

SOUTH AFRICAN MODEL POWER BOAT ASSOCIATION



RACING RULES FOR RC POWER BOATING

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Competition rules for radio controlled models in categories FSR-O/V/H & F1

1. Definition of Models

- a) The design of the hulls are defined by the various class rules.
- b) Models are controlled by the Pilot using radio control.
- c) All models irrespective of class should in form and design look like a boat
- d) Boats may be raced with or without a closed deck / cockpit / cover.

1.1 Class Rules

| | |
|-------|---|
| FSR-H | Free design Hydro-planes with surface or semi-surface drive propulsion. |
| FSR-V | Free design V models with below water line propulsion. |
| FSR-O | Free design offshore boats. V-type or catamarans (tunnel hulls) with surface drive propulsion and inboard motors. |
| F1 | Free design tunnel hulls resembling full size F1 hulls with surface drive propulsion and external motors. |

2. Classes

The category FSR can be divided into the following groups and classes:

FSR-V

| | | | |
|---------|-------------------------|--------|----------------|
| A CLASS | Maximum engine capacity | 3.5cc | |
| B CLASS | Minimum engine capacity | 3.6cc | |
| | Maximum engine capacity | 7.5cc | |
| C CLASS | Minimum engine capacity | 7.6cc | |
| | Maximum engine capacity | 15.0cc | |
| D CLASS | Minimum engine capacity | 15.1cc | Spark ignition |
| | Maximum engine capacity | 35.0cc | Spark ignition |

F1

| | | | |
|---------|-------------------------|--------|----------------|
| A CLASS | Maximum engine capacity | 3.5cc | |
| B CLASS | Maximum engine capacity | 7.5cc | |
| C CLASS | Maximum engine capacity | 11.0cc | |
| D CLASS | Minimum engine capacity | 15.1cc | Spark ignition |
| | Maximum engine capacity | 35.0cc | Spark ignition |

FSR-O

| | | | |
|---------|-------------------------|--------|----------------|
| A CLASS | Maximum engine capacity | 3.5cc | * |
| B CLASS | Minimum engine capacity | 3.6cc | |
| | Maximum engine capacity | 7.5cc | |
| C CLASS | Minimum engine capacity | 7.6cc | |
| | Maximum engine capacity | 15.0cc | |
| D CLASS | Minimum engine capacity | 15.1cc | Spark ignition |
| | Maximum engine capacity | 35.0cc | Spark ignition |

FSR-O Sport

| | | |
|-------------------------|-------|---|
| Maximum engine capacity | 4.2cc | * |
|-------------------------|-------|---|

FSR-H

| | | |
|-------------------------|--------|--------------------------|
| Maximum engine capacity | 35.0cc | Nitro and spark ignition |
|-------------------------|--------|--------------------------|

* -- These two classes will be raced together and will be deemed FSR-O sport.

3. Principal rules and general rules

3.1 Principal rules

3.1.1 Competitions where the rules apply

The SAMPBA rules apply to the following competitions:

- a) All SAMPBA Nationals events
- b) All SAMPBA sanctioned provincial and club events

3.1.2 Entry fees, membership fees and special levies

- a) SAMPBA race entry fee will be determined by the SAMPBA committee.
- b) SAMPBA membership fee will be determined by the committee annually. This fee will include the SAMPBA affiliation fee which will be paid to SAMPBA by each boater directly.
The annual membership fees must be paid by the 31st January of each year.
- d) New members who affiliate during the year will pay full affiliation fees.

3.1.3 Protest fees

The protest fee at all official SAMPBA events is R200.00

3.2 Personal rules

3.2.1 Age groups

- a) At SAMPBA events the competitors are divided into two age groups – Juniors and Seniors. This rule will only apply if there are sufficient Junior pilots. Junior pilots will be allowed to race with senior pilots in certain categories.
- b) A Junior is someone who in the year of competition is not older than 18 years. (Someone is no longer a Junior if they have their 19th birthday in the year of the event.)
- c) For safety reasons, Junior competitors in the event may only race A-CLASS boats in any category. However, at the chief judge's discretion, a Junior may race in any of the other classes, if the chief judge deems the Junior is proficient in that class.

3.2.2 Competitor registration

- a) In order to compete in a club or provincial event the pilot's entry fee is payable to Race control at registration.
- b) By entering the competition the pilot accepts these rules and indemnifies SAMPBA or the hosting club or association from any claims whatsoever. All pilots must sign an indemnity form for the year before their first race.

