandenburger

19.02.2024
Abstract:

This report is based on:
“Determination of new Handicaps for Evaluation of Gliders in Club Class” (Link) from 2017 from Kai Rohde-Brandenburger

4.2 Adjustment of Handicap Factors in the Future
The issue, that gliders are preferred because of their handicap factor given, should be avoided in the future.
No handicap factor can be completely fair. For this reason, the handicap factor should be reviewed and adjusted based on competition results and pilot statements. It should be noted, that this should only be applied to avoid having a special type of aircraft dominate the clubclass.
Actual Situation

• Order from the 2023 IGC plenary meeting to review the IGC club class handicap
• The chosen sailplanes for international competitions are mostly flapped types with high handicap
• The mean-handicap in competitions raised significantly over the last years
• The gliders with lower handicaps seem to be uncompetitive against the flapped ones

→ see slide/page #4
<table>
<thead>
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<tbody>
<tr>
<td>1.</td>
<td>LS3 (1.049)</td>
<td>ASW20 (1.052)</td>
<td>LS7 (1.031)</td>
<td>LS1-d (98)</td>
<td>LS7 (1.031)</td>
<td>ASW20 (1.052)</td>
<td>Std.Libelle (0.985)</td>
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<td>2.</td>
<td>LS3 (1.057)</td>
<td>ASW20 (1.056)</td>
<td>ASW24 (1.054)</td>
<td>Std.Cirrus (100)</td>
<td>ASW20 (1.055)</td>
<td>ASW20L (1.055)</td>
<td>LS4 (1.037)</td>
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<td>3.</td>
<td>LS3 (1.053)</td>
<td>LS7 (1.024)</td>
<td>LS3 (1.057)</td>
<td>Std.Cirrus (100)</td>
<td>ASW20 (1.053)</td>
<td>LS4a (1.022)</td>
<td>Std.Libelle (0.98)</td>
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<td>4.</td>
<td>ASW20CL (1.057)</td>
<td>LS7WL (1.028)</td>
<td>LS4b (1.029)</td>
<td>LS4 (103.6)</td>
<td>ASW20F (1.056)</td>
<td>LS4bneo (1.029)</td>
<td>Std.Cirrus (1.00)</td>
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<td>5.</td>
<td>ASW20L (1.052)</td>
<td>LS3a (1.045)</td>
<td>LS3 (1.049)</td>
<td>Std.Cirrus (100)</td>
<td>ASW20 (1.055)</td>
<td>ASW20 (1.059)</td>
<td>DG101G (0.992)</td>
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<td>6.</td>
<td>LS3WL (1.057)</td>
<td>LS4b (1.029)</td>
<td>LS11 (1.005)</td>
<td>Hornet (100)</td>
<td>LS4b (1.029)</td>
<td>LS4a (1.022)</td>
<td>Std.Cirrus (0.992)</td>
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<td>7.</td>
<td>LS3 (1.053)</td>
<td>LS7 (1.024)</td>
<td>Std.Cirrus (1.0)</td>
<td>Std.Libelle (98)</td>
<td>ASW24 (1.051)</td>
<td>ASW20 (1.052)</td>
<td>Std.Libelle (0.985)</td>
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<td>8.</td>
<td>LS7neo (1.034)</td>
<td>LS4 (1.022)</td>
<td>Pegase101 WL (1.019)</td>
<td>Std.Cirrus (100)</td>
<td>LS4 (1.025)</td>
<td>LS7WL (1.031)</td>
<td>Std.Cirrus (1.00)</td>
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<td>9.</td>
<td>ASW20 (1.059)</td>
<td>ASW20 (1.055)</td>
<td>LS1f (1.009)</td>
<td>LS1f (101)</td>
<td>MiniNimbus (1.034)</td>
<td>LS4a (1.025)</td>
<td>Std.Cirrus (1.00)</td>
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<td>10.</td>
<td>LS7 (1.038)</td>
<td>LS4 (1.029)</td>
<td>SZD55 (1.03)</td>
<td>Std.Cirrus (100)</td>
<td>ASW20F (1.052)</td>
<td>LS3 (1.049)</td>
<td>LS1f (1.006)</td>
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</tbody>
</table>

| Ø | 1.051 | 1.0364 | 1.028 | 1.0006 | 1.044 | 1.0396 | 0.9977 |

**Fig 1:** Mean handicap of first 10 gliders in competitions raised significantly
3.3 Decrease of Handicap Spread

“The spread of the calculated cross country speeds is higher than before, due to the new thermal models with higher climb rates and the resulting higher interthermal speeds. …”

“This problem is caused by the big difference in performance in this handicaped class. To take this effect into account, a factor was created to decrease the spread to values lower than before.”

\[ H_{spread} = H^{0.5} = \sqrt{H} \]

, the actual “Spread factor” is 0.5.

Changes in spread factor will change the complete handicap list consistant over all gliders.

\[ \rightarrow \text{ adjustment of spread factor if change of all handicaps is wanted} \]

4.2 Adjustment of Handicap Factors in the Future

“The issue, that gliders are preferred because of their handicap factor given, should be avoided in the future. No handicap factor can be completely fair. For this reason, the handicap factor should be reviewed and adjusted based on competition results and pilot statements. It should be noted, that this should only be applied to avoid having a special type of aircraft dominate the clubclass”

\[ \rightarrow \text{ adjustment of single handicaps if handicap of few glider is wrong} \]
**Recommendation**

- Change in spread factor; slightly higher than before (0.5 → 0.6)
  - higher spread over all gliders
- Flapped gliders are increased by additionally 0.0075
  - better climbing compared to non flapped gliders
  - higher reference mass and higher wing loading due to given formula for flapped gliders
- Complete spread of the IGC handicap List would then go from 0.988 to 1.080

**Handicaps with spread factor 0.6 and addition of 0.075 for flapped gliders**
Recommendation

- Change in spread factor; slightly higher than before \((0.5 \rightarrow 0.6)\)
- Flapped gliders are increased by additionally \(0.0075\)
- Complete spread of the IGC handicap List would then go from \(0.988\) to \(1.080\)