OFFSHORE RACING COUNCIL

World Leader in Rating Technology

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Minutes of the **Measurement Committee** held on November 6th-7th, 2004 in Copenhaghen, Denmark, Bojesen at Axelborg.

Present: Nicola Sironi (Chief Measurer) Jean-Louis Conti (Deputy Chief Measurer) Dan Nowlan Theodossios Tsaltas Gerd Kall Flemming Nielsen Pablo Ferrer Boris Hepp Marcel Wagenaar Timo Sarainmaa

Observers:

Yannis Kalatzis GRE Panayotis Papapostolou GRE Minoru Tomita JPN Yoshikazu Fukuda JPN David Lyons AUS

1. Measurement of Appendix 10 (Movable ballast) boats.

Dan Nowlan was thanked for the support provided in the development of the procedures to measure and incline movable ballast boats, and so was Andrew Williams and Dick Horn who made themselves available to go several times through the complex process. Dan reported on the several measurements performed on canting keel and water ballast boats. The cant keels are easier to address, but some of the boats have a safety system to prevent capsize to windward , and the keel is automatically released when a certain angle of heel is reached. This needs to be disabled to perform the test to measure the õlistö angle. In one boat the keel movement levers and mechanisms were enclosed in unaccessible compartments, so being impossible to physically measure the õcantö angle from the inside of the boat., the cant angle was measured underwater, taking a distance of the keel from a point on the hull, with the help of a diver. Repeated measurements showed however a good consistency.

The case of the water ballast boats has been found more complex, as expected, and it is recommended to measure also directly the tank capacity, in order to cross-check its measurement with the capacity and VCG automatically calculated by the LPP.

The Chief Measurer asked the members to please report about any new experience acquired with movable ballast boats.

In the context of õspecialö inclining tests, the Chief Measurer reported about a technique to be able to incline large boats, which could not possibly follow the requirements detailed in IMS Rule 705.

The procedure is summarized in the following steps:

- find a suitable weight, weigh it and load it on a tender
- lift it from the end of the boom with a suitable arrangement.
- Swing the boom forward to the longitudinal position of SMB (Bmax station)
- Record the angle of heel as in a normal inclining test
- Measure the distance (perpenicular to the centerplane of the boat) from the point of suspension of the weight to any fixed point on the boat
- Swing back the boom with the weight suspended, and place it on the opposite side of the boat. Mesure the distance between the center of the weight on deck and the point on the boat to where the previous distance was measured. To obtain WD
- Swing the boom back in its previous position, and start to measure the other inclining data. (PD)

2. Electronic Inclinometers and Software

The RM18 units in existance are still working well, show good consistency in the measurements, and good precision and consistency when properly maintained, especially as far as the batteries are concerned.

A corrected version of the RM98 program that is usable on XP machines without the need of any utility has been made available.

Good progress has been made in the course of the year with the õHidalcomö inclinometer and its software, which was developed by the El Pardo institution in Spain last year and presented in Barcelona after initial experimentation in 2003. The two available prototypes have been tested in several places, and El Pardo is expected to formulate a list price and delivery provision soon. A report on its experimentation, and the recommendations for changes in the software and hardware are available separately.

The Committee asked about the possibility of making available the Hidalcom software to the ORC on a shareware basis, to be possibly used with other equipments. Pablo Ferrer volunteered to contact El Pardo and find out.

3. Hull Measurement Machines development

The Chief Measurer reported about the new experiences acquired during the year with commercially available laser instruments for hull measurements. He measured in

Spain a hull using simultaneously the total station and the HMI. The total station, operated by a topographer and an assistant took a good 3 hours less than the HMI, and the results is certainly more precise and congruent.

The method developed by Jaime Carro from A Coruna in Spain is considered a bit primitive by many experts and users of laser equipments, but is very cheap, simple, and robust. The price he charges for the work is 8 Euro per station. The OFF file is created in less time than is possible with the HMI or the german Hullscanner, no postprocessing is needed, and large yachts currently beyond the string length of the machines can be measured without dimensional limits.

