

Australian Model Power Boat Association Official Rule Book

Updated 8th February 2013

- Competition Rules
 - Courses
 - By-Laws

AMPBA Rule Amendments

RECENTLY AMENDED

1. Page one update change – 8/2/2013
2. Amendment page - Date added 2/11/2010
3. X Class 11.10cc - 30.00cc I.C Changed to X Class 11.10cc-33.20cc I.C –
Date added 2/11/2010
4. Added FE rules 21/03/2012
5. Added Offshore rules and amendments. Effective 1st October 2012.
Added 8/2/2013

AMPBA COMPETITION RULES

Competition rules for the Australian Model Power boating Association have, by a process of evolution, reached the level where the majority of radio-controlled power boating competition is covered.

The underlying principle behind the development of a single, standard set of rules, is to remove the elements of uncertainty and surprise which can make life harder for the competition modeler, whilst also making possible performance comparisons both nationally, and in many cases, internationally.

For these reasons, race organisers are strongly urged to adopt the rules wherever possible. Provisions exist within Section 1.3. (Announcement) to over-ride the standard rules where necessary. Eg. Through lack of time or suitable water. Additionally, some sections are labeled 'OPTIONAL'. Such sections are more recommendations than rules, and it is the prerogative of organisers to use or disregard these. Mandatory sections should only be changed with advanced warning at the announcement of the race. (Normally the entry form). They cannot be altered for National or State Championships or any other AMPBA sanctioned event.

Requirements for the running of a Sanctioned Event.

- a) Notification of the event for sanctioning must be received by the Association Secretary at least three (3) months before the date of the proposed event. (Sanction required for all State Titles and Speed Events)
- b) Upon approval of the sanction, a set of mailing labels will be sent to the host club along with approval notification.
- c) Notification (or entry form) of the event to be sent to all AMPBA Affiliated Club Secretaries at least two (2) months prior to the date of the event. A Sanction is an authorization or approval of a certain event which binds the holders of the event to comply with the AMPBA Rules and Regulations and guarantees that the results of the said event will be recognized as official.

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SECTION 1: ANNOUNCEMENT (MANDATORY)

The Race Organisers must give advanced notice to include the following:

- 1.1 Organising Body.
- 1.2 Date and Venue of the race.
- 1.3 Declaration of rules regarding any alterations to AMPBA rules.
- 1.4 Declaration of titles and trophies to be awarded.
- 1.5 Conditions of entry (see section 4).
- 1.6 Address for entries and closing date.
- 1.7 Race events, classes and scoring system.
- 1.8 Appointed time for the arrival of competitors and Drivers meeting.
- 1.9 Closing time for registrations of competitors and models (see section 5).
- 1.10 Entry fee.
- 1.11 Objections and objection lodgement fees (see section 5).
- 1.12 Notification of the event for sanctioning must be received by the Association Secretary at least three (3) months before the date of the proposed event. Notification (or entry form) of the event to be sent to all Clubs at least two (2) months prior to the date of the event.
- 1.13 Verification of the event by two (2) AMPBA appointed representatives at any sanctioned speed events.
- 1.14 The Australian Nationals will be run during the months of April or May each year.

SECTION 2. RACE COMMITTEE (OPTIONAL)

2.1 The Race Committee shall be appointed by the organizing body and will consist of

1. Contest Director
2. Committee Secretary
3. Technical Adviser
4. Other Officials as required
5. Objection Committee

At National and State Championships, there shall be convened a National or State Committee. This will consist of the Contest Director, Committee Secretary and a team of representatives from each of the States taking part, forming the Objection Committee.

- 2.2 The race committee will confirm the registration of the entrant and model and accept the admission of same.
- 2.3 They shall ratify the Race results, the composition of each set of judges, the layout of the courses and the appointment of judges.
- 2.4 The Objection Committee shall deliberate on objections and announce disqualifications.
- 2.5 The decisions of the Objection Committee are final and not contestable. (Exceptions Objections 5.12)
- 2.6 They shall decide by a single majority vote; in the event of a tie, the Contest Director has the casting vote.

SECTION 3: OFFICIALS (MANDATORY)

The officials shall be appointed by the organizing body. Officials will be required to stipulate qualifications and experience if required to do so.

3.1 CONTEST DIRECTOR

The contest director and the chief Official of the event. His duties and responsibilities include:

- (1) To appoint judges as to assist in whatever capacity he deems fit.
- (2) To disqualify any competitor where necessary.
- (3) To interrupt any competitor where necessary.
- (4) To interrupt or abandon any competition where necessary.
- (5) To effect corrections to the course where necessary.
- (6) To ensure all competitors understand the event and his directors by conducting a drivers meeting prior to the start of each day's competition.

3.2 TIMEKEEPER/SCORER

The Timekeeper/Scorer shall be responsible for recording and publishing all results under whatever scoring system is declared by the organizing body.

- 3.3 At any Sanctioned National or State Oval Race Meeting, 1/2K Oval and Straight Line Speed event, two (2) AMPBA appointed officials must be present to oversee the measuring of the course and scrutineering of engines, boat hulls and any other areas that may be required for the type of meeting being run. It is mandatory that at least one of the AMPBA appointed officials will be from an independent club and not a member of the host club.

SECTION 4: COMPETITORS (MANDATORY)

- 4.1 By the submission of their entry form, a competitor acknowledges his understanding of the rules.
- 4.2 At a race, a competitor may, with their model, obtain permission to compete from the Race Organisers.
- 4.3 Only one model per competitor can be entered in each class of any event. In all events and classes having multiple heats, the same hull must be used for each heat. Motors, radios, damaged sponsons and other accessories may be changed.
- 4.4 Engine classes are as detailed in Section 7.3. A boat will not be permitted to compete outside its designated engine and/or hull classifications. Should there not be sufficient entries (5 boats) to constitute a class, competitors will be given the opportunity to upgrade to the next engine class in the Hull classification, if possible.
- 4.5 Should a competitor violate the Race Rules, the following action may be taken by the Race organisers and/or Contest Director:-
- (a) The model in question can be disqualified and have all scores cancelled;
 - (b) The competitor can be disqualified from a heat and have all scores from that heat cancelled;
 - (c) The competitor can be disqualified from the class and have all scores cancelled;
 - (d) The competitor can be disqualified from the entire event and have all scores cancelled.
- 4.6 Disqualified from a heat, class or entire Meeting may be declared for "UNSPORTING BEHAVIOR". Every competitor is obliged to comply with the directions of the Contestant Director and the individual and the individual judges as nominated.
- 4.7 Only members affiliated to the AMPBA will be allowed to compete in National and State Championships or any sanctioned event. Proof of a member's financial status (i.e. a current AMPBA Membership Card) must be presented to the organisers at all AMPBA sanctioned events.
- 4.8 (a) A competitor's name, FREQUENCY and CHANNEL MUST BE CLEARLY MARKED on their transmitter.
(b) Transmitters must be in the official radio pound by the appointed time, or within 30 minutes of the start of the event, unless organisers advise differently.

(c) Transmitters must be returned to the radio pound immediately after each race.

Non-compliance with these Transmitters Rules will result in a 10% penalty on the results of the day of the infraction.

- Events judged by the same will have 10% of their time added.
- Events judged by points will have 10% deducted.

- 4.9 Any model boat applying for an AMPBA National Straight Line Speed or 1/2K Oval Record will be subject to an engine displacement inspection, and if applicable, engine scrutineering immediately following its record breaking run. If the engine, or engines are found to be out of limits set forth in the AMPBA engine classifications rules for that class, the Record will not be allowed.
- 4.10 All competitors and pit persons must wear closed toed shoes while launching or retrieving a boat.
- 4.11 All boats are required to display their AMPBA number on their boat(s) for easy identification. Numbers to have characters with a minimum height of 20mm and be clearly visible.

SECTION 5: OBJECTIONS (MANDATORY)

- 5.1 Every competitor has the right to lodge an objection and has to inform the Objection Committee when it is his intention to do so.
- 5.2 An objection can be submitted if :-
- (a) The current Race regulations are violated by a competitor;
 - (b) The current Race regulations are violated by a judge or the competition programme, as well as when instructions given do not correspond to those notified in the Announcement.
- 5.3 If a protest should be lodged regarding hull classifications, the competitor is still permitted to compete in the nominated class; the results however, will be pending on the findings of the AMPBA Committee dealing with the objections.
- 5.4 The lodging of an objection does not prevent a competitor from taking part in the remainder of the event. If, as a result of the objection, a competitor withdraws from the running, then the relative objection shall be withdrawn.
- 5.5 The objection shall be lodged in writing within one (1) hour of the relative run, or prior to ratification of the results, and should include :
- (a) Time and place of the incident
 - (b) Declaration of the relative point of the regulations, which, in the opinion of the objector, has been violated.
 - (c) Description of the incident with, where possible, necessary sketches and names of eyewitnesses.
- 5.6 At the same time that a competitor lodges an objection, the objector may pay the Lodgement Fee to the Objection Committee.
- 5.7 The amount of the Objection Fee shall be set by the AMPBA at each AGM and the amount shall be stated by the organiser in the programme. If the objection is upheld by the Objection Committee, then the fee shall be returned to the objector.
- 5.8 A written protest, once submitted, cannot be returned with the fee. A withdrawn protest is to be treated as one that is rejected.
- 5.9 The publication of the final results of each event, the awarding of prizes, medallions and certificates, shall only take place after all objections are dealt with.
- 5.10 If the competitor violates the Race Rules, then the judges themselves are obliged to institute the objection procedure against competitors.
- 5.11 The objection committee, when receiving a protest, shall call the competitor concerned and any eye witnesses, to obtain the necessary facts, etc, of the incident.
- 5.12 The verdict of the Objection Committee must be made known to the competitor concerned and, if required, the verdict and reasons must be given in writing. In the case of the competitor concerned not agreeing with the verdict, he has

the right of appeal, at the same time depositing a new lodgement fee. The objection shall be re-examined by the Contest Director and Officials of the organizing body. THEIR DECISION IS FINAL.

- 5.13 State or Club Representatives on the objection committee cannot be a participant in the class or event concerned in the objection, unless there is only one class of event being held on that day of the regatta. The affected participants can only be called as witnesses.

