

THUNDERCAT RACING ASSOCIATION OF
NEW ZEALAND (INCORPORATED)

RULES AND REGULATIONS FOR THUNDERCAT RACING

FOREWORD

It is clearly not possible to cater for every possible contention in a set of written rules. These rules set out the defined basis for determining a dispute. The determination of a protest will lie in the hands of the race jury and finally with the National Authority. What we are trying to achieve is a fair set of practices. Our intention is to maintain the sport as a standard class following safety, modifications and repairs. We want competitors to know that they are taking on the opposition with an equal chance of winning.

They all came home!

Also included in this booklet are some extracts from the UIM and the NZPBF rules applicable to inflatable boat racing.

TRA-NZ requires drivers and co-drivers to know and understand the rules of the sport. There is no allowance for ignorance and “unwitting” infringements conferred upon the participants. Minimum penalties of being de-classified or disqualified for the heat/event will apply. The driver & co-driver are responsible for the condition of their equipment as raced. Errors on the part of the manufacturer, technician or a previous owner do not justify non-conformity with the rules and cannot be accepted as an excuse.

TRA-NZ, NZPBF and UIM or any sporting body frowns on disputes taken to court. It is believed that this is not sportsmanlike because no sporting body has any prejudices. Please accept and abide by the decision taken by the controlling bodies.

NOTE: Should there be a discrepancy between the rules of TRA-NZ and those of the NZPBF and the UIM, the rules of TRA-NZ will take preference.

MISSION STATEMENT

TRA-NZ encourages members to participate in, and promote the sport of “Inflatable Boat Racing” hereinafter called “Thundercat Racing” and TRA-NZ requests the Thundercat Racing Rules are based on the following guidelines: Members are encouraged to take ownership of the Thundercat Racing Rules.

- 1) Fun.
- 2) Safety.
- 3) Lowest cost as feasible to get into racing and to continue racing.
- 4) Competitive racing.
- 5) Ease of putting together a race boat and team.
- 6) A large selection of commercially available motors and boats to race competitively.
- 7) Use of the boat for social occasions as well as for racing.

There shall be two classes referred to as the “Bandit” and “S-750”, the later of which shall emphasize entry participation.

These rules are to be interpreted on the intent of the rule not literally.

The following rules have been amended and accepted as the Thundercat Racing Rules. These rules apply to all inflatable boat races run under the auspices of the Thundercat Racing Association of New Zealand. Any queries as to the interpretation of these rules must be addressed to the Secretary of TRA-

NZ

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RACE LICENCE EXAMINERS
To be advised

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GROUP 100

- 101 RACING LICENCES

101.01

All drivers and co-drivers must be in possession of a current racing license issued by the TRA-NZ with the indemnity form signed. The TRA-NZ Secretary will issue all licenses. The license application indemnity form and the medical declaration form are to be renewed annually. Minimum age for holding a racing license shall be fifteen (15) years. Any competitor being a minor under twenty (20) years of age must have their license application indemnity form countersigned by a parent or guardian.

101.02

All Racing License applicants must be members of the TRA-NZ.

102 LICENCE CLASS & GRADINGS

102.01

There are two classes of license: Driver License, and Co-driver License. A member holding both classes of license shall only be required to pay the one license fee.

102.02

Both driver and co-driver licenses are graded: - B-grade (Provisional License), or A-grade (Full License).

103 OBTAINING A PROVISIONAL LICENCE & RELEVANT RESTRICTIONS

103.01

Applications for a racing license are to be made on the official form, which can be obtained from the TRA-NZ Secretary and other approved outlets. The application form must be completed and signed by the applicant who must be a member of the TRA-NZ and have attained the age of 15 years. If applicant is under the age of 20 years the application must also be countersigned by a parent or guardian. The application is to be witnessed by an adult who is not related to the applicant. All applications are to be returned to the TRA-NZ Secretary.

103.02

The applicant will be tested by an appointed examiner with a random 20 point verbal questionnaire based on the Thundercat Racing Rules as well as 5 questions on local boating laws with particular attention to speed restrictions and minimum distances to other members of the public. The applicant must achieve a minimum passing result of 80% on the 25 questions.

103.03

After the applicant has satisfied the examiner of his/her knowledge with the above, the applicant must then be observed driving, or where applicable, co-driving a race boat around a properly laid short course, before being issued a provisional license (B-grade License).

103.04

A Provisional license holder will not be entitled to compete in a National or Titled Event without obtaining an exemption from the TRA-NZ.

103.05

Each time a provisional license holder completes a race or heat and shows competence, they should have the Race Director (RD) of the day validate their provisional license as proof of their participation in the event. The onus is on the provisional license holder to ensure this is done.

104 FULL LICENCE (A-grade)

104.01

Provisional license holders who have completed a minimum of four (4), TRA-NZ approved events, three (3) of which must have been Surf-cross events, and had them validated by the Race Director (RD), may then apply to the TRA-NZ Secretary to have their license upgraded to a Full License (A-grade).

104.02

An A-grade driver or co-driver that has missed one full season of racing must reapply as per 103.01 (fill in the required form). On payment of the required fees they will be assessed by a TRANZ approved Race Director who will ascertain their competence and reissue their A Grade license where appropriate.

105 RESTRICTED FULL LICENCE (RA-grade)

105.01

Provisional license holders who have completed a minimum of four (4), TRA-NZ approved events, and had them validated by the Race Director (RD), may then apply to the TRA-NZ Secretary to have their license upgraded to a Restricted Full License (RA-grade).

105.02

An RA-grade driver or co-driver may compete in a National or Titled Speed-circuit or Longhaul event, but not in a National or Titled Surf-cross event without first obtaining an exemption from TRA-NZ.

105.03

An RA-grade driver or co-driver that has missed one full season of racing will have to re-qualify under Rule 103.

106 DAY LICENCES

106.01

Persons wishing to race on the day and who do not hold a current license may at the discretion of the RD complete a one day racing license application and indemnity form and pay the prescribed license fee. All one-day license holders must receive a special briefing from the RD.

106.02

Day licenses are not valid for National or Titled Events without an exemption from TRA-NZ.

106.03

Only three Day licences will be allowed per person at a cost of \$30 per day.

107 BOAT REGISTRATION

107.01

Only boats registered with TRA-NZ can participate in Thundercat Racing events. New competitors must obtain a one off temporary registration at scrutineering.

107.02

Application forms for boat registration and membership can be obtained from the TRA-NZ Secretary, and other approved outlets. Applications for registration of boats must be made annually and are to be presented to the TRA-NZ Secretary.

107.03

Upon receipt of the properly executed application for registration and membership, the TRA-NZ shall assign said racing number and boat name, or inform the applicant of the lack of availability of that number and/or name, and issue an alternative.

107.04

All boats are required to display Thundercat Racing decals, which are available from the TRA-NZ.

107.05

Race boats must carry a boat name selected by the owner, but such name shall be subject to the approval of the TRA-NZ. Should such approval be withheld and until such time as such approval is forthcoming, that boat shall be ineligible to compete in any sanctioned event until cleared by the TRA-NZ.

107.06

It will be the responsibility of the member requesting any name to ensure they have the legal right to the use of any name they may request.

107.07

The assignment of a racing number and boat name in no way guarantees the boat is qualified in any specific class. Technical specifications to determine class as set out in these rules will determine that qualification.

107.08

Numbers must be affixed to both sides of the motor cowl, in a way that is readily visible by officials and spectators. Their colour will be black letters on a white background for S-750 class and yellow letters on a black background for Bandit class. The letter and numbers shall be not less than 10cm high x 20cm with a 2cm border. No other number can be shown or displayed that may be confused as being a boat registration number.

107.09

The registered name is to be affixed on both sides of the boat in such colours, style and position, so as to be able to be read clearly from the shoreline by officials and spectators. Boats competing at National or Titled events must be sign written.

107.10

Team Race Rule

Once a team has a registered name no other team or boat can be registered with the same boat name. Team boats must have a distinguishing ID to satisfy Race Officials.

107.11

Registered racing numbers and boat names will be reserved in the name of the person who registered them for as long as the registration is current. Racing numbers and boat names not re-registered will be deleted and may be re-allocated.

107.12

The boat trailer must bear a www.thundercatracing.com sticker and the Boat's Name in a conspicuous position. The height of the lettering must be at least 50mm high and written on a vertical flat surface facing forward.

107.13

Race numbers 1-10 in S-750 class and 1-5 in Bandit class will be reserved for NZ Championship placings each season. Members original numbers will not be reallocated.

107.14

Bandit boats must display their respective class on both sides of the motor cowl.

108 SPONSORSHIP

108.01

Sponsoring of boats, competitors and racing teams is encouraged. Sponsorship is open and will be market driven.

108.02

Competitors must supply details of their sponsors.

108.03

Sponsors will be considered as team members and as such must conform to the Thundercat Race Rules where they apply.

108.04

Sponsor's tents, banners and other promotional equipment before being placed at a venue must first have the approval of the organizers or Race Director.

108.05

Event Promoters or sponsors of events may request that boats have signs attached as a condition of entry into certain events. The 'bow windows' are to be reserved for that purpose and made available when requested. Rule 502.16.

GROUP 200

201 HELMETS

201.01

The wearing of helmets is compulsory for all drivers and co-drivers for all racing.

201.02

Helmets must be open-faced or full-face motorbike type helmets, which protect the base of the skull and cover the ears. The colour of which must be at least 75% Standox Fluorescent Orange 2005 - STN 75229, Day Glow Orange, Aircraft Recognition Red, or a similar colour.

201.03

All helmets must meet the standards approved by the Land Transport Safety Authority (ECE 22 or AS-NZS 1698) or be approved by TRA-NZ.

201.04

Helmets that are not full-face must have an approved guard fitted to protect the mouth and chin area.

201.05

Approved visors are optional.

202 LIFEJACKET & PFD (Personal Floatation Device)

202.01

The wearing of lifejackets is compulsory for all Drivers, Co-drivers, and Marshal Boat and Starting Boat personnel for Long-haul & Surf-haul events.

202.02

All life jackets used by Thundercat Racing drivers and co-drivers must have leg or crutch straps fitted, or a nappy.

202.03

All life jackets worn by competitors must have a neck collar, and show the manufacturers label/stamp specifying the maximum buoyancy capacity. A competitor must be within the range specification stated.

202.04

Buoyancy vests PDF may be used in any Surf-cross event provided they are manufactured to meet the USA Coast Guard cat.1 standard or equivalent.

202.05

Clothing that absorbs water and reduces buoyancy is not allowed. IE. Jeans, coats, shirts, polo fleece, shoes etc.

202.06

The use of wetsuits, spring suits, booties, rash vests, board shorts and additional flotation devices are recommended.

203 EYE WEAR

In both Surf-cross and Speed-circuit racing, both the driver and co-driver may wear eye protection. This protection may take the form of glasses, goggles or a helmet visor.

