WORKING PARTIES

Keel Improvements

Statement of Work by Working Party Chairman Jason Smithwick

Introduction

It is notable that the ISO 12215 "Small craft — Hull construction and scantlings — Part 9: Sailing craft appendages" standard states "The operational life of the craft is assumed to be 8 million stress cycles. This is based on an assumed operational envelope various times on different points of sail, average tacking 2 times for beating, average rolling periods for downwind, typical wave encounter periods, estimated heel angles and is only intended to be representative. This corresponds to about 25–30 years of moderate-to-high usage recreational sailing or about five years of very extensive ocean racing (one, 30 000 NM, competition plus associated training and preparation annually). This is 15 % of the figure of the number of cycles normally used in ship fatigue assessment.".

The objective of the working party is to devise and recommend changes to the ISO 12215-9 scantling codes for yachts <24m, in order to improve the strength and lifetime of keel attachment. In addition to other approaches to achieve the goal of improving the strength and lifetime of keel attachment, the working party will consider the concept of increasing the design life time by a multiple factor (e.g. 2 times).

Further background from Hasso Hoffmeister –"In-build validation of keels, a lighter approach". The stricter requirements on how designers need to specify weld details that Hasso recommended have recently been implemented for inclusion in the Offshore Special Regulations (OSR) Plan Review Scheme.

Working Party Members

- Jason Smithwick, Chair
- Hasso Hoffmeister
- James Dadd
- Stuart Carruthers
- Will Apold (ex officio)
- Stan Honey (ex officio)
- Simon Forbes (staff)

Programme of Work

The programme of work is based on the approach as follows:

- Assess the feasibility of introducing a stricter keel fatigue requirement into the ISO 12215-9 standard.
- Investigate the likely effect and any risk for yacht design and the designer's approach.
- Consult on how classes may transition to any new requirements.
- Investigate the possibility of changes to the OSR and/or Plan Review scheme as appropriate.

Specifically the following tasks and actions are to be completed by the working party:

Establish the likely effects on yacht structure and weight for increasing the fatigue criteria in ISO 12215 with a small number of worked examples. Establish if there is any risk in doing so in respect of impact on other yacht structural areas (e.g. to push designers to save weight elsewhere) – Partially complete, further action and report Hasso Hoffmeister.

Establish the position of classes who would normally comply with OSR Category 3 and above. Such as (but not limited to) Class 40, TP52, Maxi 72 and how they may handle the change to ISO 12215 given the likely increase in structural requirements. – Action and report James Dadd.

Speak to designers and understand their lead times on designs and a reasonable time for a transition point– Action and report James Dadd (and also all others who may have designer contacts).

Establish the current ISO work programme cycle of the ISO/TC 188 WG18 regarding development of ISO 12215-9. Determine feasibility of starting a new revision cycle for ISO12215 to include further considerations of the keel fatigue section and mandating the keel fatigue method within the standard (as opposed to optional) – Action and report Stuart Carruthers.

Consider any changes to the OSR and/or the OSR plan review processes and agreements with Notified Bodies. This will include consideration of the current ISO 12215 standard and its application for CE certification and processes within Notified Bodies. – Action and report Jason Smithwick

Establish the risk to World Sailing of imposing an increased requirement above the current ISO 12215 assessment criteria for OSR Plan Review. – Action Simon Forbes (through perhaps World Sailing legal department).

Collate the reports from actions as detailed above to produce a review and proposals to World Sailing before October 2020. – Action Jason Smithwick and All.

Possible Final Outcomes

1. A full report to World Sailing with a review of the keel fatigue situation with possible recommendations as follows:
2. A recommendation to ISO for changes to ISO 12215-9 for ISO to consider for inclusion with their next routine update of 12215-9.
3. Work out a transition plan with active designers and classes to phase in the new requirement, dealing with boats that are in design or in build.