SECTION 6: RESULTS (MANDATORY)

- 6.1 The committee shall ratify all the results in each class.
- 6.2 The results of each heat or round, also those of the finals, shall be published within one hour of their competition.
- 6.3 The ratification of these results by the committee shall follow no earlier than one hour after their publication.
- 6.4 During this period, objections can be lodged against the published results.
- 6.5 Once the results have been ratified, no more objections will be accepted.
- 6.6 The acclamation of the winner, presentation of the title, prizes and certificates, shall be made public immediately after ratification of the results or at a time or function stipulated in the Announcement of the Event.

SECTION 7: GENERAL CONSTRUCTION, HULL & ENGINE CLASSIFICATIONS (MANDATORY)

- 7.1 Definition of a Radio Control Model Boat :

A model boat may be either a true life replica or of free construction appropriate to the requirements of competition. Control of the craft must be by Radio Control without the aid of lines or cables. The overall size of the model is not restricted. All models must be propelled by water reaction. Interior reaction devices such as rockets or jets are prohibited. All boats shall have positive buoyancy when open compartments are filled with water.

- 7.2 HULL CLASSIFICATION:

- 7.2.1 Hydroplane (Hydro)

A Hydro hull is supported on two or more wetted surfaces when operating at racing speed. The following are classified as Hydros:

- | | |
|------------------------------|---------------------------|
| (a) 3 point suspension hull. | (d) Multi step hull |
| (b) 4 point suspension hull. | (e) Hydro suspension hull |
| (c) Single step hull. | |

In addition, any hull with added appendage, with air lifting characteristics capable of lifting the hull free of the water while maintaining stability, will also be classified as a Hydro.

- 7.2.2 Monoplane (Mono)

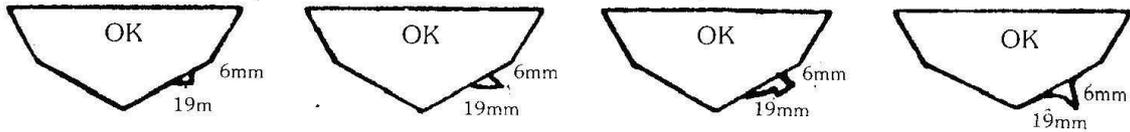
A mono is a hull that has one continuous wetted surface when operating at racing speed. A Mono must incorporate the following design characteristics and not exceed any of the dimensional restrictions.

- (a) A hull which has no discontinuities between or steps in the wetted surface running at more than a 15 degree angle with keel, in plain view (bottom view);
- (b) No point on a hull cross section shall be deeper in the water than the center keel (turn fins and trim tabs excepted);
- (c) If trim tabs are used, they must be no more than 2 mm above or below the bottom surface at the intersection of the bottom surface, transom or ride plate;
- (d) A lap straked hull is defined as a single wetted surface hull, with at least one strake on each side of keel. Any number of strakes may be used;

(1) A strake is a strip of wood, metal, fibreglass or other material which is permanently attached to hull bottom or used in an overlapping "weatherboard" hull construction.

- (2) If Strakes are used between mid-point of hull length and transom, they must be parallel with keel.
 (3) Strakes may be of any cross section, provided they are not deeper than 6mm vertically and 19mm wide horizontally. This measurement is made from intersection (or projected intersection) of the hull bottom and strake when viewed from rear.

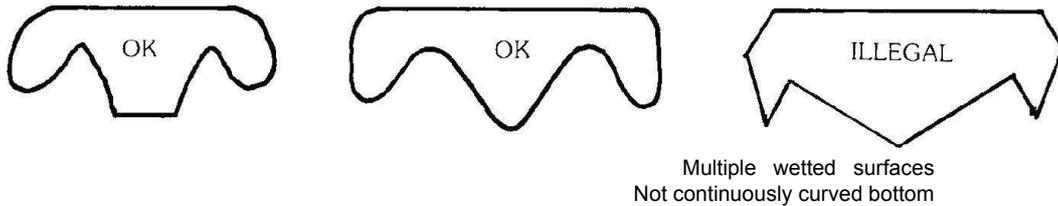
EXAMPLE: NOT TO SCALE - EXAGGERATED FOR CLARITY



- (4) Strakes must not be as low as keel.
 (5) Strakes must not meet keel at more than 15 degrees angle as noted in (a)

(e) Cathedral type hulls are legal Monos as long as the bottom is one continuously curved surface and no flat planing surface exist other than keel.

EXAMPLES:



If an enclosed propeller shaft is used, that portion exposed to the water must be either circular or streamlined to a sharper leading edge in the bottom 180 degree of leg. No flat planing surface is allowed.

OTHER HULL EXAMPLES - MONOS: OK (WITH OR WITHOUT STRAKES)



Chine strakes must meet strake dimensions as in (d) 4

HYDROS - TUNNELS-OK



7.2.3 A tunnel Hull is defined as one having two (2) only unbroken sponsons, with or without steps, running the full length of the craft. The sponsons are to be the only part of the hull to come into contact with the water, thus creating a tunnel effect through the length of the craft.

7.2.4 A new hull design should have their outlines submitted to the AMPBA for classification. New designs may be recognized if the information supplied is sufficient. If a competitor is in doubt about a design, or a protest has been lodged, the hull outlines must be submitted to the AMPBA who shall make the findings of the submission available within two (2) months of the date of receipt of the outlines. Refer section 5.3 (Objections)

7.2.5 A Multi Boat hull shall have the propeller and rudder units mounted under the hull and forward of the transom.

7.3 ENGINE CLASSIFICATIONS

The following are the classes and displacement recognized by the AMPBA for :

Oval Competition:

A Class	0.001cc - 3.509cc	I.C
B Class	3.510cc - 7.509cc	I.C
C Class	7.510cc -11.09cc	I.C
X Class	11.10cc - 33.20cc	I.C
16 - 25cc Petrol	16.00cc - 25.00cc	Spark Ignition
35cc Open Petrol	15.01cc - 35.00cc	Spark Ignition
Outboard A	0.001cc - 3.509 cc	I.C. Outboard
Outboard B	3.510cc - 7.509cc	I.C. Outboard
Outboard B Stock	Stock K&B 7.5cc	I.C. Outboard
Outboard C	7.510cc - 11.09cc	I.C. Outboard
Outboard X	11.10cc - 30.00cc	I.C. Outboard
EA Class	Up to 14.80v	E
EB Class	15.60v - 22.20v	E
EC Class	22.80v - 44.40v	E
Offshore Lites	0.000cc - 62.00cc	Spark Ignition
Offshore Class 1	0.000cc - 31.00cc	Spark Ignition
Offshore Class 2	31.01cc - 62.00cc	Spark Ignition

Definition - I.C. = Internal Combustion

Definition - E = Electric

Multi Competition:

3.5 Class	0.001cc - 3.509cc	I.C.
7.5 Class	3.510cc - 7.509cc	I.C.
15 Class	7.510cc - 15.00cc	I.C.
35 Petrol	15.01 - 35.00cc	Spark Ignition.

7.4 COMPETITION EVENT CLASSIFICATIONS

F	Formula	H	Hydro
OV	Oval Heat Racing	M	Mono
SL	Straight Line Speed	T	Tunnel
1/2k	1/2Kilometre Oval Speed	P	Petrol
SR	Multi Boat Racing	E	Electric
SH	1/8 Scale Hydroplane	I	Naviga
OS	Offshore		

E.G. FOVH-C = 11cc Hydro Oval Heat racing.

SECTION 8 : OVAL HEAT RACING (FOV)

8.1 GENERAL

An Oval Racing heat shall consist of a minimum of five (5) boats to constitute a class at a Sanctioned Event, and a maximum of six (6) boats competing on a specified course (refer Section 8.7 and Appendix 1) of 1.5 kilometers. The number of laps required to complete the race will depend on the size of the pond, but will normally be five (5) laps. Racing will be in a "clockwise" direction. A minimum of three (3) heats will be contested by each driver to decide the winner of the event, more heats may be scheduled at the discretion of the Race Organisers.

8.2 DRIVERS MEETING

A Drivers Meeting will be held prior to the start of each day's events. It is the competitors responsibility to attend these meetings. The primary purpose of the meeting is for interpretation and clarification of the race Rules and procedures. Any questions should be asked at this time. Once an event is under way, the Contest Officials should not be distracted from their duties by questions that should have been asked at the Drivers Meeting. Absence will not be

considered as an excuse in applying any penalties.

8.3 GENERAL RACE PROCEDURES

All races are to be started by means of a Recorded Start sequence played over a public address system. Each race will consist of the following distinct phases :

8.3.1 RACE STARTING PROCEDURES

Method 'A'

Pit time

- 1 A two (2) minute period will be announced over the P.A system for the starting and launching of the competing boats.
- 2 At the expiration of the two minute period, there shall be no more boats allowed to launch. (NB) A boat which has the engine running and at the waters edge ready to launch will be allowed to launch
- 3 Recovery of stalled, launched boats in this period will only be permitted by using the boat hooks provided. NO ONE will be allowed to enter the water to affect a recovery. Doing so will bring immediate disqualification from that heat.
- 4 Entrants who have not started and launched by the expiration of the Pit Time shall be considered a Did Not Start (DNS) and will be awarded NO POINTS under either scoring system.
- 5 Delays and/or cancellation of Pit Time may only be instigated by the Contest Director and then only for Course and/or Equipment failure or corrections.
- 6 During pit time, it is recommended that the Contest Director continually announces the position of dead boats on the course.
- 7 If all boats are on the water, the contest director can initiate the 30 second mill time. This can only be done after calling the initiation to do so to all racing competitors. Any objection by either Competitors or Pit Persons will cause the start sequence to continue normally.

Clock Time

- 1 A thirty (30) second period from the expiration of Pit Time, leading up to the race start, will be announced over the P.A system.
- 2 All drivers will Mill the set course and use this period to place their boats, so as to cross the start line at full throttle simultaneously with the expiration of Clock Time and Start.
- 3 All boats must follow the set course from launch and driver/buoy infractions will be called from launch to returning to the pit area.
- 4 During the last five (5) seconds of Clock Time, boats passing buoy 6 must steer a straight course and observe driver safety rules (refer section 8.6) in selecting lanes. Zigzagging, 'S' turns or fishtailing to delay crossing the start line early will draw either a penalty (refer 8.6) or possible disqualification from the heat if other drivers are hindered or disabled.

8.3.2 1/2 Course Mill

Method 'B'. The buoy that is to be used as the Mill Buoy will be announced at the driver's meeting.