204 SAFETY EQUIPMENT REQUIRED FOR RACE BOATS

204.01

All boats must carry or be fitted with the following safety equipment at all times during Surf-cross, Speed-circuit, and sheltered long-haul events, and where practical have each item marked with the boats race number:

One (1) designated righting rope. Rule 502.13.

One (1) designated bowline. Rule 502.14.

Two (2) kill switch keys, one of which must have a lanyard. Rule 504.09

A Propeller Guard. *NOTE: The Propeller Guard will not be mandatory for Speed-circuit events unless specified on the entry form, or for any long-haul events.* Group 400.

204.02

When a long-haul event takes boats out into open water, all boats must carry or be fitted with the following safety equipment, and such other equipment as may be specified for a particular event, and where practical have each item marked with the boats race number:

One (1) designated righting rope. Rule 502.13.

One (1) designated bowline. Rule 502.14.

Two (2) kill switch keys, one of which must have a lanyard. Rule 504.09

Two (2) paddles, minimum length 650mm.

One (1) anchor rope of 25m x 8mm (additional use – towing).

One (1) safety sausage to be carried on the person of each competitor.

One (1) yellow or orange “V” sheet of 3 square meters.

205 PENALTIES FOR LACK OR LOSS OF SAFETY EQUIPMENT

All safety equipment as specified in the official Thundercat Racing Boat Examination Report for the specific discipline of racing must be carried at all times. Failure to do so will result in a ten (10) minute time penalty per item of equipment missing. For Surf-cross and Speed-circuit racing, a penalty of one (1) lap per item of equipment missing will be applied.

206 BOAT EXAMINATION

206.01

No boat shall be permitted to start in any heat or race until it has been scrutinized and the appropriate examination and indemnity forms have been signed off.

206.02

It is the driver and co-driver’s responsibility to have the boat and themselves ready for racing and at the pre-race scrutiny location at the time required in the race program.

206.03

The boat examination is primarily designed as a safety audit although hull and motor eligibility will be determined, and motor seals checked at National and Titled Events.

206.04

It shall remain the driver and/or the boat owner’s responsibility to ensure the boat is fit and seaworthy before racing and to decide whether or not to start in the race or to continue racing.

207 FLAGS

207.01

BLUE FLAG (Blue Peter). Prior to the start of a heat competitors will be notified preferably by loudspeaker, when they must immediately take the water. On this announcement the Blue Peter shall be raised for three minutes, or as the Starter may decide.

207.03

WAVING WHITE FLAG. The white flag being waved indicates that boats are entering the last lap of a heat or race.

207.04

GREEN FLAG. Before the start of the heat, or a race, the blue flag will be lowered and the green flag will be raised for at least fifteen (15) seconds. The official start of the heat, or race, will be given by dropping the green flag, at which time a horn may be sounded. The green flag shall only be used for starting and re-starting heats, or races.

207.05

CHEQUERED FLAG. The waving of a chequered flag will denote the finish of a heat, or race. The chequered flag will remain raised after the first competitor crosses the finish line to denote the finish of the heat, or race. The position of all following boats is to be recorded.

207.06

RED FLAG. This flag must be observed at ALL times. The display of a Red Flag from either the shore or from any Marshal Boat denotes the closing of the water. Competitors must cautiously return to their designated areas and await instructions. Failure to observe this procedure can incur a period of license suspension.

207.07

All competitors must acknowledge all flag signals by raising a hand to the official giving the signal. Failure to comply with this rule will render the competitor liable for penalties. The penalty is to be announced at Drivers Briefing.

208 STOPPED RACES

208.01

A race or heat shall be considered stopped when it is interrupted by the Racing Officials after the start. The stoppage of a race will be indicated by the display of the Red Flag.

208.02

A race will be stopped in the event of a blow over, roll, submarining, accident or other incident, which could endanger the safety of competitors, spectators or boats.

208.03

A race will be stopped in the event of a buoy sinking or drifting out of position.

208.04

Competitors responsible for a heat being stopped will not be permitted to compete in the re-start. Only competitors who were still racing at the time the race was stopped will be permitted to compete in the re-start.

208.05

Any competitor deemed to have been a third party and not at fault, subject to the RD's discretion, will be allowed to restart.

209 MARSHAL BOATS

209.01

At all Thundercat Race Meetings there will be at least one Marshal Boat on the water and such boats

must carry a green and a red Flag for display in terms of Rule 207.06, 207.07, 609.

209.02

Children under the age of 15 must not be allowed to officiate in any Marshal Boat or Start Boat during a Thundercat Race event

GROUP 300

301 FUEL

301.01

Fuel must be a commercially available grade of automobile fuel, to a maximum of 98 octane, which is freely available from any normal service station outlet i.e. from the pumps on any forecourt.

301.02

The driver may not withhold the type of fuel/oil used and the mixing ratio of fuel/oil if requested by race officials.

301.03

The Race Director has the right to inspect any competitor's fuel at his/her discretion, and has the right to request a competitor to exchange their fuel for that of a nominated fuel supplier (petrol only). Failure by competitors to use the nominated supplier will result in disqualification from the event.

302 SPECIALTY FUELS & ADDITIVES

Special racing fuels, methanol, nitro methane, avgas, hydrazine and the likes thereof are expressly forbidden. The use of additives aimed at increasing the power of the motor is prohibited to either the fuel or the air intake. In addition the use of nitrous oxide injection units is also totally prohibited.

303 FUEL TANK

Only approved manufactured fuel tanks or collapsible fuel cells are permissible.

304 NOMINATED FUEL SUPPLY

At National or Titled Events, the organizers of the event reserve the right to use a nominated fuel supplier (petrol only). Failure by competitors to use the nominated supplier will result in disqualification from the event.

GROUP 400

401 PROPELLER GUARD

401.01

All inflatable boats racing in Surf-cross, and specified Speed-circuit events must have an approved propeller guard fitted to the outboard.

For specifications for propeller guards see APPENDIX C.

401.02

Guards with either missing rails, broken rails, or without all 5 attaching bolts being in effective use will be declared "unable to race".

GROUP 500

501 CLASSES

"S-750" CLASS

Capacity	- 551cc to 750cc
Length	- 3.8 metres (minimum)
Width	- 1.7 metres (minimum)
Weight	- 75kgs (minimum)

“BANDIT” CLASS

Length	- 3.8 metres (minimum)
Width	- 1.7 metres (minimum)
Weight	- 75kgs (minimum)
Approved motors	- See Rule 507.01

* All Classes shall be contested by a team comprising of a specifically designated driver and co-driver.

** Before a team can compete in the National Championships or any Titled Events they must both hold A-grade licenses.

*** The above-mentioned weights apply to the dry weight of the boat, without any accessories, and without the motor. To reach the minimum weight ballast may be added. This must be screwed or bolted to the boat, but must not exceed 10% of the weight of the boat without ballast.

**** A motor of less than 551cc may not be re-bored so as to allow it to compete in the “S-750” Class.

***** A Class cannot be deleted without first giving one full season of notice to TRA-NZ Members via this Race Rule Book.

502 HULL

502.01

Boats must conform to the model of the official catalogue of the manufacturer.

502.02

A minimum of two (2) boats must be built before homologation is requested. Rule 502.03.

502.03

Boats that take part in competitions must be listed in an official catalogue of the manufacturer. NZ Manufacturers must submit homologation papers for their boats to the TRC, in which they must furnish valid, audited proof that two (2) boats have been manufactured, been advertised and are commercially available in the open market to any person.

In the case of imported boats, imported after January 1999, proof must be submitted to the TRC the boats have been homologated in the country of origin, with audited proof that two (2) boats have been manufactured, been advertised and are commercially available in the open market to any person.

Boats not manufactured in NZ, and not homologated in their country of origin, may be homologated in NZ as per this rule.

All boats must comply with TRA-NZ rules 501 and 502.

502.04

Boats must be inflated only with atmospheric air, each individual pontoon must have two (2) independent compartments. The boat must be able to float even if one compartment is out of service. Flexible foam highjackers are allowed.

502.05

Boats with an inflated keel or rigid keel are allowed. The keel must form part of or be associated with the floorboard units. Boats with a rigid underwater body made of glass resin or any other type of rigid underwater body are not allowed. At no point may the width of keel exceed 15% of the width of the boat.

502.06

The boat should be able to deflate, be collapsible, foldable or be able to be rolled up, so that no dismantled part has a length greater than one third (1/3) of the full length of the inflated boat excepting the floor boards whose largest individual piece must not exceed two thirds (2/3) of the total length of the floorboards. Any suitable material may be used to manufacture floorboards.

502.07

The shape of the hull is free. The keel, inflatable or rigid, must extend along the whole floor length of the boat. No rigid element is to be attached or fixed to the underside of the keel. No materials other than air may be inserted in or attached to or placed between the floorboards and the keel. No adjustable wings or aerodynamic appendages are allowed.

502.08

Modifications above the waterline are allowed. A waterline is defined as the line taken when a boat is at rest in the water with no persons in the boat, but at full race trim with the motor fitted. The waterline will be deemed to be below the bottom of the transom.

502.09

A splash plate may be fitted to the back of the transom as long as it complies with Rule 502.08 and the following dimensions: if this plate runs the full length of the transom, i.e. from pontoon to pontoon, then the width of this plate is restricted to 100mm. If the width of this plate exceeds 100mm then its length is restricted to 150mm across the back of the transom, but may protrude as far back towards the motor as required.

502.10

No modifications below the water line are allowed.

502.11

Construction spray strakes are permitted anywhere on the outside of the highjacker cover.

502.12

Motors larger than the inflatable boat manufacturer's recommended maximum horsepower rating at the time of hull manufacture will not be allowed. The manufacturer must state the maximum horsepower rating when applying for homologation.

502.13

All boats must be fitted with a designated righting rope. This rope may not share common use as the designated bowline.

502.14

All boats must be fitted with a designated bowline with an eye on the extreme end. The bowline must measure three-quarters (3/4) of the length of the boat, if rope, minimum 8mm thick, if webbing, minimum 20mm wide.

502.15

All boats must have foot straps installed for both the driver and co-driver.

502.16

All boats must have two (2) transparent windows, 200mm wide x 650mm long, into which the event sponsor's decal must be placed. These windows must be securely fixed to the top of each side of the nose of the boat as close to the front of the pontoon as possible, but must be clearly visible.

503 PROPELLER

503.01

The original propeller may be replaced by any other with a thru-hub exhaust as long as the replacement is listed in an official catalogue of the propeller manufacturer and was freely available when purchased new.

503.02

The number of blades on the propeller is to be three and may be modified.

503.03

The locking nut, spacer, adapter, spilt pin and washers are free for the securing of the propeller.

503.04

Re-bushing and keying of propellers is allowed.

503.05

In all cases the propeller must form a seal with the gearbox to prevent “ventilation”. No venting holes are allowed in the hub. It is not allowed to machine the external area of the propeller that interfaces with the gearbox. Special propellers that permit ventilation are not allowed. It is also not allowed to space the propeller to promote “ventilation”.

