YACHTING AUSTRALIA

CHANGES TO

Yachting Australia
2005 – 2008 Racing Rules of Sailing

Issued on 24 May 2005 as amendment No. 1
Effective from 1 July 2005

SV subsequently amended 1 July 2005

Special Regulations

Part A – corrections to printed regulations

Page 192 **Regulation 3.03.2**
Line 3: "table 2" should read "table above".

Page 202 **Regulation 3.13.1(b)**
Line 2: "508mm" should read "50.8mm".

Page 209 **Regulation 3.25.5**
Deferred to July 2006.

Page 213 **Regulation 4.04.1**
Row 3, column 4: '**Category'** should read 1 2 3 4
Row 5: Fire Blanket is required from 07/2005.

Page 221 **Regulation 4.18.3**
Line1: categories "2R" should read "3R".

Part B – amendments to regulations relating to moveable and variable ballast

Add to Definitions:

Static Ballast: *Lead or other material including water which has no practical function in the boat other than to increase weight and/or to influence stability and/or trim and which may not be moved or varied in weight while a boat is racing.*

Moveable Ballast: *Lead or other material including water which has no practical function in the boat other than to increase weight and/or to influence stability and/or trim and which may be moved transversely but not varied in weight while a boat is racing.*

Variable Ballast: *Water carried for the sole purpose of influencing stability and/or trim and which may be varied in weight and/or moved while a boat is racing.*

Add to the YA Special regulations (non-Stability):

3.01.5 Ballast Tanks, Valves and Sea Cocks

Tanks for variable ballast shall be permanently installed to a boat's structure and shall be provided with a system of isolating valves and pump(s) capable of manual operation at any angle of heel. A plan of the plumbing system shall be displayed aboard the boat.

Categories 1 – 7

3.01.6 Control Systems, Actuators, Restraint

Moveable ballast systems shall be fitted with a manual control and actuation secondary system which shall be capable of controlling the keel in the event of failure of the primary system. Such failures could include electrical and hydraulic failure and mechanical failure of the components and the structure to which the primary system is mounted. The system must be capable of being operational quickly and shall be operable at any angle of heel. It would be desirable if this system was capable of securing the keel on the centreline.

A set of instructions, including any necessary diagrams, for the activation and operation of the secondary system shall be displayed aboard the boat.

Categories 1 – 7

Part C – Add as Appendix D to Part 1 page 245

YACHTING AUSTRALIA SPECIAL REGULATIONS
APPENDIX D to Part 1

RESISTANCE TO CAPSIZE FOR MONOHULLS

D.1 RESISTANT TO CAPSIZE

D.1.1 For all boats

To be considered **Resistant to Capsize** as required in Regulation 3.04.2 boats shall be assessed as follows:

- the Stability Index limits set out in IMS Regulation 201; or
- the SSS Numeral and the limits set out in the RORC IRC Booklet; or
- the ISO 12217-2 as detailed in D.4; or
- the Righting Moment Index as calculated in D.5; or
- the Horizontal Stability Factor as calculated in D.6.

D.1.2 Additional requirement for boats with moveable or variable ballast

Boats with movable or variable ballast shall in addition comply with the relevant requirement of D.7.

D.2 RACE CATEGORIES

To demonstrate compliance with **Resistance to Capsize** requirements for the various race categories one of the following shall be achieved:

Category 1 Races: IMS Stability Index of 115 or greater
Or
ISO Category A except that the STIX Number shall be increased to a minimum of 35

Category 2 Races: IMS stability index of 110 or greater
Or
ISO Category A
Or
IRC SSS Numeral of 30 or greater

Category 3 Races: IMS stability index of 103 or greater
Or
ISO Category B
Or
IRC SSS Numeral of 20 or greater
Or
RMI of .812 or greater

Category 4 Races:	IMS stability index of 103 or greater Or ISO Category C Or IRC SSS Numeral of 10 or greater Or RMI of .625 or greater
Category 5 and 6 races:	IMS stability index of 103 or greater Or ISO Category C Or IRC SSS Numeral of 10 or greater Or RMI of .625 or greater Or Horizontal Stability Factor

Boats competing in Trailable Boat Races shall use the Horizontal Stability Factor.

Note: for Category 0 races refer to ISAF requirements.

D.3 SPECIFIC REQUIREMENTS

D.3.1 Boats with Movable OR Variable Ballast

Apart from boats having only a Centreboard or Drop Keel on the centreline of the hull, shall additionally comply with Section D.7.

D.3.2 Verification

A race committee may require the owner or charterer of any boat wishing to race to confirm its resistance to capsize ability before accepting its entry.

D.4 ISO CATEGORIES

These shall be determined as specified in International Standard ISO 12217-2, Small craft – Stability and buoyancy assessment and categorization – Part 2: Sailing boats of hull length greater than or equal to 6m.

(Whilst the ISO standard applies only to boats up to 24m, Yachting Australia understands that ISAF at its 2005 November meeting will amend its Appendix K, on which this Appendix is based, to permit boats longer than 24m to use the ISO method to demonstrate compliance. Should this occur YA will amend this Appendix accordingly.)