Pit Time

Essentially the same as Method 'A' with the following inclusions.

- 1 All competitors must complete one (1) full lap of the course after launching their boat.
- 2 Upon completion of their first lap, competitors may then cut the course around the designated buoy. (It is not mandatory to cut the course)
- 3 All boats that cut the course must give way to boats that are traveling the full course.
- 4 Boats must not cut the course from an outer lane and force a boat that is traveling in lane 1 to cut the course.

Clock Time

- 5 A thirty (30) second period from the expiration of Pit Time leading up to the Race Start will be announced over the P.A.
- 6 All competitors may run 1/2 Course Mill up till the ten (10) second call, at which time a boat traveling up the front straight may not deviate around the 1/2 course Mill Buoy. A boat that cuts the Mill Buoy after the ten (10) second call will be deemed to have cut three (3) Buoys and awarded the appropriate penalty. (150 points) See section 8.5.1
- 7 During the last five (5) seconds of Clock Time, boats passing Buoy 6 must steer a straight course and observe safety rules (refer section 8.6) in selecting lanes. Zigzagging, 'S' turns or fishtailing to delay crossing the start line early will draw either a penalty (refer 8.6) or possible disqualification from the heat if other drivers are hindered or disable.

8.3.3 Start

1. The expiration of Clock Time will signify the start of the race and will be called over the P.A, regardless of the position on the course of the competitors.
2. Boats crossing the line prior to the start announcement will have broken the start and will have to complete the remainder of the lap before officially starting when crossing the start line next. Any broken starts shall be called by a

start Judge, or Contest Director, and the boats shall be called by colour or number, NOT by competitors name. eg. the first white boat has broken the start, the second white boat is the leader. All decisions will be instantaneous and final.

3. A race will be officially started when one (1) boat has legally crossed the line.

4. Should no boat legally cross the start line, the heat will be declared a NO CONTEST. No points will be awarded and that heat will not be re-run.

8.3.4 Course Time (The Race)

1. A five (5) minute period will commence with the start. Any boat not competing the required number of laps in this time will be ordered from the course and awarded a Did Not Finish (DFN)
2. If, in the opinion of the contestant Director, any boats remaining on the course are incapable of finishing the race in the five (5) minute period, they will be ordered from the course and awarded a Did Not Finish (DFN).
3. Course Time shall not be considered a 'right' to stay on the course. All drivers, on completion of their final lap, will move to the outside of the course and must return to the pit area while observing driver safety and due care for drivers still competing. All driver/buoy infractions remain in effect until a boat returns to the pit area.
4. Laps will be counted with the first legal crossing of the start line counted as zero. Each consecutive crossing of the line will be counted as an additional lap until the required number of laps has been completed. This will constitute the finish of the race for each competitor.
5. The first boat to legitimately complete the required number of laps will be declared the winner.
6. In the event that no boat finishes the required number of laps, the heat shall be forfeited and will not be re-run.
7. All boats must cross the start/finish line under their own power to be awarded points.
8. Heats will only be re-run at the Contest Director's instigation and then only for Electronic Timing equipment failure or for Hazardous Dead Boats (refer 8.6.3). Only boats under power and operating under full control of the driver, at the announcement of the re-run, will be permitted to start in the re-run. There will be NO EXCEPTIONS.
9. All racing will be Governed by the Course Driving and Safety Rules as started in 8.6.

8.4 SCORING

Either of two (2) scoring methods - (A) or (B) may be used at the discretion of the Organizing Race Committee.

- (A) Boats will score and accumulate points in order of their finish position according to the following table. A negative score cannot be awarded after penalties have been imposed. A score of zero points is the lowest a competitor can be awarded for each and every round.

1 st place - 400 points	5 th place - 127 points
2 nd place - 300 points	6 th place - 96 points
3 rd place - 225 points	Did Not Finish - 25 points
4 th place - 169 points	Did Not Start - Nil (0) points

- (B) Each boat will start the heat with a score of 300 points. One point will be deducted for every second of elapsed time it takes to complete the heat. Any buoy infractions will draw a plus 10% of race time penalty per infraction up to three, e.g. Race time 1 min.30sec. = 90 seconds/points plus any buoy penalties, 300 less 90 = 210 points for the heat.

8.5 DRIVER/BUOY INFRACTIONS AND PENALTIES

1. Touching, striking or cutting any course marker buoy at any time from launch to retrieval will draw the following :

Scoring (A)	A 50 point penalty
Scoring (B)	plus 10% of race time penalty.
2. Buoy infractions shall be called by a duly named officer and any decision will be final.
3. A boat intentionally completing a 360 degree turn anywhere on or inside the course will automatically be disqualified from the heat with NO POINTS.

8.6 COURSE DRIVING AND SAFETY RULES

Course Driving and Safety Rules shall be defined as those necessary for all boats to compete fairly and with assurance to finishing safely without damage.

8.6.1 Left Turns

Severe left turns on the course, except to avoid collision, are NOT PERMITTED. Mild left corrections may be necessary as in passing another boat. However, a left turn into the course of more than 45 degrees will be grounds for a penalty at the Contest Directors discretion. A left turn endangering another boat will automatically draw a penalty. Should the other boat be disabled, the offending boat will be ordered from the course and disqualified from the heat and awarded NO POINTS under either scoring system.

Penalty: Scoring system (A) a fifty (50) point penalty
Scoring system (B) plus 10% race time penalty

8.6.2 Right of Way

1. A boat operating in a line of travel around the course has the right to maintain that lane without undue interference. Any boat desiring to pass in order to occupy that lane must establish a minimum THREE (3) BOAT LENGTH interval before gaining the right to that lane.
2. In racing, the natural lane of choice is the lane nearest to the course outline. This is known as lane one (1) and shall have right of way over the other lanes of travel.
3. Right of way also applies in the turns.
4. Good driving techniques and sportsmanship decree that a relatively straight course be driven. Fishtailing, Zigzag and 'S' turns or other tactics leading up to the start or to prevent or hinder an overtaking boat from passing will be grounds for a penalty at the Contest Director's discretion.

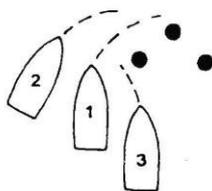
Penalty: Scoring System (A) a fifty (50) point penalty
Scoring System (B) plus 10% of race time penalty

8.6.3 Dead Boats

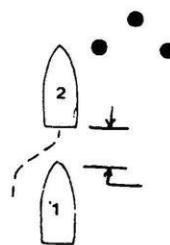
1. Should a Dead Boat be struck during the course of a race, AFTER IT HAS BEEN ANNOUNCED OVER THE P.A SYSTEM, the offending boat will be ordered from the course and disqualified from the heat and awarded NO POINTS under either scoring system.
2. At the discretion of the Contest Director (not open to protest) if he believes any dead boat/boats are in such a position as to make racing hazardous to competitors, spectators or to boats racing (making collision unavoidable), all boats will be called off the water. Boats will be allowed to cut the course as directed, at reduced speed, keeping the general course rotation. The race will then be restarted as per Rule 8.3.4.8

- 8.6.4. Any boat that, in the opinion of the contest director, is being controlled to the danger of other boats due to mechanical, radio or hull design malfunction or driver error, will be removed from the course until the error has been corrected. Should it be impossible to rectify this malfunction or error, the driver will be retired from the remainder of the event and retain his score to that point.

Passing Examples



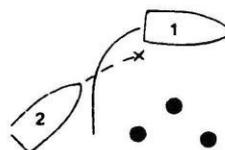
Driver No. 1 has lane 1 and "right of way". Drivers No. 2 and 3 are attempting to overtake improperly. Driver No. 2 is cutting off Driver No. 1. -INFRACTION. Driver No. 3 is attempting to squeeze by on the inside. He will have to turn left and cut off No. 1 to miss buoy. -INFRACTION



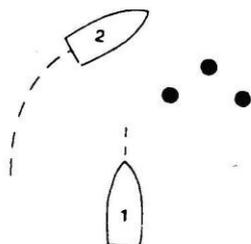
Driver No. 2 is overtaking properly. If a driver passes and stays in his lane for a minimum of three boat lengths before attempting to take over the next inner lane, he is acting properly.



These same procedures pertain to the turns. No. 2 is asking to be penalised. Note that No. 1 is being forced into the buoy to avoid a possible collision. Infraction against No. 2.



In this instance, the driver in lane 1 abandons it by turning too wide allowing another driver to take over the lane on a pass with a shorter run. No infraction. No. 2 at point X now has right of way.



No. 2 is clear. No. 1 is not being forced into the buoy. NO Infraction.