503.06

The propeller blades may not protrude out of the back of the proguard by more than 8mm average.

504 MOTOR - GENERAL FOR ALL CLASSES

504.01

An outboard motor is a mechanical propulsion assembly which can be removed from the boat in a single unit, complete with it’s transmission and which does not transmit it’s power through the hull at any point. The motor must be naturally aspirated. The mounting supports fixed to the boat, the control levers, the tachometer with it’s connection, the battery with it’s conductors and the fuel tank and the fuel lines do not form part of the motor unit.

504.02

Power trim and tilt units are not allowed. The attachment angle and height of the motor shall remain fixed while the boat is underway.

504.03

Short shaft motors (15”) only will be permitted.

504.04

To be homologated as a standard tourist motor, an outboard motor must be sold and advertised by an industrial firm as being manufactured in standard production series (that is to say with all parts interchangeable and with identical dimensions, weights and materials) for the propulsion of tourist boats. No performance enhancement kits are permitted. No racing or specialty motors will be allowed. Motors can be updated or backdated to meet the homologation specifications. No coatings are allowed.

504.05

The motor must be able to function at reduced speed.

504.06

When the motor is in the water the cooling must be effected by the motor’s own circulating pump. External pick-ups attached or affixed to the boat or motor are prohibited.

504.07

An efficient control handle giving forward, neutral and astern movements is compulsory. The control handle for reverse gear, ready for use, must be within reach of the driver. Astern maneuvering of the boat must be possible by selection of reverse gear only.

504.08

A starter must ensure a quick and easy start without external aids. The motor must be fitted with a cord operated safety cut out switch (kill switch). The kill switch cannot have a lid fitted and must be of a type that does not function without the lanyard key inserted. The length of the lanyard on the kill switch key must not exceed 1.2 metres when fully stretched. The drivers lanyard must be securely attached to the wrist by a velcro or similar wristband.

504.09

The tiller arm may be fitted with a kill button at the extreme end of the tiller (the throttle end) so that the driver whilst maintaining the steering of the boat with the steering hand can stop the motor. Rule 605.04.

504.10

All leading edges of the gearbox can not be tampered with. Only normal wear and tear is acceptable. The tolerance for this wear and tear is limited to 5mm.

504.12
Spark plugs, spark plug caps and HT leads may be replaced by others having other characteristics. Coils and CDI units are to remain standard. Rule 504.33.

504.13
Revolution counters may be installed.

504.14
Over speed switches or rev limiters may be removed or on/off switches connected.

504.15
Lighting coils may be removed.

504.16
All auto lubes may be removed, together with parts relating thereto. A suitable plug may be inserted to seal hole.

504.17
Rubber motor mountings may be replaced with rigid or rubber mounts with similar characteristics.

504.18
Springs may be added to the throttle lever of the carburetors.

504.19
The top flow plates on the Tohatsu carburetor may be dammed & vented through the gasket to avoid excessive flooding and stalling. NO METAL can be removed.

504.20
The replacement of nuts or the addition of lock nuts, drilling and wiring, split pinning or keying is allowed provided the screws and pins are similar.

504.21
The gear interlock device on the starter may be removed.

504.22
The steering bar and brackets may be reinforced and additional steering bars may be mounted. The steering bars must be able to tilt independently from the motor. Strengthening of the transom bracket and lower leg are permitted.

504.23
Steering dampers may be fitted and are recommended.

504.24
Motor locking brackets may be removed.

504.25
The motor cowling may be secured by means other than, or in addition to the standard means, provided no changes are made to the air intake through the cowl cover. After market cowl cover may be used as long as design and weight are similar to original equipment.

504.26
Telltale cooling pipes may be replaced with another pipe of other characteristics.

504.27
The crank may be welded as long as the dimensions of the crank after welding do not exceed the original manufacturer's dimensions and width for the crank. Fusion welding is highly recommended to avoid breaking this rule.

504.28
The trim tab may be altered or removed.

504.29
For National and Titled Events all motors must be sealed (see Rule 506).

504.30
Waterproofing of the motor tray/pan or lower cowling is permitted, but must not allow more air to enter the cowling.

504.31
No part of the motor can be changed with another manufacturer's or pirate part except for the tiller arm, tiller arm bracket, gear change lever, gasket sets, cables, engine cowl and propeller (see Rules 503 for propeller).

504.32
Any bearing may be use as long as it is a 6305 type and has the same characteristics as a standard bearing.

504.33
ELECTRICAL COMPONENTS. It is allowed to remove any excess wiring, i.e. heat sensors, rev limiters, low oil sensors etc. It is forbidden to tamper with CDI units or to exchange coils or CDI units for others that are not a standard original part to that model motor.

504.34
KILL SWITCH. It is allowed to interchange kill switches from one manufacturer to another however, the toggle type switch that can be activated without the insertion of a kill switch key is forbidden.

504.35
KILL BUTTON. It is allowed to interchange the kill button from one manufacturer to another.

504.36
STANDARD PART. In any case where original parts are not available, permission must be obtained from the TRC Chairman to use substitute components. Such a request must be in writing. Any outboard motors that have superseded motor parts that may be used on older models may only be used if the older parts are not available and a superseded list is supplied by the factory and confirmed in writing by TRA-NZ. It is not allowed to interchange parts from one homologated model to another.

506 MOTOR "S-750" CLASS

506.01
Only the following 50hp motors are approved for this Class:
Tohatsu 50D2
Yamaha H

506.02
The carburetion and ignition advance controls may be tuned differently, but without altering the original parts. Only standard jets supplied with the motor are allowed.
Tohatsu 50D2 132: 132: 135:
Yamaha H 125: 125: 125:

506.03
Motors must comply with the dimensions as set out in Appendix D.

506.04
Re-boring is allowed to the second oversize in Yamaha motors (0.5) and the first oversize in Tohatsu

motors (0.5), provided OEM parts are used.
Champhering of ports after rebore is allowed to industry standard spec.

506.05
No accidental damage inside the cylinder will be allowed.

506.06
The top of the block may be machined within the following specification:

Tohatsu	179.8 mm – 180.2 mm
Yamaha	182.7 mm – 183.3 mm

506.07
Electric starts are not permitted.

506.08
Thermostats of the cooling circuit may not be removed.

506.09
Steering only by tiller arm.

506.10
Except where provided elsewhere in Rule 504, 506, there is to be no adding or removal of metal or weight within the inlet, compression or exhaust compartments of the motor. There is to be no adding or removal of material or weight to the rotating components of the motor.
No coatings are allowed.

506.11
It is the competitor's responsibility to ensure that his/her boat is within the legal requirements with regards to the specifications and Groups 300, 400, and 500. Ignorance of the above will not be accepted as a defence and he will therefore be disqualified as in terms of Rule 803.05

507 MOTOR "BANDIT" CLASS (inc Technical Specifications)

507.01
Production outboard motors with standard production short shaft (15") gear cases up to and including 60 hp will be accepted for homologation. The manufacturers rated horsepower or any other single factor will not be the deciding factor for class eligibility. Motors shall be judged on propeller shaft performance and weight as the TRC shall decide. Motors may have restrictions or modifications applied to align it with the class average performance. Data must be provided to support any changes or acceptance. The final decision will be at the determination of the TRC. All motors must be homologated prior to acceptance.

507.02
Gear boxes and mid sections shall be as originally manufactured for and provided with the manufacturers motor and model.

507.03
Re-boring is allowed only up to the sizes and tolerances given in the homologation specifications for the specific motor.

507.04
The carburetion and ignition advance controls may be tuned differently, but without altering the original parts except that jets may be substituted.

507.05
Baffle plates in carburetor fuel bowls to prevent fuel surge are permitted.

507.06
Only parts where a dimension which is quoted in the homologation sheet, may be altered for the purpose of reaching that specific measure. The shape of the part altered may not change (e.g. the shape of the cylinder head squish pan). Ref 806.

507.07

A part, the weight of which is quoted in the homologation sheet may be machined for the purpose of reaching that specific weight but without altering other measurements given for the part in question. It is not allowed to change the flywheel but balancing machining is allowed if the dimensions and weights provided for on the homologation sheet are respected.

507.08

There can be no modifications made to the exhaust system.

507.09

Any bearing may be used as long as it is a 6305 type and has the same characteristics as a standard bearing.

507.10

Chokes/primers may be modified, replaced or removed.

507.11

Thermostats and pressure valves of the cooling system can be removed.

507.12

Plastic/fiber reeds of any manufacture shall be allowed, and reed stops may be removed or altered.

507.13

A splash plate may be fixed to the trunk of the motor as long as it is not rigid and that it is fitted above the cavitation plate.

507.14

PISTONS. Where a dimension is quoted on a piston, metal may be removed to reach a specific weight, provided the dimensions are maintained. Should there still be an excess of weight, this may be removed from the inside of the piston i.e., the inside of the skirt or the area where the gudgeon pin goes through.

507.15

FLYWHEEL. Holes may be drilled in the flywheel to reduce weight. It is not allowed to reduce the outside diameter or to reduce the thickness at any point.

507.16

CRANKSHAFTS. Holes may be drilled in the crankshaft to reduce weight. It is not allowed to reduce the diameter of the crank.

507.17

CONNECTING RODS. It is allowed to reduce the overall weight of the conrods by removing the flashing on the shank of all three connecting rods to attain the weight spec provided for in the homologation specs.

507.18

ELECTRICAL COMPONENTS. It is allowed to remove any excess wiring, i.e. heat sensors, rev limiters, low oil sensors etc. It is forbidden to tamper with CDI units or to exchange coils or CDI units for others that are not a standard original part to that model motor.

507.19

HEAD VOLUME. It is allowed to encroach into the squish pan area in the skimming process as long as the minimum combustion chamber volume is maintained. It is not allowed, should this minimum be exceeded to remove metal within the squish pan area to regain lost volume.

507.20

PORTS, TRANSFER, BOOST AND EXHAUST. It is allowed to blend the aluminium track to a depth of 10mm measured from the sleeve to the track behind the port window, should the modified port window be smaller than the track, then the track may not be tampered with.

507.21

KILL SWITCH. It is allowed to interchange kill switches from one manufacturer to another however, the toggle type switch that can be activated without the insertion of a kill switch key is forbidden.

507.22

KILL BUTTON. It is allowed to interchange the kill button from one manufacturer to another.

507.23

THROTTLE ADVANCE. On various models it is allowed to change the position of the throttle cable link pin on the advance cam. It is not allowed to modify the cam itself or change the radius on the cam.

507.24

STANDARD PART. In any case where original parts are not available, permission must be obtained from the TRC Chairman to use substitute components. Such a request must be in writing. Any outboard motors that have superseded motor parts that may be used on older models may only be used if the older parts are not available and a superseded list is supplied by the factory and confirmed in writing by TRA-NZ. It is not allowed to interchange parts from one homologated model to another.

507.25

To provide assistance and clarification on a number of technical areas, the Official UIM Engine Homologation papers & documents are to be used.

