

HC adjustment suggestions to complete the standardization of FAI IGC 2012 new reference masses initiative.

Prelude

1. In January 2012, IGC decided to review Club Class Handicaps based on a proposal (study) made by R. Stuck.
2. Also stated, that there might be a need to adjust HCs, based on new reference masses.
3. New, some cases highly different reference masses were defined, however there were no HC adjustment.

Report from handicap committee to the IGC 2012 Plenary

Author: Christof Geissler

The handicap committee did not have any activities in 2011. Since December 2011, Christof Geissler is chairing this committee.

Members are:

Stefan Ronig,
David Stevenson
Tobias Geiger
Russell Cheetham
Louis Boudérique

The scope of the committee is the evaluation and review of handicaps. Then the Handicap committee reports to the Chairman of the Annex A Committee. In contact with the Göran Ax of the Annex A Committee, there was no need to be active at this time. This can change as soon as the latest proposal of the bureau about “New List of IGC Reference Mass of the Club Class Gliders” would be approved. Then there might be the need to adjust some handicaps on basis of the new IGC reference masses.

The handicap committee appreciates very much the work done by Roland Stuck to collect all the data necessary to finally come up with this comprehensive proposal: see proposal from the bureau “New List of IGC Reference Mass of the Club Class Gliders”.

Some examples FAI Club Class Handicaps before 2012

Type	Wing area (m ²)	Max. non-lifting weight (kg)	Ref weight (kg)	Wing loading (kg/m ²)	HC
Std. Cirrus	10.04	220	345	34.36	1.00
LS1f	9.75	230	355	36.41	1.01
ASW19B	11	230	380	34.54	1.01
Jantar Std. 2	10.66	245	385	36.11	1.01
LS3a	10.5	230	410	39.04	1.07
Mosquito	9.86	240	380	38.54	1.07
ASW15B	11	220	365	33.45	0.98
LS1d	9.74	212	345	35.42	0.98

Key points of the new reference mass study

- 1. The main goal is: work out a more complete and more reliable list of reference masses based on the maximum take off mass (MTOM) without water.**
- 2. It was determined the average MTOM without water for each type/variant of glider by: adding the maximum mass of the non lifting parts (which is always specified in the Type Certificate) to an estimate of the mass of the wings based on data provided by the manufacturers.**
- 3. The wing masses were normalized for club class gliders to 12kg/m².**
- 4. The new IGC reference mass was determined:
(Wing area x 12) + (Max. non-lifting weight)
Example for ASW15B: (11m² x 12kg/m²)+220kg=352kg**
- 5. In most cases the new reference masses differ by less than 10kg from the old ones, but in some cases (DG 200, Mosquito, LS3, Speed Astir, PIK 20 A, ASW19B, Jantar Standard 2b, ASW 15, LS1) the differences are much bigger. Leave it to the IGC Handicap Committee to decide if a correction of the handicap for these glider is necessary.**
- 6. The study used the misleading 220kg max. non lifting weight for Std. Cirrus, in spite of it was increased to 240kg in 2007.**

Some examples FAI Club Class Handicaps after 2012 change and the consequences

Type	Wing area (m2)	Max. non-lifting weight (delta) (kg)	New Ref weight (delta) (kg)	New Wing loading (delta) (kg/m2)	HC
Std. Cirrus	10.04	240 (+20kg)	361 (+16kg)	35.95 (+1.59, 104.6%)	1.00
LS1f	9.75	230 (0)	347 (-8kg)	35.58 (-0.82, 97.7%)	1.01
ASW19B	11	230 (0)	362 (-18kg)	32.90 (-1.63, 95.5%)	1.01
Jantar Std. 2	10.66	245	373 (-12kg)	34.99 (-1.12, 96.8%)	1.01
LS3a	10.5	230	361 (-49kg!)	34.38 (-4.66, 88%)	1.07
Mosquito	9.86	240	368 (-12kg)	37.32 (-1.21, 96.8%)	1.07
ASW15B	11	220	352 (-13kg)	32 (-1.45, 95.6%)	0.98
LS1d	9.74	212	329 (-16kg)	33.77 (-1.64, 95.3%)	0.98

HC adjustment suggestions to complete the standardization of reference masses initiative.

The HC adjustment would be as simple, just using the footnote of the HC table:
„Where a glider is flown at a higher or lower Ref. Mass than the old Ref. Mass (before the 2012 adjustment), the handicap will be increased or decrease by 0,005 for each 10 kg or part thereof that the glider exceeds or below the old Ref. Mass.”

Example:

- For a Std. Cirrus flying with the new Ref. mas=361kg, (+16kg) the HC increase is $2 \times 0.005 = 0.01$, which could result 101 HC.
- For an AWS19B flying with the new Ref. mas=362kg, (-18kg) the HC decrease is $2 \times 0.005 = 0.01$, which could result 100 HC.
- For an LS1f flying with the new Ref. mas=347kg, (-8kg) the HC decrease is 1×0.005 , which could result 100.5 HC.
- etc.. for other types, where the new ref. mass is significantly different than old one.

Benefits:

- Fair HCs, based on newly approved wing loadings
- Better alignment to the real weights of old Club class gliders
- Preserving the value of all types