In Germany two experiences were performed using 3d laser scanners, one with a Leica equipment on a large boat, and another with Callidus on a Bavaria 42, which was simultaneously measured by Gerd Kall with his machine. The experience led to the same conclusion that was reached last year with the experiences carried out with Callidus in Spain and Italy, in that the measurement is carried out very quickly and with very little human intervantion, but the post-processing to obtain a congruent OFF file is very complex, and depends upon specialists and expensive software.

Dan Nowlan reported about the progress with the SMX laser tracker, which has been used at the Olympics by Andrew Williams to check Ynglingøs hull templates, and has now a more robust technique to identify the edges of the hull surface, to simplify the creation of the final OFF file by transverse stations. More experiences with this equipment are expected soon.

4. Measurement Conference

The Committee recommends to hold an IMS Measurers Conference, in association with a Rating Officers meeting, where the laser methods will be presented, and various practices in handling ORC Club measurement and certification will be presented and discussed.

The proposed date is 11-13th February, and the location in Delft, Holland.

Availability of the Delft TU is being verified with Lex Keuning, but has been experienced as a very good one for several ITC meetings in the past.

5. Submissions

DSV 6 (Wing Keel treatment) The Committee agreed it would be an improvement to change the definition of winglets under Rule 511 to the effect that, if the lower part of the keel were fitted with transverse extensions in the bottom part in the form of wings.of any kind. This would not affect bulbs of shapes extending horizontally more than vertically, but not having transverse or diagonal protrusions. Any doubtful case would be submitted to the Chief Measurer.

Rating Offices would need to be advised that this change would require updating of several OFF files. Relevant updated ones would be delivered as soon as possible when distilled from the world database.

It was observed that the LPP would need a change to properly take into account the volume and wetted area of the wing keels which are facing downwards, a case of which was reported by Dan Nowlan in September.

KNWV 1 (Limit internal ballast in Cruiser-Racers).

The Committee discussed the matter but reached the same conclusions of the ITC about difficult enforceability of any restriction that although sensible and commonly understandable becomes extremely difficult to apply in the context of a professional exploitative approach to the Rule which has become customary at the high profile offshore racing of the last few years.

KNWV 5 (Freeboard Marks) The Chief Measurer reiterated that the location of special freeboard marks is a practice that was discussed and recommended many times in the past, and actually used in a few boats and molds. The freeboard positioning in a different place from what is described in IMS Rule 508, and in Appendix 3 is catered for by the IMS measurement data, and its values (FFPV and AFPV) are included in the OFF files, and are printed on the IMS certificate in the Flotation data section. The Committee agreed that the inclusion of this in the Rulebook would be a good idea, possibly also with a sketch in Appendix 3.

RFEV 8 (better assessment of jib luff) The Chief Measurer commended the quick understanding of the constituencies about the rating advantage associated with the inclusion in the jib area calculations. The vast majority of the Owners filed their renewal applications this year including the measurement of JL. He, as other measurers, reported also about substantial shrinkage found on laminated sails in the luff measurement, which led to the RFEV Submission. However, given the mild impact of this measurement on ratings, and the consideration that there is anyway a default minimum of JL, the Committee does not recommend any change for next year. It is however recommended to add to IMS Rule 815 the following wording, that was issued by the Chief Measurer in February:

" any devices or sail construction used to artificially shorten the luff for measurement such as, but not limited to, nylon braid lightly seized to the luff independent of the bolt rope are not permitted, and the measurers shall require their removal before proceeding with any measurement. "

6. Matters arising

Jib mid girth measurement. A question was raised regarding inconsistency between RRS 50.4 and the way to measure jib mid girths described in the IMS Rule. Flemming Nielsen informed that the same inconsistency is found with the Isaf ERS, and the matter is being discussed within Isaf.

MDL1 measurement. The Committee agrees with the recommendation included in the ITC Minutes.

Rotating Masts for ORC Club. The Committee agrees with the recommendation of the ITC.

Propeller Struts Measurement. The ITC proposal to measure ST4 at the interface between the fixed part of the strut and the propeller was supperted.

Standard Strut Dimensions. Jean-Louis Conti presented a table of standard measurements of the strut drive units of all known manufacturers, which will be published and distributed soon.

The meeting adjourned at 18:10