507.26

Copies of the Official UIM Engine Homologation papers & documents are available only to TRA-NZ members on request for a nominal fee from the TRA-NZ.

507.27

It is the competitor's responsibility to ensure that his/her boat is within the legal requirements with regards to the homologation specifications and Groups 300, 400, and 500. Ignorance of the above will not be accepted as a defence and he/she will therefore be disqualified as in terms of Rule 803.05

508 REPLACEMENT BOATS & MOTORS

508.01

Competitors can replace their boat as many times as they want through out the season but in a titled or national event, if a competitor changes from the boat they have entered in the event, they will incur a 10% penalty for all races/heats raced on that day only. This penalty shall not apply when in the view of the RD the change of motor or boat was necessitated by the fault of a third party or other mitigated factor. The decision of the RD shall be binding. No non-homologated boat may be entered into a National or Titled Event.

508.02

The power head or the entire motor may be replaced during the season but if is changed from the entered one during a titled or national event a 10% penalty will incur for all races/heats run with that motor on that day only. For National and Titled Events the power-head must have an identification mark at the start of an event. In the event of the power head or motor being replaced, the original unit must be impounded for inspection.

508.03

Where a power head is to be changed during a National or Titled Event, it is the competitor's responsibility to get an Official Scrutinizer to check the old seal of the power head to the engine base (Seal 3) has not been broken before any work is done. See Rule 506.05.

The replacement power head must have been sealed earlier, and the third seal (Seal 3) to the engine base re-instated ASAP. In the absence of a sealing tool, the RD may use whatever interim measure necessary to ensure the integrity of the sealing process.

508.04

During a National or Titled Event where it is necessary to strip the motor immediately to avoid damage, an Official appointed by the RD must observe the procedure. All parts are then to be placed in a container, and impounded for inspection.

509 SEALING OF MOTORS

509.01

All motors and power-heads will be sealed prior to competing in a National or Titled Competition. That is to include any spare motor or power-head.

509.02

Motors are to be sealed at four places: (Seal 1) the cylinder head, (Seal 2) where the crankcase splits, (Seal 3) where the power head is fastened to the engine base, and (Seal 4) the reeds by using TRANZ approved seals. Sealing is to be done in such a manner so as to not allow either the cylinder head, reeds or power head to be removed, or the crankcase split after the power head is removed.

509.03

Engine sealing can only be undertaken by Certified TRA-NZ Engine Sealing Official.

509.04

In the case of suspected technical infringement, a motor strip can be requested, by the R.D or another competitor as per rules 803, to check all things and if any competitor is found to be infringing any of the rules in 504, 505, 506 and 507 wherever they apply, they will be disqualified from the National or Titled Event, and unable to participate in the said event further.

509.05

Any competitors found to have broken any of the four seals on the motor fitted to their boat for whatever reason, will lose all accumulated points back to when all four seals were last noted to be in tact – noted on scrutinizing sheet. Rule 206.03

GROUP 600

601 RACE RULES - GENERAL

601.01

All Thundercat Racing classes shall be offered at Thundercat Racing events. All classes shall not necessarily be offered prize money or trophies. Classes may be run together but shall be scored separately. When the prize purse is split evenly between all competitors, all classes shall be included.

601.02

The Race Director, hereinafter referred to as the RD, shall not limit the total number of entries for any event and shall, if necessary, run elimination heats for any class in which more than the permissible number of entries have been received.

601.03

No driver or co-driver will be allowed to compete in a National or Titled Event unless both have A-grade licenses, or they have been exempted by the TRA-NZ.

601.04

The entry of a team (2 persons) for any national or titled event must be on the approved entry form. Team members must hold an A grade licence. Only those holding an A grade drivers license may drive in the event. Only in the event of injury or by prior approval may a copilot be replaced from outside the entered team. A replacement copilot must hold an A grade license and have the approval of the RD. No replacement of a driver from outside the entered team is permitted. Failure to comply with the above will result in the loss of points for that day.

601.05

A briefing of all drivers and co-drivers prior to the first heat, or race, is compulsory. Drivers and co-drivers who do not present themselves when requested, with out a valid excuse, may be disqualified or penalized.

601.06

At the start of a heat or race, only the driver shall start the motor.

601.07

The second kill switch key may be attached to the boat or carried by the co-driver whilst racing.

601.08

Where there is a floating start, the RD has the option of allowing the motors to be started in or out of gear, but must inform all drivers of the decision at drivers briefing.

601.09

The lead boat has the right of way until an overlap is established. An overlap can only be established when the two boats are on the same course and the tip of the nose on the overtaking boat, if overtaking from the inside, is amidships of the overtaken boat. In this event, the boat being passed must yield and offer the line to the overtaking boat. If the overtaking boat is inside the course they have NO right of way. Boats inside the course must re-enter the course at transom to nose or better five boat lengths before the buoy, OR MUST YEILD. When overtaking from the outside, an overlap is established when the overtaking boat has passed the overtaken boat sufficiently to change lanes without contact. While overtaking, the overtaken boat on the inside should yield when coming to a buoy to prevent a T-bone situation.

601.10

An overtaking boat shall keep clear of the boat that is being overtaken, leaving sufficient room to prevent any contact between them. The leading boat shall not alter their course so as to obstruct an overtaking boat when passing (i.e. no swerving). The overtaking boat must keep their line to the buoy and not swerve to obstruct the overtaken boat.

601.11

No person shall provide or receive assistance from the air or by radio during a race. Assistance from the air is only permitted in the case of injury. Failure to observe this rule will result in disqualification.

601.12

Any boat that is towed along any portion of a leg and subsequently finishes the leg under its own power will be disqualified from the race.

601.13

Tuning or starting of boat motors out of the water will only be allowed if the propeller has been removed.

601.14

Three (3) starters or no race, four (4) starters or no second prize, five (5) starters or no third prize, except in Championship Races allocated by the TRA-NZ.

601.15

Boats disqualified from either a heat or race cannot be awarded points for that event.

602 WET WATER RULE.

602.01

If any competitor lands in the water during a Surf-cross Race, or a Speed-circuit Race, then other competitors are compelled to acknowledge the incident by raising a hand in the air. If in the view of the RD safety of the competitor is compromised the red flag will be raised and the race stopped immediately. All competitors are compelled to stop, clear the course, and if there is to be a re-start, proceed with extreme caution to the re-start area. Crews may not refuel or make any changes to their equipment and must be ready for an immediate re-start of the heat. Any competitor refueling or making changes will be disqualified from that heat.

602.02

The offending team referred to in Rule 602.01 can not rejoin the heat, and will not be permitted to take part in any re-start or re-run of that heat.

603 SURF-CROSS & SPEED-CIRCUIT RACING - GENERAL

Any Titled or National event will be held over five (5) days. There will be a minimum of three (3) heats and a final on each day where conditions permit. All points will be counted on the day for each heat including half points for the final. Points are added up at the end of the series. Highest points

wins.

Six (6) laps should be run, seven (7) for finals where conditions permit.

All boats are to have raced an equal number of times, any race day that is cut short will only have points allocated to each completed round.

603.01

There will be minimum of three (3) and a maximum of ten (10) boats allowed per qualifying heat for Surf-cross and Speed-circuit racing.

The top ten (10) qualifying boats will take part in a final heat.

603.02

The maximum number of laps for any qualifying heat will be nine (9), the number to be announced at drivers briefing.

603.03

Where there are no more than ten (10) boats, heats may be run as follows: The boats must compete in a minimum of four (4) heats. On completing all the heats, points are to be awarded as in Rule 702. The points are to be accumulated to determine the final positions for the day.

603.04

When there are more than ten (10) boats in any class, qualifying heats shall be run as follows. The boats must be divided up into equal groups and each group will run a minimum of three (3) qualifying heats. On completing all the heats, points are to be awarded as in Rule 702. The points are to be accumulated to determine the top ten (10) boats to go forward to the final heat. The final heat will be one (1) lap longer than the qualifying heats. Competitors that start in the final heat will all receive a placing for points regardless of whether they complete the heat or not. In the event that more than one boat does not complete the heat then the positions will be determined by who pulls out first (gets last place) pulls out second (gets second last place) and so on. Grid positions for the final will be determined by the highest number of points scored in the qualifying heats 1-10.

603.05

If for any reason a finalist cannot compete, the position will be offered to the next qualifying boat.

603.06

A random computer operated programme will draw all the grid positions for the qualifying heats.

603.07

If any final heat position is equal (tied points) there will be a count back on positions for the days racing, or if applicable back to the previous National points seeding.

603.08

Only in the event of an injury, accident, or at the discretion of the RD, may the co-driver drive the boat. In any situation Rule 601.04 will apply.

603.09

Co-drivers only may be replaced at the RD's discretion providing they have the appropriate licence.

603.10

On any start for Surf-cross and Speed-circuit races, all competitors must keep their allotted line, up to and around the first turning buoy. Competitors may not change lanes in front of or behind other competitors until they have passed and rounded the first buoy, or they will be disqualified from the heat.

603.11

Competitors are not permitted to race in another boats rooster tail or wake when coming off waves. A competitor following within 6 metres behind another boat in the same line will receive a warning and possible disqualification from the heat.

603.12

Bumping of a buoy will result in the competitor incurring a 50% penalty. If the competitor is forced

onto the buoy, RD's discretion will apply as to who is penalised.

603.13

If a competitor rides over a buoy they will be disqualified from the heat and be liable for the replacement or repair cost if the buoy is lost or damaged. If the competitor is forced onto the buoy, the RD's discretion will apply as to who is disqualified.

603.14

If a competitor misses a buoy, they will be disqualified from that heat. If forced to miss a buoy, the RD's discretion as to who is disqualified and/or penalised. For safety reasons, competitors are not allowed to round the buoy again after rounding it the wrong way. A competitor who rounds a buoy again will be disqualified from the heat.

603.15

If any competitor collides amidships with another competitor (T-bone) this will result in immediate disqualification of the offending competitor from the heat.

603.16

The offending party or parties where one boat lands on another will be disqualified from the heat.

603.17

Deliberate bumping of another competitor will result in disqualification from the heat.

603.18

If a boat should burst during a heat for any reason, that boat will immediately cease racing and clear the course.

603.19

If a competitor should lose their helmet during a heat for any reason, that competitor will immediately stop racing and clear the course.

603.20

Any boat having mechanical or structural repairs will be required to be re-examined before starting in another heat. Rule 206.

603.21

The standard course for Surf-cross racing is drawn in APPENDIX A. This layout is recommended but the final layout will be determined by the RD after considering the venue and conditions. All races will be a shore start.

603.22

For Surf-cross racing there must be a minimum depth of at least 600mm approximately halfway between the shore buoy and the shore.

603.23

The standard course for Speed-circuit racing is drawn in APPENDIX B. This layout is recommended but the final layout will be determined by the RD after considering the venue and conditions. All races will be a shore start.