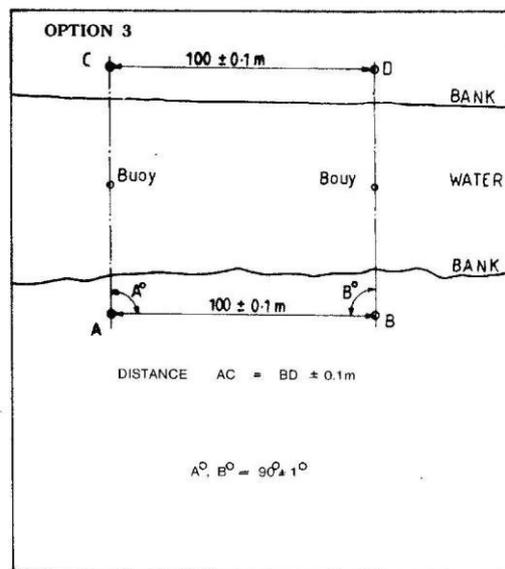
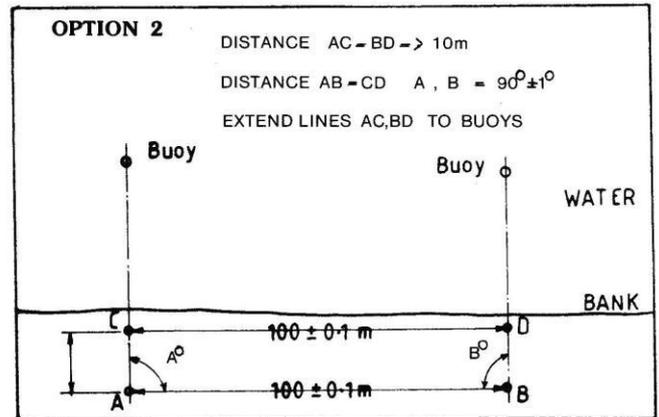
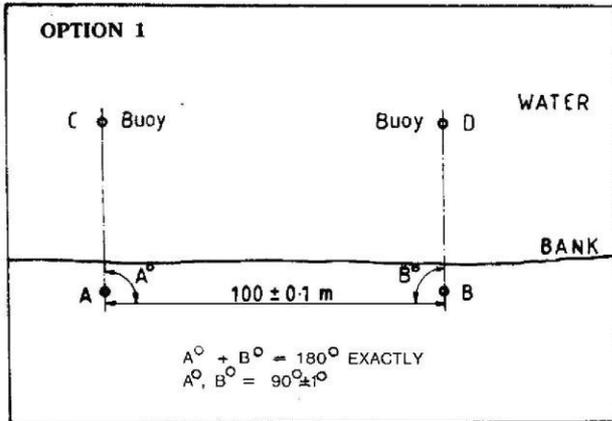
- 8.6.5 A competitor must use a Pit Person to aid in starting and launching a boat. Only one Pit Person will be permitted in the pit area with the driver to minimize congestion in the pit area.
- 8.6.6 The Pit Person must launch the boat so that the driver will have his full attention directed at controlling the boat.
- 8.6.7 The Pit Person must assist as Co-Driver on the Driver's stand, but must not hinder any other competitors.
- 8.6.8 Where possible, the driver's area should be an elevated platform in line with the center of the main straight.
- 8.6.9 Heat Delays - It shall be the policy of the Organisers to maintain a sympathetic and helpful attitude towards contestants and their problems. Any equipment problem discovered by a competitor before reaching the pits should be reported to the Contest Directors immediately. The start of Pit Time may be delayed but the heat will not be re-scheduled.
- 8.6.10 All boats must be able to be stopped on the water by transmitter control. Failure to comply will result in the immediate disqualification from that heat, unless mechanical failure can be proven to be the cause.
- 8.7 THE COURSE (see Appendix 1)
- 8.7.1 Regulation Courses
1. The total race distance shall be 1.5 kilometers (1500m) for all classes.
 2. The race will normally consist of five (5) laps for all classes.
 3. There shall be a minimum of three (3) laps required in total race distance for all classes.
 4. Stop watches used to time races shall be capable of measuring race time to a nearest 1/10 (0.1) of a second.
 5. Course marker buoys will be fashioned from a material so as not to be harmful to boats that come into contact with them.
 6. Course marker buoys should be a colour that is easily distinguished from the surroundings.
 7. Five (5) turn buoys shall be used at each end of the course to define the turn at all State and National Titles.
- 8.7.2 Course Terms
1. The area between the turns shall be referred to as the 'Front Straight' and 'Back Straight'.
 2. The area within the course outline shall be referred to as 'Within the Course' or the 'Infield'.
 3. The marker buoys to the left of the course shall be numbered and referred to as 'Buoy 1', 'Buoy 2' and 'Buoy 3'. The

- marker buoys to the right of the course shall be numbered and referred to as 'Buoy 4', 'Buoy 5' and 'Buoy 6'.
4. The marker buoy in the center of the course shall be referred to as the 'Start Buoy'.
 5. Some courses will have a line of marker buoys between the shore and the course proper. This shall be referred to as a 'Pit Lane'. This lane should be considered present during all events, whether marker buoys are present or not, and the drivers entering or leaving the Pit Area are encouraged to drive their boats with due care and safety. If unmarked, the pit lane will be within five (5) meters of the bank.
 6. 'Milling' is a term used to describe the period from launch to the start of the race where drivers position themselves for a good start. Milling will be over the whole of the set course, except when ½ course Mill is used.

SECTION 9: STRAIGHT LINE SPEED (FSL)

- 9.1 At sanctioned events, a ten (10) minute period will be allowed for each class entered by the competitor to make as many attempts as possible. The organisers may break the allotted time into two (2) periods of five (5) minutes each. If any of these attempts are within 10% of the reigning National Speed Record, the competitor will be allowed another Ten (10) minute period to break the record, as long as time permits during the event.
 - 9.2 At National and State Championships, one five (5) minute period will be awarded for each competitor to make as many attempts as possible. If any of these attempts are within 15% of the speed of the reigning National record, the competitor will be invited to attempt another five (5) minute period to break the record. If a competitor should break the Record in his first period, he will also be given the opportunity of another period.
 - 9.3 The period will commence when the competitor is handed his transmitter in the Pit Area. The transmitter will only be handed over when the transmitter from the previous competitor has been handed in. At the conclusion of the period the boat must be removed from the course immediately and the transmitter handed to the organiser. The competitor shall notify the timekeeper when he is ready to start his timed passes.
 - 9.4 A Straight Line Speed run will consist of two (2) consecutive uninterrupted passes in opposite directions, through a one hundred (100) meter course without any physical intervention. One pass each will be used to certify the noise level requirements as set out in Section 12.
 - 9.5 Records will only be recognized for Engine and Hull Classifications as set out in section 7.3.
 - 9.6 For National and State Championships and Sanctioned Events, the course must be laid out in one of the options shown. When laying out the course, particularly for opinion 1, a suitable surveying instrument should be used. The course must be stipulated in Record Application Claim Forms sent to the AMPBA for recognition.
- 9.7.1 Manual timing system.
 1. The timing of boats will be by the use of two (2) independent electronic systems.
 2. The system will be activated by an operator at each end of a measured course, for each watch. Four (4) operators will be needed to run the event.
 3. The Timekeeper will be responsible for recording times from both watches for each consecutive pass.
 4. All Times will be rounded off and recorded to two (2) decimal places. (0.00)
 5. The average time from the two (2) recorded times for each one-way pass will be used to ascertain a single time for each one-way pass.
 6. The average times from the two (2) consecutive passes will then be used to ascertain a single time for the attempt
 7. The single time will then be converted to a speed in kilometers per hour.
 8. Should the primary watch from any pass differ by 0.03 of a second or more, a record claim will not be recognized.
 9. The time keeper will be responsible for advising the competitor, at the time of his attempt, of any time discrepancy so that another run may be made.
 - 9.7.2 An automatic infrared electronic timing system may be used as an alternative to the manual timing system.
 1. The electronic measuring device must utilize fixed infrared sights coupled to a digital automatically actuated timing console mounted in a case.
 2. The timing device must be capable of timing the run to the nearest 1/100 th second.
 3. All Straight Line Speed automated electronic timing systems must be approved by the AMPBA Committee prior to use.
 - 9.8 Should the timing equipment fail, the competitor's allotted time shall be immediately stopped while repairs are carried out. The whole time may be taken immediately or scheduled later at the discretion of the Organisers.
 - 9.9 It is of the utmost importance that times are recorded with the greatest of accuracy. 1/10 (0.10) of a second's difference can cause considerable change in the speed recorded.

Stop watches used must be accurate to 1/100 (0.01) of a second. When recording and calculating speeds and times, figures must be worked with three (3) decimal places (if possible), e.g. 3.996 seconds. The results must be given with two (2) decimal places properly rounded up or down.



SECTION 10 : 1/2 KILOMETRE OVAL SPEED (F 1/2K)

10.1 Where a venue does not allow a full Straight Line Speed course to be laid out, the 1/2 Kilometer Oval Speed

event may be used as an alternative competition event.

10.2 The 1/2 Kilometer Oval Speed event shall consist of timing a single boat over two (2) consecutive laps of a suitable course where the total distance traveled for the two (2) laps is 1/2 a Kilometer (500m plus or minus one (1) meter)

10.3 GENERAL PROCEDURE

1. Pit Time A maximum of two (2) minutes Pit Time shall be allowed to start and launch the competitor's boat. Should the competitor not be able to launch within this time, his attempted run shall be cancelled and recorded as Did Not Start (DNS).
2. Running Time Running Time shall commence at the expiration of Pit Time or at the instigation of the competitor. Running Time shall be a maximum of five (5) minutes without interruption or until the competitor waives the balance of any remaining time should he be satisfied with his performance. Adjustments to the competitor's boats may be made during either Pit or Running Time. However, no time extensions will be given for these adjustments.
3. Timing - Timing shall commence when the boat crosses the start/finish Line and will end when the boat has completed two (2) "clean" consecutive laps. No buoys may be touched, struck or cut for a 'clean' lap. Should a buoy infraction occur, the clocks will be reset and the officials will advise the competitor to re-start. The competitor shall notify the officials when he is ready to start his timed laps.
4. Timing Equipment As with Straight Line Speed, two (2) Stop Watches must be used and be accurate to one hundredth (1/100 or 0.01) of a second. Results must be given with two (2) decimal places properly rounded up or down. The times registered by both watches must be within 0.30 of a second to be recognized and the average of these two (2) times will be used.
5. Course The course shall be measured and certified by an Organizing Official for a record to be recognized. The total distance of the two (2) laps is to be 500m plus or minus one (1) meter.

$$\begin{aligned} \text{Formula: } & 2 \times \text{straight} + \\ & 6.286 \times \text{Radius} \\ & \quad \times 2 \\ & 500 \text{ meters} \end{aligned}$$

$$\begin{aligned} \text{Example: } & 2 \times 100 = 200 \text{ meters} + \\ & 6.285 \times 8 = \underline{50.28 \text{ meters}} \\ & \quad \quad \quad 250.28 \times \\ & \quad \quad \quad \quad \quad 2 \\ & \quad \quad \quad \quad \quad 500.56 \text{ meters} \end{aligned}$$

SECTION 11 : MULTI BOAT RACING (FSR)

11.1

1. All Multi races are to be started by a means of a recorded Start Sequence being played over a public address system.
2. The race duration will be fifteen (15) minutes with a maximum at three (3) minutes allowed before the start for each competitor to check his motor and stand away from his boat. This will be followed by a period called "hands off". It will be normally thirty (30) seconds so the organisers may check that competitors are standing away from their boats. Competitors may hold their transmitters. The race start will be announced at the finish of the "hands off" period. "Hands off " will commence when all competitors are ready or the three (3) minutes have elapsed.
3. The race will be "Le Mans" type start with dead engines.
4. Racing will be carried out in a clockwise direction.
5. Each heat will have a maximum number of fifteen (15) competitors with a minimum of two (2) heats per competitor at State and National levels.

