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CLASS DIVISION LENGTH

ITC devoted a large amount of time in preparing a new proposal for the class divisions and splits that could be accepted worldwide as ORC International Class divisions to be adopted not only for the next International events (like ORC World and European championships) but generally around the world. The current class divisions are based purely on GPH, and varies in different countries according to the fleet's composition.

ITC noted two fundamental issues related to class divisions based on GPH:

1) the low possibility to design fast yachts in lower divisions (for example, Classes B and C in the last World Championship) without being compelled to make them too small to fit in the GPH limits. The consequence is that the winners of the lower divisions are always medium/heavy displacement boats, usually the largest in their class.

2) the first windward leg of the inshore races is a fundamental part of the race and it should be better to have as many boats as possible with similar windward speed in the same class.

In the past, to solve the first issue the smallest boats of the larger class were moved according to a fixed length limit, or conversely pushed up into the larger class with boats exceeding a certain length, but this caused complaints.

To answer the second issue, ITC decided to select the Windward12 (UP 12) handicap instead of using GPH to group boats with similar upwind speeds into the class. To also maintain similar dimensions it was decided to couple the windward speed at TWS=12 kts with the sailing length (IMS L) of each boat.

To couple the two factors (UP12 and IMS L) it was decided to transform the WW12 allowance (that is a speed) in a length and average the obtained length with IMS L. The final factor was named CDL (Class Division Length)

The transformation in length of the UPWIND12 allowance is obtained with the following formulation:

$$VMG_{UP12} = \frac{3600}{UP12} \cdot 0.5144 \quad \text{where } VMG_{UP12} \text{ is boat upwind speed in m/s at 12 kts wind}$$

$$RL = \frac{VMG_{UP12}^2}{F_n^2 \cdot 9.81} \quad \text{where RL is rated length and } F_n \text{ is Froude number set at 0.28}$$

The RATED LENGTH is the length that you should have at $F_n=0.28$ with the VMG_{UP12} speed, so it is transforming a speed into a length. Froude number of $F_n=0.28$ for upwind VMG was fixed using $F_n=0.4$ (that is the Froude number at around which maximum displacement speed is obtained) multiplied by $\cos(45^\circ)$, 45° being the average true wind angle upwind.

The Class Division Length is then calculated as follows:

$$CDL = \frac{IMS L + RL}{2}$$

The CDL, coupling a speed (or a handicap in sec/mi) and a length, is addressing the problem of mixing handicap and dimensions of boats returning more homogenous classes in terms of dimensions and speed.

These are the recommended CDL limits for three ORC Classes for the 2015 season:

17.0 m \geq Class A > 11.6 m

11.6 m \geq Class B > 9.7 m

9.7 m \geq Class C > 8.5 m

It is recommended that these be used for the 2015 ORC Championship events in Barcelona and Parnu, but national authorities are free to set their own class limits for their national events.