603.24

For Speed-circuit races all competitors must do the "long lap" as a first lap (i.e. first lap to include an equalizer lap). This lap does not count as one of the compulsory equalizer laps.

603.25

For Speed-circuit races all competitors must complete two (2) laps of the equalizer circuit during each heat. These must be completed after the 1st lap and before the start of the final lap. Failure to do these two (2) laps will result in the competitor being disqualified from that heat.

603.26

Any boat which stops on the course and is not a danger to other boats can restart and carry on racing.

604 SURF-CROSS & SPEED-CIRCUIT RACING - SHORE START

604.01

Prior to the start of a heat competitors will be notified preferably by loudspeaker, when they must immediately take the water. On this announcement the “Blue Peter” shall be raised for three minutes, or as the Starter may decide.

604.02

The boats must be held in the water by the driver and co-driver both standing next to the boat.

604.03

The boats will be held in a line, spaced no closer than two (2) metres apart.

604.04

One (1) minute before the start of the heat the “Blue Peter” will be lowered and the Green Flag raised. Any competitor not on the start line before the Green Flag is raised may not start in that heat, or any re-start of the same heat.

604.05

Before the start of the heat the Green Flag will be raised for at least fifteen (15) seconds.

604.06

At this time, the driver must raise in his/her hand the kill switch key at full arms length over his/her head.

604.07

The official start of the heat will be given by dropping the Green Flag, at which time a horn may be sounded.

604.08

When the Green Flag is dropped, or the horn sounded, the driver will be allowed to install the kill switch key and start the motor.

604.09

Only after both members of the crew are within the centre line of the pontoons (being the rope) may the boat get under way.

604.10

The heat is live when the last boat has completed the first lap by crossing the start/finish line.(E buoy)

604.11

In difficult conditions the RD may allow extra boat handlers to assist with the holding of the boat. In the event of a boat not starting immediately, the extra boat handlers must withdraw from the water before the lead boat passes the finish buoy for the first time, or the boat can be disqualified from that heat.

604.12

Where conditions permit there may be a “LE-MANS” shore start. The Starter will place a diagonal line of the drivers in such a way that the driver of the furthestmost boat (outside grid position) runs the shortest distance while the driver of the innermost boat (grid position 1) runs the longest distance. An approximate angle of 15 degrees will be set.

605 SURF-CROSS RACING - FINISH

605.01

The White Flag will be waved at the start of the final lap.

605.02

Where the last turning buoy is “E” Buoy, the competitors may beach anywhere. Finishing boats that collide with any other beached boat will be disqualified. Any boat which crosses through the finish

line will be disqualified.

605.03

Where the last turning buoy is “D” Buoy, the competitors may beach anywhere. Finishing boats that collide with any other beached boat will be disqualified. Any boat which crosses through the finish line will be disqualified.

605.04

All drivers must retain control of their boats by holding on to the tiller until the boat has come to rest and stay in their boats until the last boat has completed the heat, if the driver is thrown out they must get back in their boat. All competitors must leave their helmets on until the race is completed. If any competitor fails to comply with this rule, they will be disqualified from that heat. The co-drivers must run to the FINISH LINE and the Chequered Flag.

605.05

When ‘beach trolleys’ are supplied, boats may not re-enter the water. All boats are to be transported back to the boat pit area.

605.06

The FINISH LINE must be at least eight (8) metres wide, and far enough up the beach to allow the co-drivers a minimum of 10 metres to run, but no more than 25 metres.

605.07

A heat will be deemed completed when ALL the nominated laps have been completed, and the last boat has been beached, or in the case of race stoppages and after a maximum of three re-starts a TECHNICAL FINISH will be declared. Rule 612.

606 SPEED-CIRCUIT RACING - FINISH

606.01

The White Flag will be waved at the start of the final lap.

606.02

As the competitors cross the start/finish line after completing the final lap they shall be acknowledged by the Chequered Flag. After finishing a heat all boats must proceed around the next buoy beyond the start/finish line and wait for a red flag before returning to shore. If any competitor fails to comply with this rule, they will be disqualified from that heat.

606.03

A heat will be deemed completed when ALL the nominated laps have been completed.

607 SURF-CROSS RACING - RE-STARTS

607.01

In the event a heat has to be stopped prior to the first lap being completed by all boats, then all remaining boats are to begin the race again using the same start format and grid positions. Rule 604.

607.02

In the event a heat has to be stopped after the first lap has been completed by the last boat, but prior to half the designated laps being completed by the first boat, there will be either a Deep-water (Rule 609), or an Inshore (Rule 610) re-start. All heats are to be re-started until half the designated laps have been completed by the leading boat, or there have been three re-starts. The RD shall advise on re-starts at the drivers briefing.

607.03

The maximum number of re-starts for any heat shall be three.

607.04

Competitors who create or cause an incident that stops the race will be disqualified from any re-start of that heat.

608 SPEED-CIRCUIT RACING - RE-STARTS

608.01

In the event a heat has to be stopped prior to the first lap being completed by all boats, then all remaining boats are to begin the race again using the same start format and grid positions. Rule 604.

608.02

In the event a heat has to be stopped after the first lap has been completed by the last boat, but prior to half the designated laps being completed by the first boat, there will be either a Deep Water, or an Inshore re-start. Rules 609 and 610. All heats are to be re-started until the required amount of full laps are completed. The RD shall advise on re-starts at the drivers briefing.

608.03

The maximum number of successive re-starts for any heat shall be three. If the heat is not completed in that time, it will be run later in the meeting.

608.04

Competitors who create or cause an incident that stops the race will be disqualified from any re-start for that heat. Any competitor deemed to have been a third party and not at fault, subject to the RD's discretion, will be allowed to re-start.

609 RE-START - DEEP WATER ROLLING

609.01

If the boat running last has completed one full lap, and there is an incident causing the heat to be stopped, and a Deep Water rolling re-start is called for, all remaining boats are to proceed carefully to the first turning buoy and wait for the Marshal Boat which will become a Start Boat.

609.02

The Race Marshal will advise competitors of their new grid positions. The new grid position should be in the same order in which boats crossed the start/finish line on the previous full lap prior to the stoppage of the respective heat.

609.03

Boats must form up in the new grid positions, in a slow rolling line out from the Start Boat.

609.04

The Starter should wait until the boats settle into a reasonable line prior to re-starting the heat with the drop of the Green Flag.

610 RE-STARTS - INSHORE ROLLING

610.01

If the boat running last has completed one full lap, and there is an incident causing the heat to be stopped, and an inshore rolling re-start is called for, all remaining boats are to proceed carefully to the first beach turning buoy and wait for the Flag Marshall or another Race Official to advise them of their new grid positions. The new grid positions should be in the same order in which boats crossed the start/finish line on the previous full lap prior to the stoppage of the respective heat.

610.02

Boats will form a rolling line in position along the front straight leading up to the start/finish line. They must form a line and stay two (2) metres away from the next boat but within fourteen (14) metres of the boat in front of them. Once the Starter is satisfied of the line he/she will re-start the heat on the drop of the Green Flag.

611 LONGHAUL RACING - GENERAL

611.00

An extended list of rules for each long-haul racing event shall be provided. This will include safety equipment - start - race in progress, compulsory fuel stops - finish, and will be read in conjunction with the Thundercat Racing Rules.

611.01

National long-haul points are based on a maximum of 450 points = 4 x Surf-cross heats + final or 350 points = 3 x Surf-cross heats + final, with a minimum of 50 points for any boat that completes the first leg of the long-haul

611.02

To determine final placings, all long-haul races must be run on a time basis and points allocated as rule 702. The race will be deemed to be finished after the first boats time + 60% has elapsed.

611.03

Having determined final placings, points are to be awarded as in Rule 702. Competitors who complete the first lap or leg in a long-haul will all receive a placing for points regardless of whether they complete the event or not. In the event that more than one boat does not complete the race then the positions will be determined by who pulls out first (gets last place) pulls out second (gets second last place) and so on. Such positions will be determined in the order boats completed the previous lap or leg.

611.04

In long-haul racing, if a competitor falls from the boat, all following competitors must exercise caution and render assistance to fellow competitors if they are in immediate danger. SAFETY IS A PRIORITY.

611.05

Competitors who fall from, and regain their boats, are allowed to continue the race without further penalty.

611.06

Competitors who deviate from the set course will be disqualified from the race.

611.07

Competitors who fail to complete the required number of beach stops, fuel stops, or legs, will be disqualified.

611.08

A boat must complete each leg on the water, under its own power, or by paddle power, within the cut-off time to receive an elapsed time for that leg. Boats not completing the leg will receive the last boats time, plus a penalty of ten (10) minutes.

611.09

Boats arriving at the beach stop must beach on the starboard side of any/all beached boats under the supervision of a marshal.

611.10

At all beach stops the motor must be killed until such time as the co-driver returns to the boat. Back-up crews may assist at the discretion of the RD.

611.11

Once a competitor has crossed the finish line, they may not cross back and re-enter that leg until the finish line is officially closed. Re-entering an open leg will result in disqualification.

611.12

Where the driver and co-driver each hold dual licenses, they may change positions during a long-haul event without penalty.

612 TECHNICAL FINISHES

612.01

A technical finish is the point when the heat is deemed to be completed after an earlier incident on the

course has forced a re-start.

612.02

In the case of a Deep Water Rolling re-start, all competitors must travel up to and around the start/finish buoy. Laps will be recorded, and added to the previous completed laps, for each completed lap thereafter until the full amount of laps for the heat have been completed.

612.03

In the case of an Inshore Rolling re-start, all competitors must travel past the start/finish buoy. Laps will be recorded, and added to the previous completed laps, for each completed lap thereafter until the full amount of laps for the heat have been completed.

612.04

If there is a further incident causing a stoppage. The heat will be technically finished if the boat running first has completed 50% of the designated laps for that heat, or if there has already been three re-starts for that heat. The results will be taken in the order the boats last passed the finishing buoy. Competitors who create or cause an incident that stops the race will be disqualified from that heat.

615 SURF-HAUL RACING - GENERAL

615.01

A briefing of all drivers and co-drivers prior to the start of the race, is compulsory. Drivers and co-drivers who do not present themselves when requested, with out a valid excuse, may be disqualified of penalized.

615.02

At the start of a heat or race, only the driver shall start the motor.

615.03

The second kill switch key may be attached to the boat or carried by the co-driver whilst racing.

615.04

Where there is a floating start, the RD has the option of allowing the motors to be started in or out of gear, but must inform all drivers of the decision at drivers briefing.

615.05

An extended list of rules for each Surf-haul racing event shall be provided. This will include safety equipment - start - race in progress, compulsory fuel stops - finish, and will be read in conjunction with the Thundercat Racing Rules.

615.10

Surf-haul points are based on a maximum of 450 points = 4 x Surf-cross heats + final or 350 points = 3 x Surf-cross heats + final, with a minimum of 50 points for any boat that completes the first leg of the long-haul

615.11

To determine final placing, all Surf-haul races must be run on a time basis and points allocated as rule 702.