11.2

1. Winners will be decided on a total of points scored in the heats.
2. Formulas for calculating points scored during a heat are as follows:(Laps completed x 5)+ buoys passed (Buoys missed x 2)
3. When a boat stops during a lap, the buoys passed during that lap are to be counted. This also applies at the completion of the race.
4. A boat entering the pits will score the number of buoys passed for that lap. A new lap starts when the boat exits during the race. For a 'W' course, score four (4) buoys passed. For an 'M' Course, score five (5) buoys passed.

11.3 The course will be one of the two alternatives shown in Appendix 2.

11.4

1. Boats entering the pits shall have right of way over boats leaving the pits.
2. Boats leaving the pits during the course of the race must give way to any competitions on the course.
3. Boats entering and leaving the apron must do so at a slow speed.

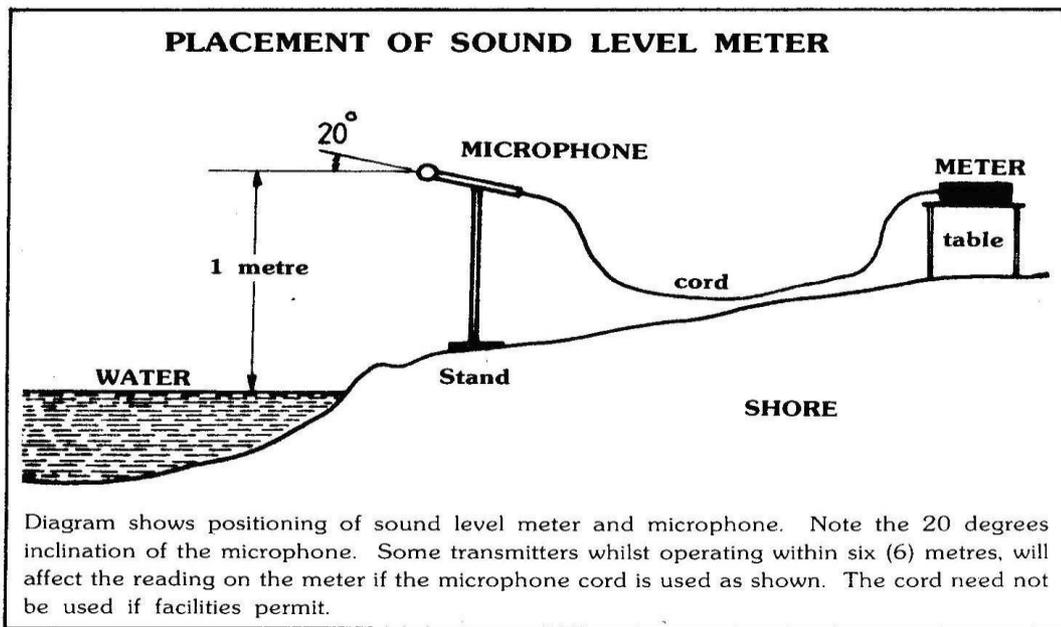
11.5

1. The recovery service has right of way at all times and will be the only people permitted in the water during the

- course of the race.
 - 2. All boats must be kept at least three (3) meters away from any member of the recovery team.
 - 3. Hitting or endangering the recovery service will incur the 10% penalty detailed in Rule 8.5.
 - 4. Any boat that has been rescued will be returned to the nearest bank from where it was recovered and will then be returned to the pit area by the assistant.
- 11.6 Only the competitor will be permitted to operate the transmitter at any time during the competition. In the event of an emergency, the assistant may operate the transmitter to bring the boat into the pit at the completion of the lap.
- 11.7 During the competition, the competitor must stand inside the pit area, clearly marked by the organisers three (3) meters along the bank and two (2) meters wide, or on the driver's platform. Within this area, the competitor may move freely while controlling his model. The chosen assistant is permitted to remain with the competitor to help during the run, but his actions must not impede other competitors.

SECTION 12 : NOISE REGULATIONS (MANDATORY)

- 12.1 The total sound level output from any boat competing will be as follows: -
- FOV
 FSL -Shall not exceed eighty four (84) dbA at a distance of forty meters (40m)
 F 1/2K
 FSR -Shall not exceed Ninety (90) dbA at a distance of ten and a half meters (10.5)
- For FSL, two buoys are positioned from the microphone, one at twenty (20) meters, the other at Forty (40) meters. Boats should pass between the two buoys and the sound level must not exceed eighty (84) dbA. Officials should exercise maximum care in taking readings and if there is any doubt, the decision must be made in favour of the competitor.
- The measurements are 'A' weighted as this is the basic rule for noise measurements.
- 12.2 Competition organisers shall be responsible for the enforcement of these rules.
- 12.3 In classes FOV and FSR, one warning will be given to a competitor to allow him to make immediate modifications. Exceeding the limit subsequent to this warning will result in disqualification from that heat.
- In classes FOV and F 1/2K, exceeding the limit will result in disqualification from the attempt concerned.
- 12.4
1. At any Sanctioned event, the AMPBA Sound Meter is preferred but an alternative may be used. All Sound Meters MUST be calibrated using the Calibrator designed for that model sound meter. If the AMPBA Sound Meter is used and the AMPBA Calibrator is not available for the entire meeting, due to conflicting meetings, the sound meter must be calibrated using the AMPBA Calibrator within Five (5) days of the meeting.
 2. For Club and General meetings, Sound Meters used Must be calibrated every twelve (12) months.
 3. The host club will be responsible for the security postage and insurance of the AMPBA Sound Level Meter and/or the calibrator, from the AMPBA Secretary and return. The meter and/or calibrator must be returned to the secretary immediately after the meeting.
- 12.5 Where possible, meters used must be calibrated at the start of each different class or in the event of a sizeable weather change, but never within the running of a class.
- 12.6 The measurement will be taken when the boat passes the point where the microphone is at right angles to the course. Where possible, this point will be marked by a buoy. The distance between the buoy and the microphones is detailed in Section 12.1.



12.7

1. Competitors must not reduce the noise level of their boat as they pass the measuring buoy, by reducing throttle or other such means. Penalties, as detailed in Section 12.3, apply for this action.
2. During class FSR and FOV, care must be taken to ensure that the noise is measured at the correct distance, since the model may be forced to come well inside the measuring buoy. If a boat passes consistently well inside the measuring buoy, (most probably FOV), an allowance for distance must be made.

Table of Relevant Noise Levels

Distance (m)	FOV (db)	FSR (db)
40	84	
30	86.5	
20	90	
10	96	90
7.5		92.5
5.0		96

- 12.8 Accordingly, the silencer should be installed on the boat in the most horizontal position possible. The final outlet must not in any way be masked by a 'screen to divert the sound'.
- 12.9 The microphone should be between 1 - 1.5 meters above water level. Measurements shall be taken towards the water to eliminate lateral sound reflections and difference in humidity which could affect the readings. A wind suppression device is to be fitted.
- 12.10 Individual states may specify an alternative lower noise level to comply with local government/authority laws. Such a lower level shall be advised to all states and the AMPBA immediately it is in force and in any case, not less than one (1) year before the said event is to take place.

SECTION 13 : 1/8 SCALE HYDRO UNLIMITED HYDROPLANES

13. The purpose of these rules is to duplicate the unlimited class of hydroplanes as closely as possible.
- 13.1 Precedence of R/C Unlimited Rules
1. In the case of a conflict between the general racing rules and the 1/8 scale unlimited racing rules, the 1/8 scale rules will take precedence.
 2. The R/C Unlimited Committee shall be made up of members of the AMPBA.
 3. The R/C Unlimited Committee shall reserve onto itself the power of decision in all matters of duplication or conflict.
- 13.2 Boat Specification, Eligibility hull, Engine and Equipment Requirement.
1. All boats shall be models of past or present American Power Boat Association Unlimited Hydroplanes that are listed

on the R/C Unlimited Master Hull Roster. Other Unlimited hydroplanes that raced or are racing outside the USA will be allowed.

2. Boats are to be built on a scale of 1 ½ inches equals 1 foot of actual boat (41" minimum length).
3. Boats shall measure within the following tolerance of the true scale size, excluding appendages:
 - a. Length overall + or -1"
 - b. Beam + or -10%
 - c. Maximum depth + or - 10 %
 - d. Afterplane length + or -10 %
 - e. Tunnel width + or -10 %

The true scale dimensions of any R/C Unlimited shall to be derived from the unlimited dimensions listed on the R/C Unlimited Master Hull Register.

4. Boats shall be painted, configured and detailed like the actual unlimited as it ran in the water. The acquisition of proof validating the paint scheme, cowling configuration, engine or other scale details shall be the responsibility of a boat's owner. Photographs of a boat will constitute proof.
5. Boats shall enter the competition complete with cowling(s) and driver(s).
6. If any removable parts should fall off a boat during a race, you should make every effort to replace it before the next heat you are competing in.
7. The boat engine(s) shall be concealed by either an engine cowl or fake engine (modeling an Allison, Rolls Royce, etc.) or both.
8. A boat bottom shall be of the same general appearance as that of the unlimited. Exceptions: -
 - a. Sponson riding surfaces which may be modified.
 - b. Propeller shaft(s) which may be articulated and ride plate fitted.
 - c. Rudder and turn fin which may be configured and located as desired.
 - d. Air dams are permitted, if concealed.
9. Outdrive units are strictly prohibited and the drive dog shall not extend beyond the transom. Exceptions are two (2) outboard powered tunnels and one (1) Mercruiser powered tunnel.
10. The engine size shall be up to and including 0.67cu. in. (11cc).
11. Tunnel pipes and mufflers must be concealed under the deck or cowl where practical.
12. The number of props and rudders shall coincide with that of the original Unlimited.

13.3 MASTER HULL ROSTER AND REGISTER

1. The R/C Unlimited Hull Roster shall contain the name and details that identify each boat which may be built for R/CU competition. It shall contain the principal dimensions of the boat that is listed.
2. All boats are to be registered with the National Secretary in writing prior to building.
3. Only people who are financial members of the AMPBA may register a 1/8 Scale Unlimited Hydroplane.
4. If a member's membership lapses for one (1) year, the registered boat will be struck from the roster.
5. Only boats registered on the roster will be allowed to compete in State or National Titles.

13.4 SCALE JUDGING

1. All boats are to be judged from a distance of two (2) meters stand off scale. A picture must be supplied of a full sized boat to the Contest Director for each boat entered.
2. To be eligible, the boat must start and finish at least one (1) competition heat at that meeting. Judging will be held before the start of racing.