3.2.3 Maximum allowed competitors

- a) At a Nationals or provincial event, for the race to be classified, the following numbers of pilots are allowed to race together:

| | | | |
|-------|---|-----------------|------------------|
| FSR-V | = | 5 boats minimum | 12 boats maximum |
| FSR-O | = | 5 boats minimum | 8 boats maximum |
| FSR-H | = | 2 boats minimum | 6 boats maximum |
| F1 | = | 5 boats minimum | 12 boats maximum |

- b) If the entries exceed the maximum boats allowed per class, the pilots will be divided into 2 or more groups. The pilots in each group will be determined by a lottery draw.
- c) For a class to qualify as a nationally run class the minimum (5) amount of boats must comprise of pilots belonging to a minimum of two different clubs. For FSR-H the minimum (2) amount of boats must comprise of pilots belonging to a minimum of two different clubs.

3.2.4 Assistants and substitution of the competitor

- a) In all classes a pilot must have an assistant. (Pit Man)
- b) The assistant must help the pilot in the preparation for the start, during and until the finish of the race.
- c) The assistant is not allowed to control the boat at any time that the boat is on the water.
- d) Substitution of the competitor is not allowed during the race.

3.3 Technical rules

3.3.1 Propulsion of models and fuels

- a) Only internal combustion motors are allowed. Jet engines and other forms of non standard propulsion are not allowed.

3.3.2 Fuel

- a) Pilots can either use a methanol/nitro/oil mixture, or pump fuel/oil mixture. The percentages in the mixture, and the octane of the pump fuel is at the pilot's discretion.

- b)

| | | |
|--------------|-------------------------------|---|
| FSR-V | A CLASS B CLASS C CLASS | Must be a methanol / oil mixture, with or without oil. |
| FSR-O | A CLASS B CLASS C CLASS | |

| | | |
|------------------------------|--|---|
| F1 | Sport A CLASS B CLASS C CLASS | |
| | D CLASS | Must be a petrol / oil mixture. Maximum octane allowed is 110. No nitro or N.O.S. allowed |
| FSR-V FSR-O | D CLASS D CLASS | Must be a petrol / oil mixture. Maximum octane allowed is 110. No nitro or N.O.S. allowed |
| FSR-H | D CLASS | Can be either a methanol mixture or a petrol mixture as defined above. |

3.3.3 Noise reduction, noise level measurement and rules

- a) All internal combustion engines must be equipped with devices to reduce noise levels i.e. silencer and/or cover.
- b) The maximum decibels allowed is 90 dB/A.
- c) After a boat is checked by the decibel meter for noise, the pilot must be advised immediately if the boat exceeds 90 decibels.
- d) If at the next race meeting, the boat still exceeds 90 decibels, the pilot will receive a warning. If, at the next race after getting a warning, the boat's noise level still exceeds 90 decibels, they will be disqualified from racing.
- e) If a pilot's boat exceeds 90 decibels, he will be asked to not compete for the rest of the race meeting. This applies to subsequent race meetings as well, until the boat complies with the 90 decibel maximum.
- f) The noise level rules will be applicable to all boaters using the dam facilities at any time i.e. during a race, at free practice or at fun days.

3.3.4 Application and use of radio control equipment and frequency control

- a) During official events, only digital and proportional operated radio control equipment is allowed. The radio control must be capable of working within 20 kHz, which for example, would allow 12 models in the 27 MHz band. The use of any other frequency bands may be possible.
- b) The 35 MHz band is reserved for the exclusive use of model airplanes and will therefore not be allowed.
- c) At the start of the season/first race meeting all boats must be registered. A frequency and a registration number will be allocated to each boat for the year.

- d) Radio/frequency checks will be carried out prior to the start of every race to prevent clashes.
- e) When competitors are not racing, radios may not be switched on within 1000 meters of the competition area. Competitors who disobey this rule will be disqualified from that day's racing.

3.3.5 Buoys (Dimensions, construction and anchorage)

- a) The race course will be marked by buoys, yellow, red, orange or white in colour.
- b) The shape of the buoys can be cylindrical, round, square or rectangular. The buoys will be anchored so that they are at right angles to the water surface.
- c) The buoys must be between 300mm and 400mm in length and diameter.
- d) The buoys must be made of materials such as polystyrene, rubber, cork, compressed high density foam or any other material that will minimize damage if a boat collides with it.