615.12

Having determined final placing, points are to be awarded as in Rule 702. All competitors will receive a placing for points regardless of whether they complete the event or not. In the event that more than one boat does not complete the race then the positions will be determined by who pulls out first (gets last place) pulls out second (gets second last place) and so on. Such positions will be determined in the order boats completed the previous lap or leg.

615.20

In Surf-haul racing, if a competitor falls from the boat, all following competitors must exercise caution and render assistance to fellow competitors if they are in immediate danger. SAFETY IS

A PRIORITY.

615.21

Competitors who fall from, and regain their boats, are allowed to continue the race without further penalty.

615.22

Competitors who deviate from the set course will receive a penalty equal to 50% of their points for that timed leg or at R.D's discretion.

615.23

Competitors who fail to complete the required number of beach stops, fuel stops, or legs, will receive a penalty equal to 50% of their total points or at R.D's discretion.

615.24

A boat must complete each leg on the water, under its own power, or by paddle power. Boats not completing the leg will be as rule 611.03

615.25

No person shall provide or receive assistance from the air or by radio during a race. Assistance from the air is only permitted in the case of injury. Failure to observe this rule will result in disqualification.

615.26

Any boat that is towed along any portion of a leg and subsequently finishes the leg under its own power will be disqualified from the race.

615.30

On any start for Surf-Haul all competitors must keep a minimum of 2 metres between boats up to and around the first turning buoy.

615.31

Competitors are not permitted to race in another boats rooster tail or wake when coming off waves. A competitor following within 6 metres behind another boat in the same line will receive a warning and possible disqualification from the heat.

615.32

Bumping of a buoy will result in the competitor incurring a 20% penalty for that timed leg. If the competitor is forced onto the buoy, RD's discretion will apply as to who is penalized.

615.33

If a competitor rides over a buoy they will receive a penalty equal to 50% of their total points for that timed leg or at R.D's discretion and be liable for the replacement or repair cost if the buoy is lost or damaged. If the competitor is forced onto the buoy, the RD's discretion will apply as to who is penalized.

615.34

If a competitor misses a buoy, they will be penalized. If forced to miss a buoy, the RD's discretion as to who is penalized. For safety reasons, competitors are not allowed to round the buoy again after rounding it the wrong way. A competitor who rounds a buoy again will be penalized.

615.35

If any competitor collides amidships with another competitor (T-bone) this will result in immediate disqualification of the offending competitor from the event.

615.36

The offending party or parties where one boat lands on another will be penalized at RD's discretion.

615.37

Deliberate bumping of another competitor will result in disqualification from the timed leg.

615.40

Boats arriving at the beach stop must beach on the starboard side of any/all beached boats under the supervision of a marshal.

615.41

At all beach stops the motor must be killed until such time as the co-driver returns to the boat. Back-up crews may assist at the discretion of the RD.

615.42

All fuel tanks must be removed from the boat and exchanged with a fresh one. No pouring of fuel on the waters edge

615.43

Once a competitor has crossed the finish line, they may not cross back and re-enter that leg until the finish line is officially closed. Re-entering an open leg will result in disqualification.

615.44

Where the driver and co-driver each hold dual licenses, they may change positions during a Surf-haul event without penalty.

615.45

A race may be stopped short due to weather conditions, technical difficulties or at the R.D's discretion for any other reason. A red flag will be flown from all Marshal Boats/ Stations and at the Start/ Finish Line and all racing is to cease and all boats to make their way to the closest time-keeping Marshal and await further instructions.

615.46

Where a race is stopped short then the placing will be taken in the order the boats last passed the start/ finish line or a time keeping Marshal and/or boat.

GROUP 700

701 GENERAL

701.01

No abuse of officials will be tolerated. Any team, or members of their family, abusing any officials will be disqualified and the race jury reserves the right to take appropriate action against that team.

701.02

A competitor must direct all queries to the RD, or where appointed the assistant RD, when racing is not in progress. He may not address queries to any other official. No competitor is permitted into the control tower during and immediately after an event, until such time as the results are official and posted.

701.03

Only a driver may direct a query or protest to the RD, or where appointed the assistant RD, and may

only do so pertaining to the races in which he/she takes part. For protests see Group 800.

701.04

Intentionally causing damage to another boat, or intentionally causing bodily harm to a member of another boat will not be tolerated. Anyone failing to comply with this rule can be disqualified and disciplinary action will be taken – see rule 800.

701.05

After a finding of gross infringement of the UIM or TRA-NZ rules or a gross breach of good manners or sportsmanship the race committee or the jury may exclude a competitor and a boat when appropriate from a race or meeting.

701.06

The TRA-NZ Executive shall appoint a RD for all National and Titled Events.

701.07

The RD has the right to inspect any motor, hull, fuel etc. at his/her discretion, and has the right to discipline any competitor for unruly behavior, and the right for safety considerations to change the racing circuit and start/finishes to suit conditions (all competitors must be informed).

701.08

The organizers of a National Championship must ensure that motors for each class can be tested, inspected and/or measured to ensure legality. The inspector can inspect at his/her discretion the legality of a minimum of the first place finisher of the combined heats, or race for each class. The post race inspection may be a basic horsepower test, or an inspection not limited to any specific area and will be handled as a Technical Protest.

701.09

Any competitor failing to comply with any of the TRA-NZ Thundercat Race Rules, or NZPBA rules, may have their license suspended at the discretion of the governing bodies of the sport.

701.10

A driver who is warned by an RD for dangerous driving will have his license endorsed to reflect this warning. On the driver receiving a second warning during a season he will be disqualified from the event as well as receiving a one (1) month's suspension from all racing.

701.11

TRA-NZ members need to be aware that at ALL TIMES bad acts and irresponsible behavior, such as buzzing other members of the public with race boats, is not acceptable to the TRA-NZ and such members can be disciplined under the TRA-NZ Constitution.

702 POINTS SYSTEM

Surf Cross and longhaul points to be used for both heats and placings for the day.

Position	Points
1	20
2	17
3	15
4	13
5	11
6	10
7	9
8	8
9	7
10	6
11	5
12	4
13	3
14	2
15	and beyond 1 each
DNF	0

703 SEEDING OF COMPETITORS

A random computer operated programme will draw all the grid positions for all events.

703.01

The competitors entered shall be divided into the respective Classes.

704 CLUB POINTS

To recognize members who support sanctioned TRA-NZ events, the following points system will apply for Club Points and the awarding of Club Points Trophies & Certificates only.

704.01

All Club Points are to be awarded to the boat, not a designated driver or co-driver.

704.02

Through out the season and up to prize giving, all boats will be awarded points for every race or heat they compete in, except for National or Titled events when Club Points will not be awarded. Club Points are to be awarded in accordance with Rule 702.

704.04

Club Points are to recognize each of the classes being raced.

704.05

When boats race at an event not being run under these race rules, but the event is sanctioned by the TRA-NZ, the race points, if any, awarded on the day shall only be used to determine placings for the day. Those placings will be awarded Club Points under Rule 702.

704.06

A boat racing at an event sanctioned by the TRA-NZ, but not governed by these Race Rules, must comply with Rules found in Groups 300, 400 and 500 to be awarded Club Points.

705 THE ROOKIE OF THE YEAR TROPHY

705.01

Only a team comprising a driver and co-driver, entering in their first National Championship Series, are eligible for The Rookie of The Year Trophy.

705.02

Regardless of any team or crew position changes, a driver or co-driver is only eligible for the Rookie of

The Year Trophy once.

705.03

The Executive Committee shall declare the winner of The Rookie of The Year Trophy.

706 ENTRY FEES & TRA-NZ ENTRY FEE LEVY

706.01

All competitors must enter in writing for a Thundercat Racing event at least fourteen (14) days prior to the date of the event. The entry fee and a fixed TRA-NZ entry fee levy of \$15.00 must accompany the entry. Late entries must be accepted on payment of a late entry fee.

All fees are non-refundable.

706.02

The recommended entry fee shall be \$15.00 per boat. The entry fee may however be altered by the organizers or promoters.

706.03

Competitors are to be advised of the details of an event, including the entry fee at least twenty-eight (28) days prior to the event.

706.04

If competitors are not advised of the event details at least twenty-eight (28) days prior to the event they shall not be required to pay the late entry fee.

707 REFUELLING

707.01

Refueling of boats at the waters edge will only be permitted if fuel tanks are exchanged and approved fuel line connectors are being used.

707.02

At Thundercat Racing events, where a restricted area is established for refueling, the transferring of fuel (petrol) from one fuel container to another must only be done in that restricted area.

707.03

For environmental and safety reasons, it will be the responsibility of competitors transferring fuel from one fuel container to another, (boats fuel tanks included) to ensure no fuel is spilled.

707.04

Any competing team found infringing Rule 707, or found responsible for a spillage of fuel, will be fined \$50.00 payable by the driver and co-driver of the team.

707.05

When a long-haul has compulsory fuel stops, on the fuel stop during the race a competitor must take on board fuel in an approved fuel cell or container.

708 FLUSHING OF MOTORS

708.01

At Thundercat Racing events, where a restricted area is established for the flushing of motors after a boat has flipped, the flushing of motors must only be done in that restricted area.

708.02

To protect the environment, competitors and/or their assistants flushing motors must use a cover (i.e. engine cowl) to restrict the run off of flushing fluid so that it can be collected on a ground mat.

708.03

Any competing team found infringing Rule 707, or found responsible for a spillage of flushing fluid, will be fined \$50.00 payable by the driver and co-driver of the team.

709 THUNDERCAT RACE RULE CHANGES

709.01

Any TRA-NZ member wishing to submit a rule change to the Thundercat Racing Rules should do so in writing to the Secretary of TRA-NZ.

709.02

Only written submissions for rule changes will be received and where they are to amend or replace an existing Thundercat Race Rule the race rule number concerned must be given. The submission is to be supported with the reason for the change.

709.03

The TRA-NZ Executive Committee will appoint a Remit Secretary before January of each year, to receive all race rule remits and present them to a Special General Meeting of TRA-NZ to be called annually for the purpose of Race Rule Changes.

GROUP 800

801 RACE INFRINGEMENT PROTESTS

Protests covered by rules found in Groups 100, 200, 600, and 700 will be considered race infringement protests.

801.01

Only a driver may direct a query or protest to the RD, or where appointed the Assistant RD, and may only do so pertaining to the races in which he/she takes part. For a race infringement this must be done immediately after the heat and must be directed to the RD or where appointed the Assistant RD. A \$20.00 fee must accompany each protest. If the protest is upheld the fee will be returned.

801.02

A protest must include as a reference the number of the Thundercat Race Rule concerned and can be given in writing or verbally, but must be given prior to the official posting of the results for the heat in which the infringement occurred.

801.03

Protests can only be made against other competitors for rule infringements that have gone unnoticed by the RD.

802 DETERMINATION OF RACE INFRINGEMENT PROTESTS

802.01

The RD will hear the protest and if the RD has no knowledge of the incident and if the matter cannot be resolved by the RD between the drivers concerned within two (2) minutes the RD must call a stop to all racing.

