



RULE MANAGEMENT GROUP

THE VOLVO OPEN 70 RULE

Memorandum 04

To All Entries and designers
From James Dadd
Re Structural Compliance Documentation

In accordance with Volvo Open 70 Rule 2.9, designers shall make structural technical documentation available to the RMG. This in no way reduces the need or the importance of signed declarations, and all who sign such documents need to do so with full knowledge of the potential risks of overlooking any elements of the design and build process. The RMG will also consider any declaration signed with knowledge of noncompliance as extremely serious, and will deal with the matter as the RMG feels appropriate for the safety of the crew and any future crews.

The technical documentation shall be presented to the RMG along with the designer's declaration. It is not expected that the documentation concerning the hull structure will be reviewed unless a cause for concern arises, but the keel fin strength for all yachts shall be reviewed by the RMG and its advisors.

1. TECHNICAL DOCUMENTATION CONTENTS

The technical documentation for each yacht should contain at least the following information –

- (a) A written document, clearly stating which structural standard was used (including the version number) to evaluate the design, along with a brief description (less than 500 words expected) of the design method and techniques used (e.g. ISO for panels and FEA to determine stresses in way of keel structure). Images can be included if they aid the description process.
- (b) Engineering drawings of –
 - I. Hull GA, showing bulkhead and stiffener (both physical and natural) positions
 - II. Deck GA, showing bulkhead and stiffener positions
 - III. Hull, deck and bulkhead layup
 - IV. Bulkhead and stiffener details
 - V. Fin and bulb arrangement, detailing fin root and above pin section shapes, as well as load bearing details
- (c) Structural calculations for keel fin strength as per VO70 Rule 2.14.5(b), showing numerical values of section sizing and modulus, as well as stress induced due to the load cases specified in VO70 Rule 2.14.5.
- (d) Material compliance documentation as specified in RMG memo 02.

2. FORMAT

The format of the technical documentation can be either paper or electronic. If electronic then the following formats will be accepted –

For written documents –

- Word
- PDF

For engineering drawings –

- AutoCad DWG
- IGES
- DXF
- PDF

For numerical calculations –

- Excel spreadsheet
- Word document
- PDF

If paper, then the engineering drawings shall be at least A2 (420mm x 594mm) in size, with the drawing scale not smaller than 1/40th for the GA drawings.

3. DESIGN MODIFICATIONS AND REPAIRS

Any significant repairs or modifications to the hull, deck, coachroof, or keel structure shall be reviewed with respect to the appropriate structural requirements defined by the VO 70 Rule. All relevant parts of the technical documentation and calculations provided to the RMG shall be re-submitted.

4. GENERAL

- (a) The Wolfson Unit for Marine Technology and Industrial Aerodynamics will assist and advise the RMG in interpreting the technical documentation. The contact details of the Wolfson Unit MTIA are–

Wolfson Unit MTIA
Building 15a
University of Southampton
Southampton
SO17 1BJ

Tel +44 (0)2380 585044
Email – wumtia@soton.ac.uk
Web – www.wumtia.com

- (b) The pull down tests shall be undertaken as per VO70 Rule Memorandum 3. No examination of the relevant technical documentation is intended to be conducted by the RMG or its advisors unless the pull down tests produce evidence of structural inadequacy, or there is other cause for concern by the chief measurer.
- (c) The method used to analyse the keel fin structure shall assume the load cases to be quasi-static, with beam bending theory used to define the maximum stresses induced. All internal support points shall be assumed to be pin joints. The influence of shear stress should be incorporated into the maximum stress induced.
- (d) Individual syndicates shall cover all costs. The review of the keel fin calculations (as per VO70 Rule 2.14.5b) will cost £320 per design, provided the calculations are straightforward, well presented and do not contain errors. Any extra work associated with such problems will be charged at £85/hour, as will review of the remainder of the technical documentation if required. All charges shall be dealt with directly with the Wolfson Unit.

END

Signed on behalf of the Volvo Open 70 Rule Management Group



James Dadd, Chief Measurer
1st February 2008