3.3.6 Starting jetty (construction and materials)

- a) The starting jetty must provide adequate space for the competitors and their models and assistants. Any obstructions which could endanger the safety of the competitors and the models must be avoided.
- b) The starting jetty must be a minimum of 1,5 meters wide and 19,5 meters long, with numbered starting positions from 1 to 12.
- c) Access to the starting jetty should be clear. The surface of the jetty must be non slip, even when wet.
- d) The starting jetty should not move, roll or in any other way change position when occupied by the pilots. The surface of the starting jetty must not be higher than 150mm above the water surface.
- e) Floating starting jetties are only allowed when the anchoring and stability are sufficient to prevent rolling caused by waves and/or movement of people.

3.4 Sport Rules

3.4.1 The competition area

- a) The competition site, especially the racing water and the surrounding area, should be selected by the organizers to give the competitors the best possible conditions to achieve good results.

The organizers will ensure that adequate safety measures are in place to protect competitors, officials and spectators from possible danger.

- b) The competition site, the racing water and the surrounding area must be checked prior to the race by the race officials. In the event of complaints from the competitors, the organizers must attempt to correct the fault immediately.
- c) The competition site and the race water must not be contaminated by mineral oils, grease and other poisonous substances. No competitor or assistant may discharge or dump any fuel into the racing water.

Failure to comply with this rule by a competitor will result in disqualification from the competition. Lodging a protest will not be entertained at all.

3.4.2 Starting area, the preparation area and access permission

- a) The starting jetty is the built up area directly adjacent to the racing water from which all pilots must launch their boats.
- b) The preparation area is an enclosed area, where all competitors prepare the models and equipment for the start and serves as a waiting area during the event.

The preparation area should be located as close as possible to the jetty. Only officials, competitors and assistants engaged in the next event are allowed in the preparation area.

- c) Only race officials, competitors and their assistants engaged in the event are allowed on the starting jetty.
- d) The use of umbrellas is allowed on the starting jetty during a race, so long as the umbrella does not cause an obstruction.
- e) It is prohibited to run engines within 200 meters around the starting jetty during a race.
- f) For safety reasons, competitors will not be allowed to start their boats anywhere other than on the jetty at the start of a race and in the preparation area in between races.
- g) After the race, pilots must remove their boats from the jetty immediately to make way for the next race. No repair or servicing of boats is allowed on the jetty.

3.4.3 Allowed number, entry possibilities and race condition of the models

- a) A pilot can register two models per class and will only pay entry fees for the second boat if he uses it. It is the choice of the pilot which of the two models he will use for a race. The second model does not have to be of the same design as the first model.
- b) Only one model can be brought onto the starting jetty. In the event of a breakdown during a heat, the pilot will not be allowed to use the second model. It may only be used during the next race.

3.4.4 Re-run of a race

- a) There is no right to a re-run if a model is damaged during a heat or if a propeller is caught by a foreign object like weeds, fishing line etc. or if radio equipment malfunctions.
- b) A heat can be repeated when timing or lap counting fails, or after disruption caused by drifting buoys.

3.4.5 Registration of competitors and models, scrutiny of boats

- a) Each competitor is required to register their models including any spare models and their radio equipment, within the registration time prior to the race event starting.
- b) The competitors must show their boats for scrutinizing, if required.

3.4.6 Calling time (time allowed to get ready)

- a) The calling time is one minute. Within this time, the start controller will call the competitors by name to take their positions on the starting jetty.
- b) If the competitor does not take their position on the starting jetty with their model within the calling time, the competitor loses their right to start the race

3.4.7 Interruption or suspension of the competition

- a) An interruption, delay or cancellation of the complete competition can only be announced by the chief judge.
- b) An interruption or delay of a heat at the starting jetty is decided by the competitions manager or by the chief judge.

3.5 SAMPBA protest policy

3.5.1 Principal rules

- a) A protest can only be lodged if the competitor is convinced that their race result has been compromised by one or more of the following:
 - i another competitor piloting his boat in contravention of the racing rules.
 - ii another competitor having a boat that does not conform to class rules.
 - iii a decision, act or omission made by one of the competition officials.
- b) The final results, placings, the awarding of titles, medals and honorary awards can only take place after all lodged protests have been resolved.
- c) The decision of the jury is final. Appeals are not accepted.