802.02

The RD then gives the drivers concerned three (3) minutes to muster to race control all witnesses to be put forward by the protester and the protested party, which can include other officials, and calls the Race Jury together.

802.03

The protester and the protested party then each have four (4) minutes to put forward their evidence to the Race Jury.

802.04

The Race Jury then have two (2) minutes to deliberate and to give their vote of upheld or dismissed to the RD.

802.05

Should a driver or co-driver of a team be penalized, disqualified or suspended, the remaining team member (whether it is the co-driver or driver) shall receive precisely the same.

802.06

Race infringement protests can go no further.

802.07

The RD will appoint a three (3) person Race Jury. Persons involved or considered interested parties in the protest are not eligible for the Race Jury.

802.08

The Assistant RD may represent the RD where one is appointed.

803 TECHNICAL PROTESTS

803.01

Protests covered by rules found in Groups 300, 400 and 500 will be considered technical protests.

803.02

Only a driver may direct a query or protest to the RD, or where appointed the Assistant RD, and may only do so pertaining to a race in which he/she takes part. For a technical infringement this must be done immediately after the heat and must be directed to the RD or the Assistant RD. A technical protest must include as a reference the number of the Thundercat Race Rule concerned and must be given in writing. The appropriate protest fee (Rule 803.07) must accompany each protest. If the protest is upheld the fee will be returned.

803.03

Should the protest be found invalid the TRA-NZ will pay the following costs for stripping down, measuring, and re-assembling the motor. Time may only be claimed to a maximum of six hours at \$50.00 per hour. Any excess will be borne by the owner of the motor.

The above cost excludes the cost of materials (gaskets & seals), or lubricants. Where applicable, materials will be charged as per the standard domestic rates. Lubes may only be charged as per the recommended grade in the workshop manual.

803.04

Should the protest be upheld the protested party will be fined an amount equal to the appropriate protest fee in rule 803.02 and all the costs of stripping down, measuring, and re-assembly of the motor.

803.05

Any competitor/s in breach of any rules covered in Groups 300, 400, and 500 will be penalised and if required a hearing called by the TRA-NZ Executive Committee. The penalties that may be received are: Loss of all points and prizes accredited to them for the current season, disqualification from that racing event, suspension of up to five years. The results for the race in question will be changed as if they had not raced, where applicable.

803.06

Should a driver or co-driver of a team be penalized, disqualified or suspended, the remaining team

member (whether it is the co-driver or driver) shall receive precisely the same.

803.07

Technical protest fees shall be a minimum of \$300.00, which shall include a Stage 1 motor inspection. A Stage 2 motor inspection will be \$600.00.

803.08

Technical Inspections not funded by protest fees will be funded from the TRA-NZ Entry Fee Levy.

804 DETERMINATION OF TECHNICAL PROTESTS

804.01

A motor may be inspected initially by testing the horsepower and or taking a measurement of head and block..

804.02

Stage 1 motor inspection will require the owner, the owner's technician, or the appointed inspector to remove the intake manifold and cylinder head, and drop the gearbox. The inspector shall measure or otherwise check any or all parts of the motor to determine compliance with all technical rules and/or specifications at his/her discretion, limited only by the extent of the aforementioned tear down.

804.03

Stage 2 motor inspection will require the owner, the owner's technician, or the appointed inspector to remove the power head, exhaust plate, and lower unit from the middle section, and also remove the intake manifold, cylinder head, and all pistons from the power head, and disassemble the crankcase. The inspector shall measure or otherwise check any or all parts of the motor to determine compliance with all technical rules and/or specifications at his/her discretion, limited only by the extent of the aforementioned tear down.

804.04

The inspections should be completed as soon as possible, but in cases involving the use of special tools and equipment, the inspector may postpone the inspection and stipulate the time and place where the motor/s shall be made available. In the meantime, the motors/s shall remain sealed to prevent any alterations being made.

804.05

The inspector shall present a written report to the TRA-NZ Executive Committee with copies to the protester and the protested party.

805 OBSERVERS TO TECHNICAL INSPECTIONS

805.01

Only the following may attend the post-race motor inspections regardless of a protest being lodged or not.

1. The RD and a TRA-NZ Executive Committee Member. (The person representing TRA-NZ most removed from the boat in question shall take charge).
2. The appointed inspector.
3. The driver and his technician (or representative).
4. Any other person the person in charge requires.

805.02

The protester or his representative: Note that in the case of a protest, the protester's duty is to ensure that the inspection complies with his protest requirements. He may not however physically inspect the parts himself and should not be allowed within a five (5) metre radius of the motor.

GROUP 900

901 DRUGS & ALCOHOL

Drinking alcoholic beverages or the use of drugs by any competitor or race official prior to completion

of racing is strictly prohibited. Violation of this rule will result in immediate disqualification and/or suspension from the event. TRA-NZ has adopted and supports the NZPBF Anti-Doping Policy recognized by SPARC.

901.02

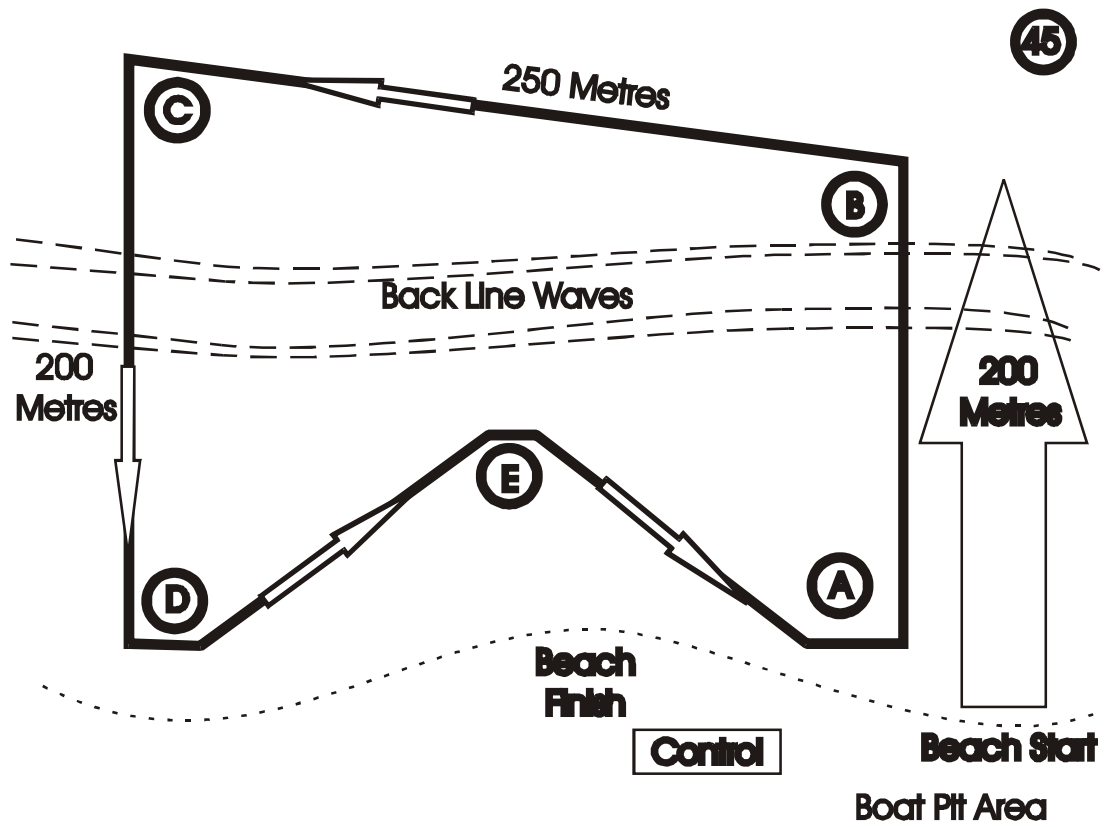
A competitor selected for the testing of alcohol or drugs shall not refuse to be tested, and shall appear at a control centre at the time appointed by the RD.

901.03

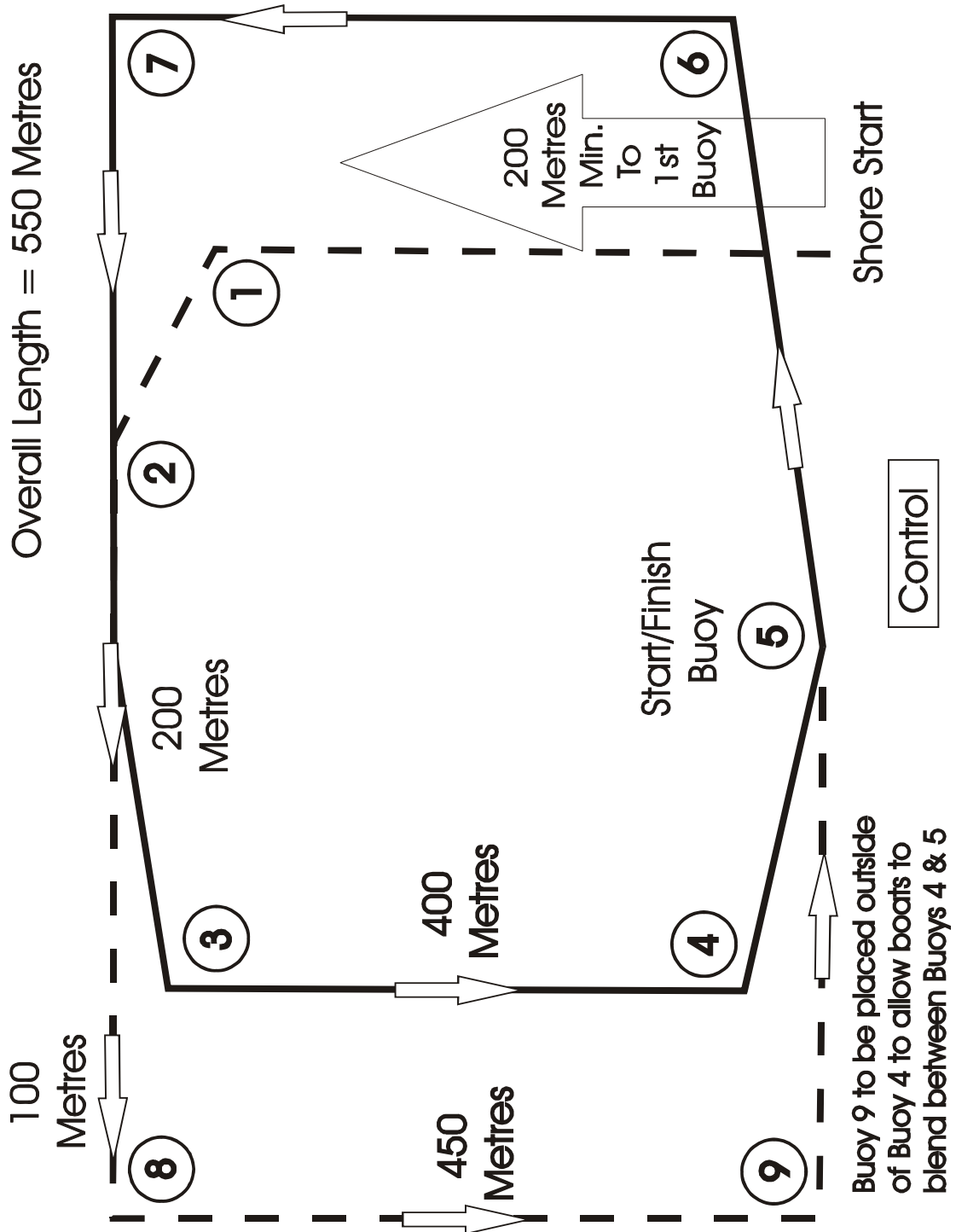
Any competitor proven to be under the influence of alcohol or under the influence of banned drugs whilst competing, or the user of performance enhancing drugs will have his/her license suspended indefinitely. See UIM rules 205 - 0202.