Points :

1 to 10 points for general appearance.

1 to 10 points for detail, engine, cowl, driver, etc.

1 to 10 points for paint job, markings, etc. (Ride Plates and Air Dams, if not original will be penalized.)

13.5 SCORING

1. As detailed in 8.4 or at the organiser's discretion.
2. When events are run with qualifying heats and points, to determine final heat placing's, only points in the final heat shall determine the event winner and placing's.

SECTION 14 : 16 - 25cc PETROL SPARK IGNITION

14.1 GENERAL

The intent of this class is to utilize gasoline powered, recoil started, piston controlled fuel intake only, commercially available lawn trimmer type engines to power large scale boats. Racing as per AMPBA Rules.

14.2 ENGINE SPECIFICATIONS

1. Engines must be commercially available lawn trimmer type engines with a capacity from 16cc to a maximum of 25cc, gasoline, spark ignition, piston controlled fuel intake only.
2. All engines to have and be started with a manual recoil pull starter.
3. Clutches are not mandatory, but all boats must be able to be stopped on the water by transmitter control.
4. Any engine modifications are permitted, as long as original engine configuration is kept unchanged. (Carburetor and Tuned Pipes are open.)
5. Engines must use original manufacture's castings and internal components as manufactured to a long engine. No after market replacement parts may be used. (NB. Aftermarket Crankshaft Bearings and Crankshaft Seals may be used)
6. Engines must retain Original Manufacture's Ignition System. (Spark plug may be changed.)
7. No Glow Plug engines allowed.
8. Material may be removed from engines internal components, crankcase and cylinder but NO material may be added to these areas. Material may be removed from the outside of the cylinder to allow for the addition of water cooling the engine only.
N.B. An exception is made to this rule when reclaiming threads, gasket and bearing surfaces.
9. Engines may use Single or Twin Ring Pistons as long as they are made by the original engine manufacturer as a spare part or accessory.

14.3 HULL CLASSIFICATIONS

1. Maximum length 1397mm (55inches), Maximum width 711.2mm (28inches).
2. Single engine only allowed.
3. Any brand Mono, Hydroplane or Tunnel hulls allowed, but must be run in their respective classes. All hull designs and setups must comply with AMPBA rules.

14.4 FUEL

The only fuel permitted to be used in AMPBA gasoline classes must comply with the following:

1. It must be Unleaded.
2. Be no more than 98 R.O.N.
3. Be readily available from retail petrol pumps throughout Australia.
4. Be manufactured for the use in road registered vehicles, which comply with Aust. Design Rules.
5. Contain no additives other than those added at point of manufacture or lubrication oil for two stroke engines.
6. Fuel dopes or additives such as methanol, nitromethane, propolyne oxide, octane boosters and oxidants etc are prohibited.
7. Two stroke lubricating oil brand, type and mixed ratio is open, but must not contain octane boosters, oxidants or any other performance boosters.

14.5 FUEL TESTING

1. Fuel samples may be drawn for testing from competing boats at any time during the period from the commencement of the event until the competing boat is released from scrutineering at the conclusion of the event, or the event results have been ratified.
2. It is the competitors responsibility to provide the means by which the fuel samples may be taken from the boat.
3. Whilst the fuel samples for testing are being taken, the competitor must be in immediate attendance to observe the process.
4. Fuel samples shall be tested according to the procedure listed below:
 - a. The event contest director or his/her nominated representative will take one sample of the fuel for testing.
 - b. The competitor may, at their discretion, request a second sample be drawn at the same time. After being duly identified and sealed, this second sample may be retained by the competitor. The competitor may use the retained sample in his/her defence provided that the seal is only broken in the presence of the contest director of the meeting. Where the contest director deems that no action is necessary the container holding the competitors sample shall be returned to the contest director.
 - c. A Digatron DT15 or DT47 series Fuel Testing Kit used as per the manufacturers instructions shall be the only acceptable method of on-site fuel testing at all AMPBA Sanctioned Meetings.
5. It is the competitor's responsibility to ensure the added two stoke oil conforms to these rules. Ignorance will not be a defence.
6. Any competitor found to be using fuel not conforming to AMPBA rules 14.4 will be immediately disqualified from that class. The competitor has the right of appeal as described in Section 5 (Objections).

SECTION 15 : 35cc OPEN PETROL SPARK IGNITION

15.1 SPECIFICATIONS

1. Engines may use any type of induction method. (e.g. Piston Port, Drum or Rotary Disk etc.)
2. Engines to have a capacity from 15.01cc to a maximum of 35.00cc.
3. May be either single or multi cylinder.
4. Shall rely on the spark ignition system for the initiation of combustion. No Glow Plug engines are allowed.
5. Engine must be able to be stopped on the water by transmitter control.
6. Fuel dopes such as Methanol, nitromethane, propolyne oxide, octane boosters and oxidants etc are prohibited.
7. Mixed fuel may be supplied for racers by the club hosting the event, in this instance no racer supplied fuel if allowed.
8. All AMPBA racing rules apply.
9. Maximum hull length of 1397mm (55 inches) maximum width 711.2mm (28 inches).
10. Any brand mono, hydroplane and tunnel hulls allowed, but must run in their respective classes. All hull designs and set ups must comply with AMPBA rules.

15.2 FUEL AND TESTING

Fuel used in this class must comply with section 14.4 and fuel testing must comply with section 14.5.

SECTION 16 : OUTBOARD TUNNEL CLASS

16.1 DEFINITION

The spirit of the rules is designed to represent Scale Formula One Outboard Tunnel Hulls.

16.2 HULLS

1. The hull must consist of unbroken full length sponsons, with or without steps which are the sole running surface of the boat.
2. The motor must turn on a pivot off the transom to provide the steering of the craft. No extra rudders are to be used.

16.3 ENGINES

1. The class is to be broken in to five 5 categories.

1.	A Class	4.	C Class
2.	B Class	5.	X Class
3.	B Class Stock (K&B)		
2. It is recommended that K & B engines to be used to power the Hulls to form close as possible class racing.

16.4 7.5cc STOCK OUTBOARD

1. The engine parts must remain as originally manufactured for that 7.5cc engine. (No modifications).
 - Interchanging of parts from the one series or edition to another is legal as long as the parts used were made by the manufacture of the engine and were used on outboard engines. Any glow plug and propellers may be used. Any fuel brand and mixes will be legal.
 - Reclaiming engine threads on engines and leg to original manufactures thread sizes and the use of thread locking compound is allowed.
 - After market crankshaft bearings and PTO bearings will be allowed as long as they remain the same size as originally manufactured for that model or series engine.

SECTION 17 : ELECTRIC COMPETITION

Note

17.6 SUPERCEDED TECHNOLOGY

1. The use of NiMH cells will be phased out by June 2015.
2. The 700 motor class will be phased out by June 2015.
3. Limited Sport Hydro will be phased out by June 2015.

17.1 INTENT AND DEFINITION

To create a national standard for Electric Radio Controlled boats which is able to be easily scrutineered and which provides racers with a clear understanding of what is a safe race legal vessel.

17.2 PROPULSION CELL AND BATTERY SPECIFICATIONS

1. PROPULSION CELL AND BATTERY CLASSIFICATION

- a. Propulsion energy to be provided by nickel-metal hydride (NiMH) cells (must be sub 'C' size; 23mm diameter and 43mm long) or Lithium Polymer (LiPo) cells only. The cells may be assembled into one or more batteries. The total system of cells providing propulsion energy on board the boat shall subsequently be referred to as the "battery".
- b. The configuration of cells within the battery is open. All cells in the battery shall be the same brand, model, discharge rate and capacity.
- c. If the original labeling has been removed from the battery, it is up to the competitor to ensure the number of cells can be easily determined for scrutineering.
- d. Total battery weight includes all parts of the battery and attachments (e.g. wires, balance lead, plugs, shrink wrap, Velcro etc).
- e. The battery must be easily removed from hulls for scrutineering.
- f. A model without an externally fitted means of physically disconnecting the battery from the speed control shall not practice or race in competition (including club days). A blue or orange triangle should indicate the location of the "safety loop".

2. PROPULSION BATTERY CLASSIFICATIONS

- a. EA: The battery shall have:
 - i. up to 12 NiMH cells; or up to 4 LiPo cells (maximum battery weight of 650g)
 - ii. a maximum nominal voltage of 14.8V.
- b. EB: The battery shall have:
 - i. 13 - 18 NiMH cells; or 5 - 6 LiPo cells (maximum battery weight of 975g)
 - ii. a maximum nominal voltage of 22.2V.
- c. EC: The battery shall have:
 - i. 19 - 36 NiMH cells, or 7 - 12 LiPo cells (maximum battery weight of 1,950g)
 - ii. a maximum nominal voltage of 44.4V.

17.3. MOTOR SPECIFICATIONS (17.6 The 700 motor class will be phased out by June 2015.)

a. A 700 motor is any Mabuchi 775 or Johnson 785.

The only allowable modifications are:

1. Water cooling pipes on the wire terminals;
2. Fitting a cooling coil or jacket on the can;
3. Providing electrical suppression by use of capacitor metal oxide varistor and Schottky diode;
4. Polishing the Can.

b. A motor which has been altered in any other way than at Part a. shall not be used in practice or competition.

c. 700 motors will be use an EA-Class battery.

d. Open Motors can be any permanent magnet motor.

e. A boat must have a means of starting and stopping the motor by radio control.

17.4 HULL CLASSIFICATIONS

1. Mono, Hydro and Tunnel hulls may be separated into classes according to the combination of hull type and class of battery used. 700 motor class to be used only with Limited Sport Hydro.

2. Sport Hydro

- a. The intent of the Sport Hydro class is to provide a racing class that resembles full size hydroplanes, without requiring scale detail.
- b. Hull specifications shall be as per Section 20.2 (Petrol Sports Hydro).
- c. Limited Sport Hydro (LSH) shall be:
 - i. Powered only by a single EA specification battery;
 - ii. Driven only by a 700 Class motor.

17.5 RACE SPECIFICATIONS

1. Any boat that stops during the race and does not immediately resume is deemed to be a Dead Boat (and will be called as 'Dead Boat') and must not be moved until so directed by the race controller.
2. All other race rules are as per Section 8 - OVAL HEAT RACING.

17.6 SUPERCEDED TECHNOLOGY

1. The use of NiMH cells will be phased out by June 2015.
2. The 700 motor class will be phased out by June 2015.
3. Limited Sport Hydro will be phased out by June 2015.