D.4.1 Stability

D.4.1.1 Boat Condition

In the calculation of stability data:

(a) Deck and other enclosed volume above the sheerline may be taken into account, in which case offsetting cockpit volume shall also be taken into account.

(b) Mass shall be taken as Minimum Operating Mass as defined by ISO 12217-2, paragraph 3.5.3.

D.5 RIGHTING MOMENT INDEX

D.5.1 RMI calculation

The **RMI** shall be calculated from the formula:

$$\mathbf{RMI} = \frac{\mathbf{TM}}{\mathbf{W}}$$

Where:
TM is the Test Mass required to hold the mast in a horizontal athwartship position with the mass suspended at the upper point of I.
W is the theoretical equivalent mass (at the upper point of I) representing the total effect of the dynamic condition of a storm on a yacht whilst laying on its side, from the formula:

$$\mathbf{W = 1.7 \times \frac{(2.79LB^2) + (0.05I^3) + (20.13L \times FML)}{I + 0.5FML}}\ \text{kilograms}$$

Where (in metres) L= LOA
B = Maximum Beam
FML= Freeboard at half LOA
I = Height of Foretriangle from Deck

Any movable or variable ballast shall be placed in the position which minimises the righting moment

RMI may be determined from

(a) A Pull Down Test.

(b) Calculations provided by the designer or other appropriately qualified person using a recognised design package.

A Pull Down Test shall be at the owner's risk and cost and no liability will be accepted by the club, the MYA or YA or any of its members, officers or servants.

D.5.2 Screening Value calculation

A screening value (SV) has been established to act as a guide in determining those boats that should be subjected to the practical test for RMI or calculation of the RMI and may be used for boats with a displacement greater than 1.50 tonnes.

$$SV = \frac{2.83 \times LOA}{Displacement}$$

Where LOA is in metres and Displacement is in tonnes to 2 decimal places.

A test or calculation is required for:

(a) Any boat where LOA exceeds 10 metres and the SV exceeds 10
(b) Any boat 10 metres or less LOA and the SV exceeds 14
(c) Any boat that carries more than 30% of its ballast internally
(d) Any boat with a displacement less than 1.50 tonnes.

D.6 HORIZONTAL STABILITY FACTOR (HSF)

The **HSF** shall be the Test Mass (TM) required to hold the mast in a horizontal athwartship position when the mass is suspended from the hounds. It shall not be less than

$$\mathbf{TM = \frac{(3.0LB^2+11.0L)}{IM} + 0.2H^2} \quad \text{kilograms}$$

Where (in metres) L = LOA
B = Maximum Beam
IM = Sheer to Hounds
H = Mast length above step

If the mast is effectively watertight and buoyant the term $0.2H^2$ may be omitted

During the Pull Down Test all gear shall be stowed normally, outboard motors shall be in the required position, the keel locked down and no sails shall be hoisted.

Determination of the HSF shall be at the owner's risk and cost and no liability will be accepted by the club, the MYA or YA or any of its members, officers or servants.

D.7 BOATS WITH MOVEABLE OR VARIABLE BALLAST

D.7.1 Use of IMS

D.7.1.1 General Standards

Boats using the IMS stability Index shall also comply with D7.2.2.

D.7.2 Use of ISO

D.7.2.1 General Standards

In the assessment of ISO category for yachts fitted with moveable and/or variable ballast, ISO 12217-2, paragraph 6.1.4 b) shall not apply. Boats shall comply with the requirements of ISO 12217-2 paragraphs 6.2.3, 6.3 (if appropriate) and 6.4. Calculations shall be made for the ballast condition that results in the most adverse result when considering each individual stability requirement.

D.7.2.2 Knockdown Recovery

Boats with moveable or variable ballast shall comply with the following minimum values of Knockdown Recovery Factor (FKR) calculated in accordance with ISO 12217-2 paragraph 6.4.4 with the lesser of FKR_{90} and FKR_{-90} used:

SR Category	1, 2	3	4 to 6
FKR	0.9	0.8	0.7

Boats with age date prior to 11/04 may seek dispensation from this section D.7.2.2 by application to Yachting Australia**.**

D.7.3 Use of RMI

D.7.3.1 General Standards

In the assessment of RMI for yachts fitted with moveable and/or variable ballast, tests or calculations shall be made for the ballast condition that results in the most adverse result.

D.7.3.2 Knockdown Recovery

Boats with moveable or variable ballast shall comply with the following minimum values RMI tested or calculated in accordance with section D.5:

SR Category	3	4, 5, 6
RMI times	1.2	boats greater than 8 m LOA - 1.2 boats less than 8 m LOA – 1.3

D.7.4 Use of HSF

D.7.4.1 General Standards

In the assessment of HSF for yachts fitted with moveable and/or variable ballast, tests or calculations shall be made for the ballast condition that results in the most adverse result.

D.7.4.2 Knockdown Recovery

Boats with moveable or variable ballast shall comply with the following minimum values HSF when tested in accordance with section D.6:

HSF times	boats greater than 8 metres LOA - 1.3 boats less than 8 metres LOA – 1.5