APPENDIX A

STANDARD COURSE FOR SURF-CROSS



APPENDIX B
 Standard Course for Speed-Circuit.



Buoy 9 to be placed outside of Buoy 4 to allow boats to blend between Buoys 4 & 5

APPENDIX C

PROPELLER GUARD

An approved guard will be a one piece assembly, fastened to the outboard at not less than five points, four at the cavitation plate and one at the skeg, by nuts & bolts and/or nuts & machine screws of not less than 7.5mm diameter.

Guards may be fabricated from stainless steel, steel plate or any other suitable material, of not less than "3mm" thick unless otherwise specified. The material on polished, used, or repaired guards can not be less than 2.8mm thick.

Any new designed guard made of composite or other materials needs to have a maximum gap of 120mm between fins. TRANZ must approve the finished design.

Profiling. The "leading edges" on the leading edge plate, the eight guard rails, the guard ring/band, and the "trailing edge" on the guard ring/band can be profiled to a minimum 1.4mm radius. The "trailing edge" on the guard rails can be profiled to a minimum 0.5mm radius. Profiling is not compulsory but guards must have no sharp edges or points, all edges are to be rounded and smooth.

The leading edge plate shall not be less than 12mm x 2.8mm in section and must follow the leading edge of the gear case. The top of the leading edge plate must not be further than 35mm from an imaginary line drawn forward from, and level with, the bottom of the outboard's cavitation plate and must not finish higher than the lowest point of the outboard's skeg, measurement to be taken with the prop shaft in a horizontal position.

The cavitation fastening plate shall be not less than 130mm x 100mm x 2.8mm and may be relieved to accommodate the gear case. Profiling to blend with the cavitation plate is permitted. A square with sides of 70mm must be able to be drawn between the centres of all four bolt holes drilled for fitting the cavitation fastening plate.

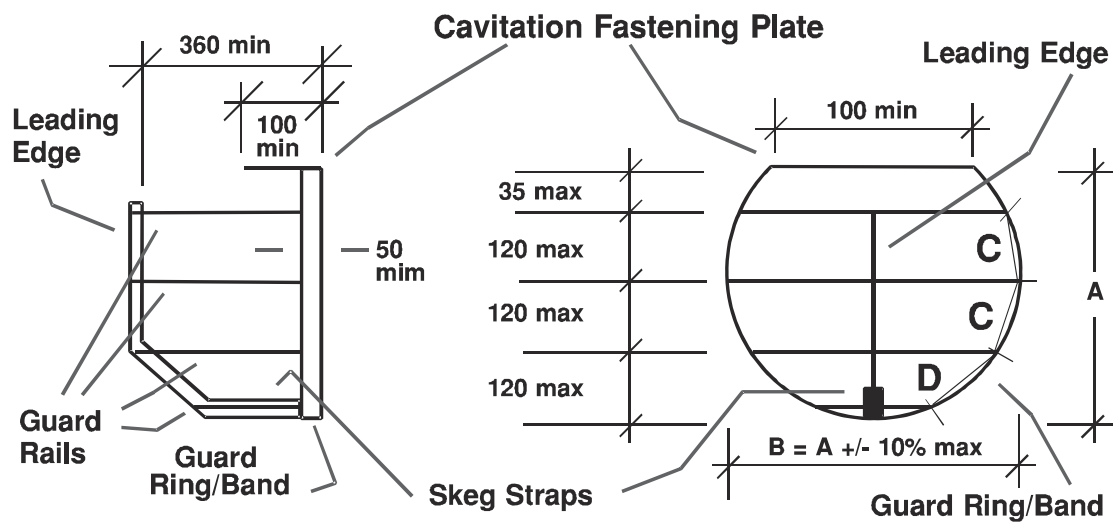
The cavitation fastening plate will form a chord in the guard ring/band, the guard ring/band must not be less than 50mm wide. The guard ring/band when measured vertically (A) must be of sufficient diameter to extend from the outboard's cavitation plate to beyond the lowest point of the outboard's skeg, measurement to be taken when prop shaft is in a horizontal position. The guard ring when measured horizontally (B) may differ no more than + or - 10% of the vertical measurement (A).

The guard ring/band is to be attached at the lowest point to the leading edge plate by welding two skeg straps of not less than 30mm x 2mm in section. Both skeg straps must overlap the leading edge plate by 8mm minimum, and extend inside the guard ring/band by 30mm minimum. The outboard's skeg is to fit between the two straps, and all three bolted together.

The guard is to have not less than four pairs of guard rails, four per side, of not less than 12mm x 2.8mm in section. The top pair of rails are to be welded one each side of the leading edge plate, at a height not less than 8mm from the top of the leading edge plate, and run parallel to the cavitation plate back to the guard ring/band where they must be welded to the ring. The bottom pair of rails are to be welded, one end to each side of the skeg straps, and the other end braced back to the guard ring/band. The remaining rails, two for each side, are to be welded at one end to the leading edge plate, and the other end to the guard ring. Rails may be welded inside or outside the guard ring. The bottom edge of the skeg strap to the first guard rail must be a maximum of 20mm

The maximum vertical distance allowed between each pair of guard rails and the next pair, is 120mm. On any side, the maximum distance allowed between one guard rail's leading edge to the neighbouring guard rail's leading edge (C) shall be 160mm. The (D) measurement must not exceed 175mm when measured at the guard ring.

The above description should be used in conjunction with the following drawing



All sizes not to scale and are in millimetres

APPENDIX D

MOTOR DIMENSIONS

TRANZ Checklist for sealing Yamaha 50H Motors

Boat Name:

Seals: 1 (Cyl. Head) 2 & 3. (Crank halves)

4. (P/Head) 5. (Reeds)

	Description	Specifications	Measure
A	Bore size	66.9 mm – 67.1 mm	
B	Crank centre line to top of block	182.70 mm – 183.30 mm	
C	Top of block to top of exhaust port	42 mm – 43 mm	
D	Top of block to top of transfer port	53 mm – 54 mm	
E	Check crank shaft for metal removal	Visual inspection	
F	Check ports for metal removal	Visual inspection	
G	Head thickness – surface to head lug – ext	30.55 mm – 31.05 mm	
H	Gasket Thickness used for Volume Head Gasket Thickness		
I	Reed block (standard)	Visual inspection	
J	Reed opening	5.5 mm – 6.5 mm	
K	Reed stop length (inside screw to top of reed stop)	33 mm – 35 mm	
L	Combustion Volume	29.5 cm ³ min ea	
M	Stroke Once crank is sealed in motor	65.8 mm – 66.2 mm	
N	Flywheel with rotating attachments	3730g min	
O	Carb venturi – inside diameter	25.5 mm – 26.5 mm	
P	Carb throttle housing – inside diameter	31.5 mm – 32.5 mm	
Q	Carb main jet	1/125 2/125 3/125	
R	Skeg thickness at abt 75mm above bottom	4 mm – 6 mm	
S	Skeg depth from prop shaft centre	165 mm – 170 mm	
T	Longitudinal length of gear case torpedo	270 mm – 275 mm	
U	Exhaust pipe length measured from bottom of midsection & diameter	L. 54 – 64 mm D. 32.5 x 36.5 +/- 2 mm	
V	Air silencer holes at base	2 x 3 mm or 1 x 6mm hole	
W	Gear ratio (incl. reverse gear operation)	1.85:1 flywheel / propshaft	
X	Standard prop guard	TRANZ approved	
		To be signed by owner: I hereby agree that the above	

Sealed By:	motor, serial no: _____
Date:	Is stock standard and not modified in any way to enhance performance as per the TRANZ rule book.
Comments:	Name:
.....	Signature:

TRANZ Checklist for sealing Tohatsu 50D2 Motors

Boat Name:

Seals: 1 (Cyl. Head) 2 & 3. (Crank halves) /

4. (P/Head) 5. (Reeds)

	Description	Specifications	Measure
A	Bore size	67.97 mm – 68.03 mm	
B	Crank centre line to top of block	179.8mm – 180.2 mm	
C	Top of block to top of exhaust port	40 mm – 41 mm	
D	Top of block to top of transfer port	52.5 mm – 53.5 mm	
E	Check crankshaft for metal removal	Visual inspection	
F	Check ports for metal removal	Visual inspection	
G	Head thickness – surface to head lug – ext	33.45 mm – 33.95 mm	
H	Gasket Thickness used for volume Head Gasket Thickness Supplied by Owner		
I	Reed block (standard)	Visual inspection	
J	Reed opening	8.6 mm – 10 mm	
K	Reed stop length (inside screw to top of reed stop)	34.8 mm – 35.8 mm	
L	Combustion Volume	1/25 2/26.7 3/25 cm ³	
M	Stroke Once crank is sealed in motor	63.95 mm – 64.05 mm	
N	Flywheel with rotating attachments	4000g min	
O	Carb venturi – inside diameter	25.5 mm – 26.5 mm	
P	Carb throttle housing – inside diameter	31.3 mm – 32.7 mm	
Q	Carb main jet	1/132 2/132 3/135	
R	Emulsion tube length & no. of holes	L. 27.9 mm H.	
S	Skeg thickness at abt 75mm above bottom	5 mm – 6 mm	
T	Skeg depth from prop shaft centre	154 mm – 159 mm	
U	Longitudinal length of gear case torpedo	242 mm – 249 mm	
V	Exhaust pipe length measured from bottom of midsection & diameter	L. 45 mm – 55mm D. 37.41 mm – 41 mm	
W	Air silencer holes at base	2 x 3 mm or 1 x 6mm hole	

X	Gear ratio (incl. reverse gear operation)	1.85:1 flywheel / propshaft	
W	Standard prop guard	TRANZ approved	
Sealed By:		To be signed by owner: I hereby agree that the above motor, serial no: _____	
Date:		Is stock standard and not modified in any way to enhance performance as per the TRANZ rule book.	
Comments:		Name:	
.....		Signature:	