SECTION 18 : OFFSHORE CLASS

A class designated specifically for larger model powerboats to promote fair competition amongst similar sized larger craft in oval racing competition. Whilst a scale representation is encouraged, boats may be a true-life replica or of free construction appropriate to, and within the requirements and specifications set out for Offshore competition. All Offshore craft shall sport a form of either - sponsor logo, manufacturer logo, graphic design or true-life replica theme. This may include, but is not limited to, the use of gelcoat colors, paints and or vinyl graphics. EG: basically, no plain white boats. Hull classifications recognized for the class will reflect full size Offshore race craft that fall into two categories. Eg: mono and catamaran.

18.1. Offshore classes;

Offshore Lites	0 - 62cc FOSLS Formula Offshore Lites
Offshore Class 1	0 - 31cc FOSC1 Formula Offshore Class 1
Offshore Class 2	31.01 - 62cc FOSC2 Formula Offshore Class 2

18.2. Hull classifications;

Offshore Lites class hulls not subject to any rules under 18.2 - refer to 18.3.4

Mono; A monoplane, stepped mono or deep vee are all acceptable hull types for Offshore mono and must have a single keel, with or without steps, with or without transom overhang, running the full length of the hull excluding transom overhang. Hulls may have transom overhang and is not included in total hull length.

Catamaran; An Offshore catamaran hull is defined as having two unbroken sponsons, with or without steps, with or without transom overhang, running the full length of the hull excluding transom overhang. Hulls may have transom overhang and is not included in total hull length.

Note; Transom overhang is defined as being a rearward section of the hull that is free from the water at racing speed. As transom overhang can vary greatly in lengths where applicable, it is excluded from overall hull length measurements to simplify this process on all hull types. All Offshore hulls are to be fitted with a tow hook on the forward section of the hull for recovery purposes. Catamaran tow hook may be fitted underneath the tunnel. Lifting handles are optional. All boats shall have positive buoyancy when open compartments are filled with water.

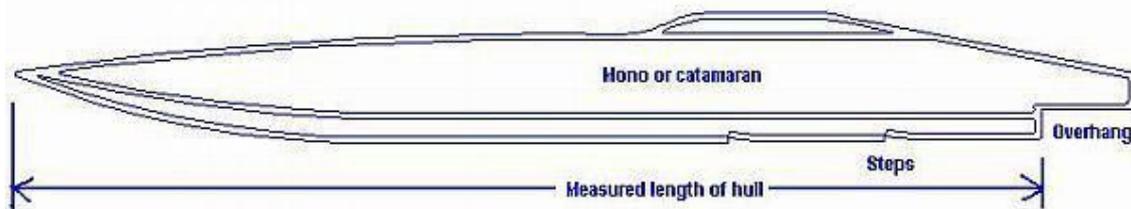
18.3. Hull dimensions;

18.3.1. The height difference spanning any 2 steps on an Offshore class 1 or 2 hull to be no more than 10mm measured on what is the running surface of the hull at racing speed. A step or notch is where there is a difference in height between the running surfaces along the keel.

18.3.2. Strakes as defined in section 7.2.2.d with a new measurement of 10mm vertically and 22mm wide horizontally to accommodate the larger craft being used in Offshore class 1 and 2 competition.

18.3.3. A minimum length of 1397.01mm (55.01 inches) to a maximum of 2135mm (84 inches) excluding any transom overhang for all hull types used in Offshore class 1 and 2 competition. Measurement of length is to be taken from the bow to the rear most wetted surface of the hull at racing speed and excludes any transom overhang, hardware, ornaments or fittings. Eg; arnesens, rudder, strut, bow rail, trim tabs and so on.

18.3.4. Offshore Lites only. A maximum length of 1397mm (55 inches). Hull requirements - mono as per rules 7.2.2 and tunnel/ catamaran as per rules 7.2.3.



18.4. Engine classifications;

Offshore Lites.	0 - 62cc. Single cylinder up to 31cc or 31.01 to 62cc multiple cylinders only of equal capacities
Class 1.	0 - 31cc. Single cylinder only.
Class 2.	31.01 - 62cc. Single cylinder or multiple cylinders of equal capacities.

18.5. Engine types;

Classes 1, 2 and Offshore Lites.

Any induction method – EG: piston port, rotary disc etc, no turbo or supercharging. Manual or electric start is allowed in all classes. Engines must be spark ignition and may be either commercially available lawn trimmer type engines EG; Kawasaki, Stihl, Mitsubishi and so on, or recognized hobby or model engines or engines and parts specifically manufactured for the purposes of remote control craft. Eg; Zenoah, Sikk, QD, RCMK, CMB, SG, Mathe and so on. No glow engines converted to spark ignition. Any engine modifications are permitted.

Note; Turbines, motorbike, mini bike, pocket bike and similar types of engines are prohibited at this time in any and all classes. Any engine type or brand not covered by rule 18.4 to be submitted to the AMPBA for clarification and for insurance purposes prior to any approval for general use. An engine or engines capacities alone are not grounds for automatic acceptance.

18.6. Fuel types;

Classes 1, 2 and Offshore Lites. As described in rule 14.4 and subject to rules as set out in 14.5.

18.7. Fuel capacities;

Offshore Lites – Maximum of 1.2 litres.
Class 1 – Maximum of 1.2 litres.
Class 2 – Maximum of 2.4 litres.

18.8. Race rules;

Race durations will be no less than a standard oval heat race of 1500 meters. (5 laps of 300 meter courses or 6 laps of 250 meter courses) There will be provision to run timed races and / or course alterations if desired and as directed by a host club. Timed races along with any course alterations or any rule changes are to be stated on entry forms by a club hosting a sanctioned event. All other AMPBA race rules apply.

18.9. Failsafes;

At least one failsafe device must be fitted and operational in all Offshore boats to shut down the throttle or to kill the engines ignition system. No Offshore boat will be permitted to enter the water without at least one working failsafe and will be checked at random. It may be inbuilt into the radio equipment and programmed to the model or it may be an add on component. Eg; Venom, Engine-kill and so on. An externally mounted kill switch is not regarded as a failsafe device but may be fitted. The use of more than one failsafe is encouraged.

SECTION 19 : GRAND PRIX HYDRO 7.5cc

19.1 BOAT SPECIFICATIONS

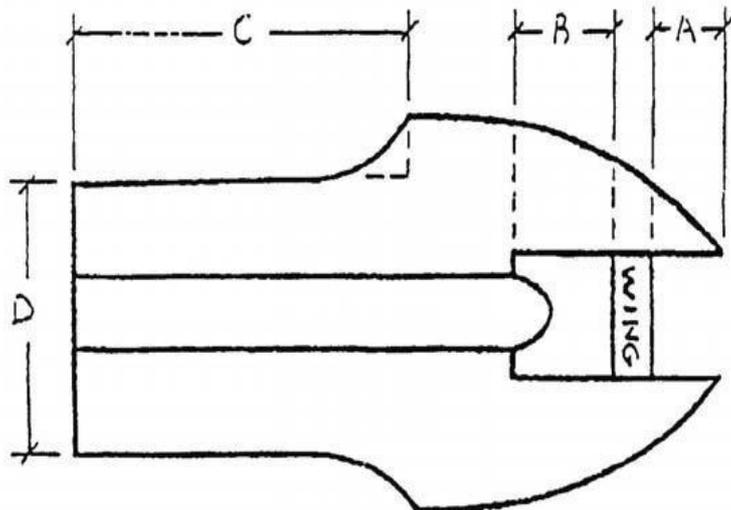
- 1 The boat may be purchased ready built, modified from an existing hull, or scratch built from any suitable material generally used in model boat construction.
- 2 Minimum hull length will be 35".
- 3 The deck, cockpit, tail, or fin configuration may be changed to keep boats interesting.
- 4a. Hulls must be of Unlimited and/or Limited design, with all riding surfaces (drive train and prop not included) in the front 50% of hulls length. Picklefork hulls may not be recessed more than 25% of the total length of the hull.
- b. No boat shall have an afterplane greater than 60% of the total length of the hull. Length "C" shall be measured from the transom to the point where the sponson is attached to the hull. (Fig 1)
- c. The air trap / tunnel, if applicable, shall be no deeper than 1/2". The depth shall be taken at the rear of the sponson, measured from the bottom of the hull to the top of the air trap. (fig 2)
- d. In determining width "D", the rear sponson width shall not be included in the minimum measurement. The minimum tub widths shall be 5 1/2".
- e. Length "A" plus "B" must not exceed 25% of the total hull length.
- 5 a. The boat must be attractively painted in the spirit of Unlimited Racing. Each boat must have a sponsors name or logo affixed to the hull.
- b. The boat must have the drivers AMPBA number on it preceded by the letter "U". The number can be on the hull or tail.
- c. A driver of scale like appearance must be of shoulder height except where a boat has an enclosed cockpit design. A visible driver will not be needed as long as a simulation of a windshield is part of the paint scheme.
- d. There shall be no exposed tuned pipes allowed. Tuned pipes shall be covered by either a deck, a cowl, or an exhaust shroud. That portion of a tuned pipe which is confined to the engine compartment shall be exempt.
- 6 Engine compartment covers and fake engines are not mandatory. Driver's cockpit, cowls and tail fin sections are mandatory.
- 7 No outdrive assemblies will be allowed. No twin rudders or twin props will be allowed. The drive dog may be one (1) drive dog length behind the transom. The drive dog must be a standard over the counter type.

19.2 ENGINE SPECIFICATIONS

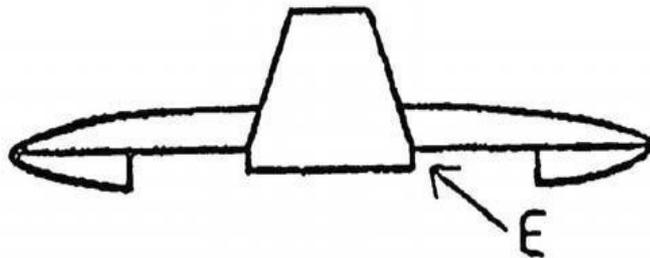
1. The engine must conform to AMPBA "Class B" specifications. Tuned pipes are allowed.

19.3 GENERAL RULES

1. Boats will be checked for appearance prior to racing.
2. There are no restrictions on fuel or prop used.
3. Any boat not passing the technical inspection will be disqualified and forfeit entry fee for that race.
4. Boats will run on standard AMPBA course(s).



