



## AC34 Monohull Class Rule Concept Document

(Updated 19 July 2010)

### PREAMBLE

The objective of this monohull rule is to create a class of boat of boat capable of racing in windspeeds from 5 to 35 knots.

### GENERAL CONCEPT

- The rule is intended to produce close racing in canting-keel monohulls.
- Configuration options are to be limited to ensure close racing throughout the wind range.
- The Class shall have high performance – especially downwind driven by light displacement and high righting moment. Ideally in 12 knots TWS downwind boatspeed to be greater than 1.4 X TWS – upwind boatspeed 1 x TWS).
- Primary dimensions shall be in a small range to make yachts similar in appearance and performance
- Note that an “\*” means that the dimension shall be finalized by the Rule Authors and is included as indication only.

### HULL

- Boat will be a canting-keel monohull.
- Hull Length shall be controlled by a maximum overall length – 22m.
- Hull Beam shall be limited to a narrow range by a minimum and maximum value(similar to TP52).
- Stern Beam/Girth control (max and min).
- There shall be no limitations on hollows or appendage attachment zones except to limit multihull development and to deliver uniform keel hinge pin geometry.
- Measurement Displacement shall be a fixed number with a small range to be determined by Rule Authors, but minimum possible displacement for high performance
- Hull construction methods shall have limits to “advanced boat building technology level” with regard to construction techniques. This applies to hulls only.
- Hull construction materials shall have a fibre stiffness limit based on common material selection criteria (rather than a hard limit) and high level boat building carbon fibre only. M46J/HS40\* level or higher (after research) but only one limit for all components (hull, mast, appendages etc)
- Hull area surface weight will be above a minimum value.
- Deck hatches unlimited except in maximum area forward of front of mast.



- Conventional Foredeck rule to be enforced.
- Freeboard minimums at bow, stern and centre, and Radius of curvature.
- Stern scoop (length to be defined by Rule Authors) to be replaceable in 4\* hours. Scoop shall have no rigging or appendage attachments. No adhesive or bonding. Fairing only.
- Bow to be replaceable at a joint approximately 1.5\*metres aft of forward most point. No adhesive or bonding. Fairing allowed. (intent is to avoid regatta delays due to collision damage )- bow change to be demonstrable in 4\* hours.

## APPENDAGES

- Maximum draft will be 4.75 metres.
- Maximum keel cant will be approximately 50°. Final maximum cant angle to be determined when hull is drawn and geometry checked by Rule Authors.
- Movable appendages are limited to:
  - forward rudder- axis roughly vertical on CL Plane
  - Canting keel
  - Maximum of two stern rudders
- No tabs or other configurations are permitted.
- Heel hinge pins shall be removable from outside the hull. (Intent is for easy/quick removal)
- Close geometry limits to equalise effective RM through keel cant geometry (intent is that RM advantage through structural weight reduction to be encouraged keel canting speed and geometry difference to be as equal as is possible)
- Appendages shall not be used to increase length (intent is to avoid hulac with volume rule or similar).
- Keel shall be demonstrated removable and installable in less than 12\* hours. (intent is to have the boat sailing quickly after arriving at venue and quickly packed for shipping).

## RIG MEASUREMENT

- Maximum hoist heights defined by Rule Authors. Approximate ISP 32\*-35\* metres.
- E, J and J-Spinnaker defined.
- No spinnaker poles.
- Maximum fixed sprit length 1.5\* metres.
- Retractable sprit limited by J-SPL only.
- Front of J to be within Hull.
- Clew of mainsail to be forward of a certain point (to limit max extendable sprit OR a max extendable sprit length).
- CG and weight defined for rig (reasonably aggressive weight and CG).
- Fibre limit defined for rig same as hull (maybe M46J/HS40\* or similar).
- No construction limits for rig.
- Two part rig – quickly disconnected joint approximately in the middle.
- I must be 90\*% plus (93\*% better) minimum.
- Canting not allowed.
- Rotation not allowed.



- Mast Section maximum size limit to avoid “wing” development – sizing to be based on Weight and CG calculations.

## SAIL MEASUREMENT

- Gennaker Sail Area unlimited.
- E & J and JSPL limited.
- Genoa Max Foot length – non-overlapping.
- Girths must get smaller as they ascend on mainsail and headsail.
- Genoa maximum girth at 3/4 height = 33% - luff to leech (will convert to MGU - IMS style).
- Genoa max 6 battens - 2 can be above 3/4 height – approximately equi-spaced.
- No limit on number of battens in mainsail.
- Battens not to cheat sail area or sheeting rules.
- No inflatable battens.
- Double sided, thickened sails permitted for leading 15% only of each sail.
- Heavy air mainsail with maximum area limited by girths but full hoist and “J5” style genoa (short hoist and girths).
- Heavy air spinnaker maximum size to be defined with measurement procedure. (Race officials may require these to be used.)

## GENERAL

- Crew will number 13 at average 95 kgs (plus 1 non-participating guest).
- Engine may be used for canting the keel and electricity generation only.
- Engine to be green - low noise (dB level limit in cockpit) hydrogen-hybrid or similar to be determined by Rule Authors.
- Engine to be standardised in some way – single supplier or similar.
- Electricity to be available from the engine system for media and electronics usage only.
- Objective to have fast keel transition (approx. 6 seconds).
- Canting systems to be standardised. (One-design pump, plumbing, geometry of keel head (hinge points) and rams. Objective is to deliver equal canting speeds and power systems for all boats.)
- No super exotic materials (boron, beryllium, etc.).
- Lifting point shall be defined as standard part of the boat.
- Remote control: No PLC but remote actuation by stored energy allowed. Rule limits on inputs (only the button – no logic, timer or instruments input or connections) and limit on maximum energy and power to be used/stored for these systems.

## MEDIA

- Media rules will be subject to change by the Technical Director (not unanimous).
- These changes will be considered regarding impact on the teams and significance to the media group.
- Changes will not occur during a Regatta
- Media spaces to be defined during rule writing in class rule.



## INTERPRETATIONS

- Public Interpretations accepted quick turnaround like AC32.
- No Private Interpretations
- Drawing review available – encouraged by jeopardy if found illegal later.