3.5.2 Lodging of protests

- a) Each protest must be verbally reported to the chief judge immediately upon observation of the alleged infringement, either by the pilot or his assistant.
- b) The protest must be lodged in writing to the chief judge within half an hour after the race in which the incident occurred.
- c) The lodging of a protest does not exclude any competitor from further participation in the competition. If the competitor withdraws from further competition on grounds of a lodged protest, they will be disqualified from the whole event. In this case their lodged protest will be rejected.
- d) If after a verbally lodged protest measures are taken to correct the situation, a written protest will not be necessary.
- e) If the competitor is still not satisfied, he may proceed with the written protest and pay the protest fee.
- f) The written protest must contain the following:
 - Grounds of the protest (respective rules, regulations, acts and where to find them)
 - Time, place, a precise description of the incident, the reason for the protest, possibly including drawings and other evidence.
 - Statements and names of witnesses who were involved in the incident and who are willing to truthfully answer questions regarding the protest.
 - Statement containing the name of the official to whom the verbal protest was lodged, the time when it was lodged, and by whom it was lodged.
- g) The protest must be signed by the competitor.
- h) The protest fee must be paid when the written protest is lodged, or the protest will be null and void.

3.5.3 Handling of protest

- a) The jury has to consider an officially lodged protest for which the protest fee has been paid, and give a decision.
- b) The jury will consist of the chief judge, the competitions manager and one other committee member.
- c) The competitor who has lodged the protest and the person against whom the protest negotiations are conducted, have the right to attend the hearing without voting rights. For the protest negotiations the jury can call further witnesses involved in the incident who must give a truthful account.
- d) The decision given by the competition management on the outcome of the protest will be announced to the affected competitors.
- e) If the protest is successful, the protest fee will be returned to the competitor. If the protest fails, the protest fee will remain with the organizer.

- f) If the protest is successful and the person against whom the protest was conducted is found guilty of breaking racing rules, the penalties for breaking the rule will be imposed against the accused competitor.

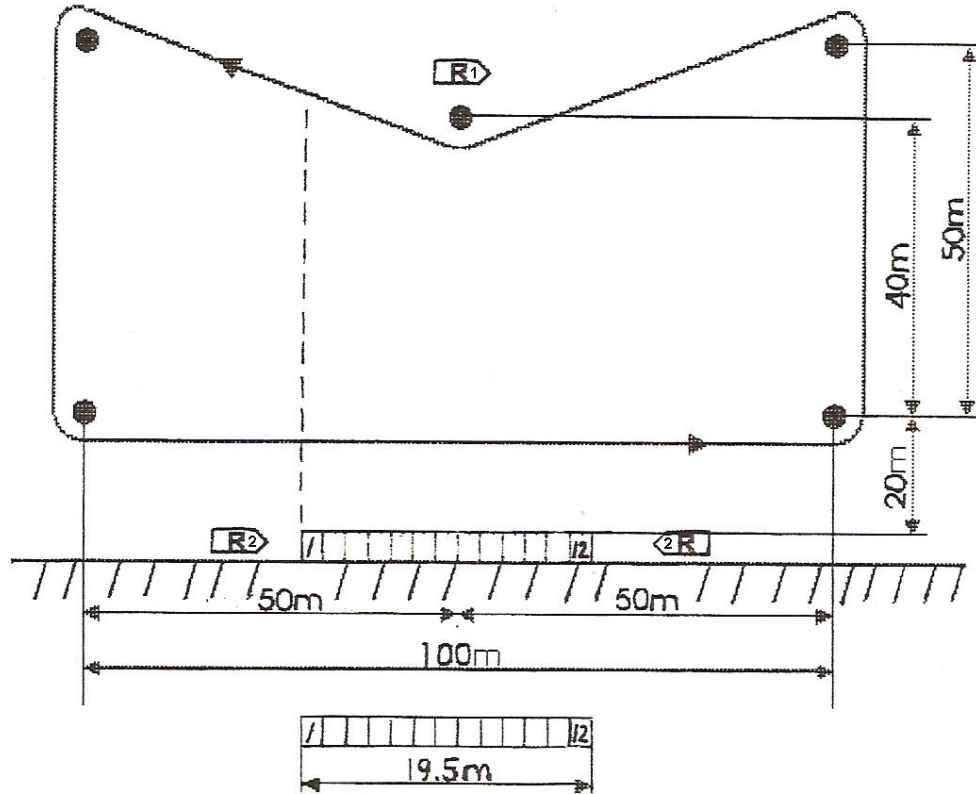
3.6 General rules regarding construction for category FSR