(Fig 1)



(Fig 2)

SECTION 20 : SPORTS PETROL HYDRO

20.1 DEFINITION

The intent of the Sports Petrol Hydro classes is to provide a racing class that resembles the full size Limited Inboard, Unlimited Light and Unlimited Hydroplane Classes as closely as possible.

20.2 HULL SPECIFICATION

1. The hull must resemble a limited or unlimited hydroplane design of the past or present with the exception that (outrigger, modified outrigger and/or tunnel hulls are not permitted in this class).
2. Sport hydroplanes may have more than two riding surfaces touching the water at planing speeds.
3. The hull can contain rear wings and/or front wings.
4. A Canard hull defined as having two rear sponsons and a single forward sponson, will be allowed to run in this class.
5. The sponsons may have pads or breaks that contact the water at planing speeds.

6. The boat must have a name and/or sponsor's name, logo and AMPBA racing number affixed to hull (a local, national, or fictitious sponsor name is acceptable).
7. If the bow is recessed behind the tips of the sponsors, the recess must be no larger than 25% of the overall length of the boat.
8. The boat must have a driver and cockpit/or defined simulated enclosed cockpit.

20.3 ENGINE SPECIFICATION

1. Engines must conform to current AMPBA Gasoline Engine Classes as defined in section 14 or 15.
2. All engines must have a canister muffler, custom muffled exhaust system or tuned pipe.

APPENDIX 1 OVAL HEAT RACING (FOV) COURSES.

Course Measurements (Refer 8.7)

5 Laps = 1.5 kilometers (1500m)

Formula

$$\frac{2 \times S + 6.285 \times R}{5}$$

1,500m

S = Length of straight from buoy 1 to buoy 6.
R=Radius of corner.

Example 1: 100m straight with 16 m Corner Radius

$$\begin{array}{r} 2 \times 100 = 200 + \\ 6.286 \times 16 = 100.56 + \\ \\ 300.56 \times \\ 5 \\ \hline 1500.80 \text{m} \end{array}$$

Example 2: 90m straights with 19.1m Corner Radius

$$\begin{array}{r} 2 \times 90 = 180 + \\ 6.286 \times 19.1 = 120.04 + \\ \\ 300.4 \times \\ 5 \\ \hline 1,500.20 \text{m} \end{array}$$

Smaller ponds may consider running six laps.

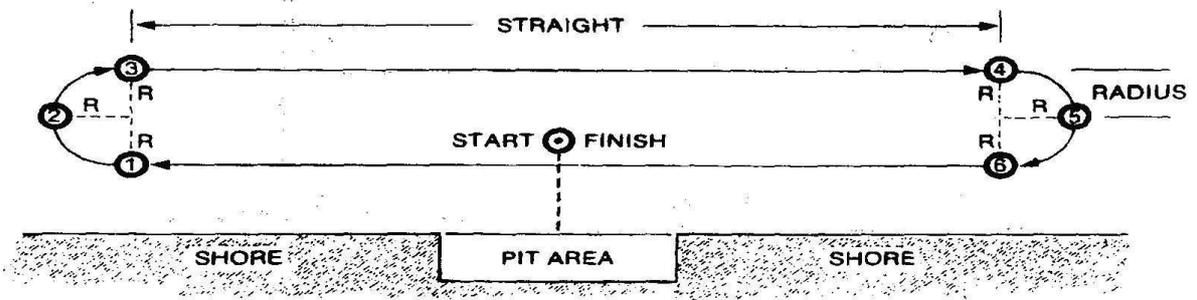
Formula

$$\frac{2 \times S + 6.285 \times R \times 6}{6}$$

1,500m

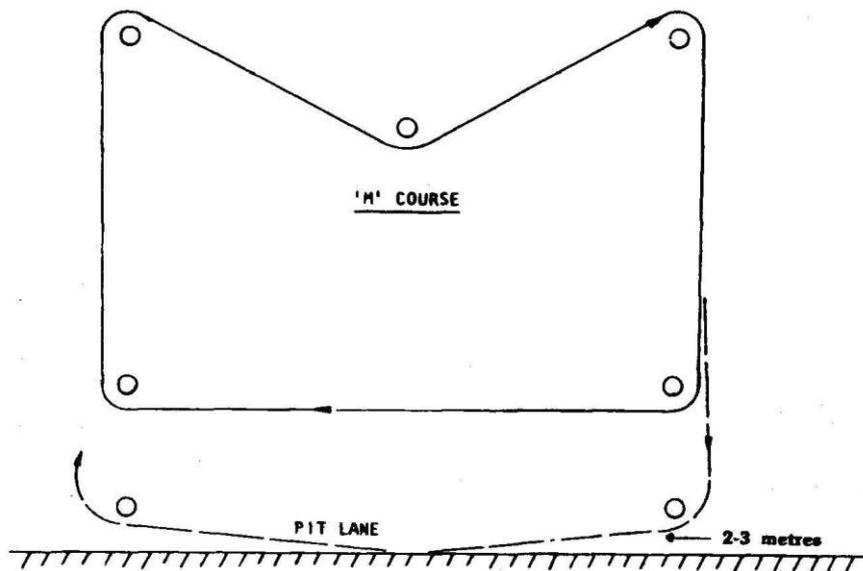
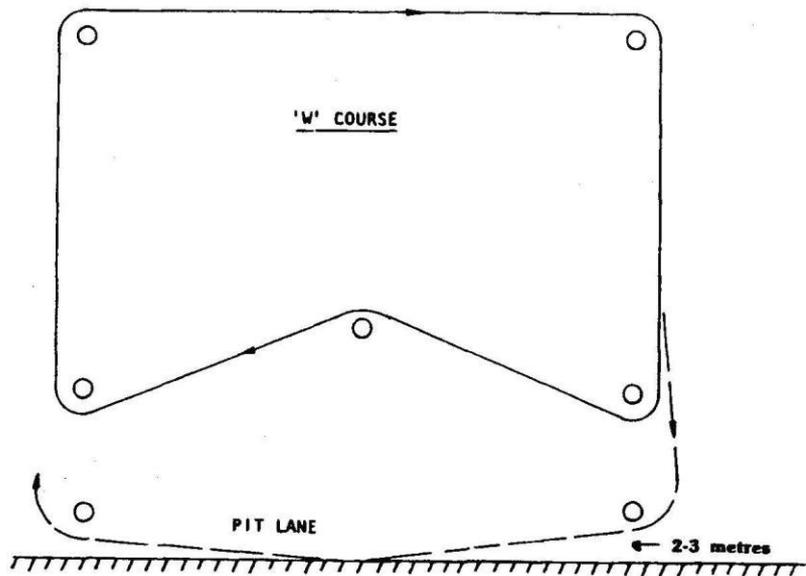
Example 3:

$$\begin{array}{r} 2 \times 80 = 160 + \\ 6.285 \times 14.4 = 90.50 + \\ \hline 250.50 \times \\ 6 \\ \hline 1,503.00 \text{m} \end{array}$$



APPENDIX 2

FSR COURSES



APPENDIX 3

Safety for Electric Racing

RECOMMENDED CELL AND BATTERY SAFETY

- a. At race meetings batteries should only be charged with a charger and charge program designed for the battery Chemistry/Voltage/Capacity, to which it is applied.
- b. Lithium batteries;
 - i. A balancer should be attached to the battery and the battery must be placed in a fire proof receptacle/LiPo Sack if it is charged or discharged outside a boat. An alternative is a plastic bag of sand placed on top of the battery whilst the battery is in a non-combustible container.
 - ii. Should power only a speed control which is fitted with an automatic or variable voltage cut-off to prevent over-discharge; or a device inline between the speed control and battery which cuts power to the motor if the battery voltage drops below the accepted minimum voltage value i.e. 2.9v per cell
- c. Any battery containing cells which have vented, deformed, perforated or been otherwise damaged must be immediately discharged and stored safely or disposed of in an empty steel bin provided by the club. This battery may not be used in competition until all the damaged cells are removed from it.
- d. Batteries are only permitted if they are constructed with one type of cell, i.e. all cells are the same chemistry, capacity, discharge rate and brand.

Updated 21/09/2007

March 2011: FE Sub committee
Safety Statement
19 March 2011 Revision#3:
Sanctioned event, Club Race or Practice at AMPBA venues.
Electric: Safety

1. An externally fitted safety loop must be fitted which physically disconnects battery from esc. One loop per esc is allowed An orange or blue triangle (>15mm sides) will visibly indicate this location.
2. The hatch/cover is not to be removed until safety loop is disconnected.
3. Electric class driver must remain on stand 'in control' until safety loop disconnected [usually as their boat is retrieved from water end of run or during rescue]
4. A returned boat must have the safety loop disconnected before removed from launch/retrieval area

Rescue team:

1. Safety loop must be removed as boat is retrieved from water.
2. If a boat has uncontrolled movement , assess risk and act within the following guidelines.

If safe to collect from water, do so and remove safety loop.

If not safe to collect from water, attempt safety loop removal via rod or pole or paddle.

Safety is paramount, if the boat is deemed too dangerous for rescue, protect the team and abandon rescue.

In cases where the boat is an unmitigated hazard , safely dispose of the boat with whatever means available. Submerge with pole/paddle guide away from shoreline ensure other water users are aware the hazard.

Smoke fire etc ..

Li(xx) batteries can self combust if overcharged/overheated.

Cooling the battery is the best option to slow ignition.

During rescue the boat is to be treated as an uncontrolled boat.

If already in pits/shore areas, promptly notify all to evacuate the area only that pit crew and safety crew are able to remain.

Removing safety loop may eliminate the cause, but not eliminate the source

Quickly assess source and disable where possible.

Placing a smoking Li(xx) into a charge sack is an appropriate measure.

If Li(xx) source not removable, cover with fire blanket or submerge into water.

If fire exists, use fire extinguisher and/or cover source with water/soil

Charging :

An appropriately manufactured and labeled LiSafe sack must be used at all times.

An appropriate Lithium chemistry profiled charger must be used.

Batteries must be near air temp prior to charge.

Batteries must be balance charged.

Maximum charge rate must not exceed manufacturer s ratings.

Maximum LithiumPolymer cell voltage must not exceed 4.2V per cell..

Charging must not be unattended. One person may monitor many charging packs within close proximity.