- a) For competitions in category FSR-V, deep V's or shallow V hulls are allowed. The propeller must be below the surface of the water.
- b) For competitions in category FSR-O, deep V's, shallow V's, tunnel hulls and catamarans are allowed. Propellers must be surface piercing.
- c) For competitions in category FSR-H, hydroplanes, crab shooters or any three pointers are allowed.
- d) The steering of the model must be through radio control.
- e) One or more internal combustion engines may be used; however their total cylinder capacity must not exceed the total cubic centimeters (c.c.) of the respective class.
- f) Models are of free design.

4. General rules regarding the set up of competition courses for the category FSR and F1

- a) For FSR-V, FSR-O and F1, the course should be set up in the following manner

Drawing 1



Lap counter and finish line are on the left hand side of the jetty
 1 - - - 12 Start positions and finish line
 R1 Rescue boat position for FSR-V
 R2 Rescue boat position for FSR-O, Hydro and F1

5. General rules regarding start and termination of a race or heat

- During a race a competitor will not be allowed to interfere verbally with another competitor, distract or become physical with another competitor. Doing so could result in a warning, lap deduction or disqualification depending on the severity of the offence.
- During a race, a competitor may not enter the pit of another competitor without their permission. Doing so could result in disqualification from the race.
- After completion of a race, the model must be taken out of the water immediately, the radio must be switched off, and the jetty vacated A.S.A.P. No servicing or repairs are to be carried out on the jetty.

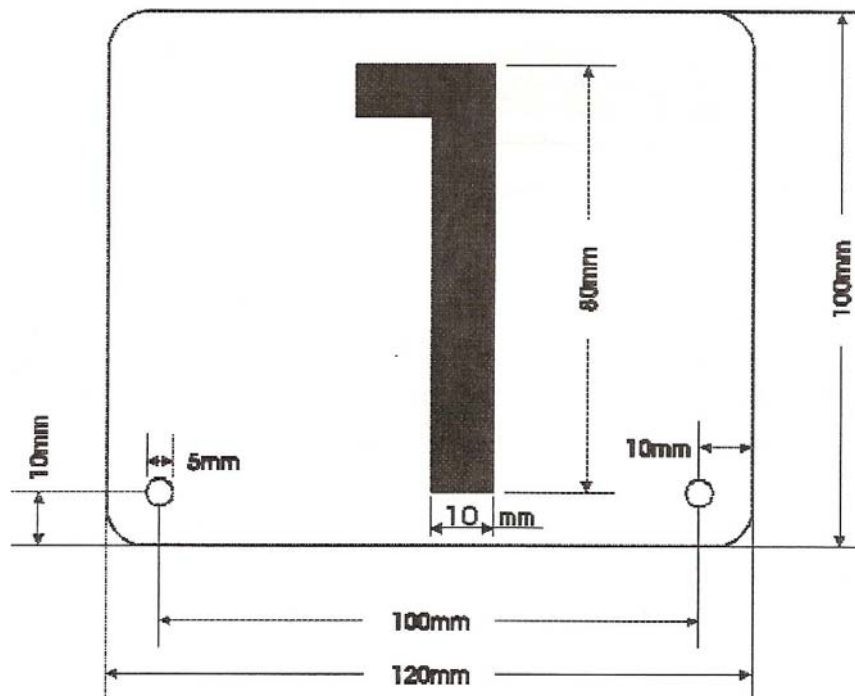
6. Competition requirements in FSR category

6.1 General construction rules and regulations

- The hull has no contraction rules, however it must in form and shape look like a boat.

- b) All model engines must have full throttle control.
All spark ignition models must have a kill switch in order to cut the motor.
The size of the fuel tank is not restricted.
- c) Every model must have on the deck a longitudinal mounted number plate, made out of a flexible, durable material such as poly carb, plexi glass or Perspex.
Numbers must be visible from both sides of the boat.
The number plate for the F1 boats must be made from white vinyl and must be mounted on both sides at the back of the cowling.
- d) The dimensions of number plates for classes FSR-V/O/H and F1 are as follows

Drawing 2



- e) The organizers will provide one powered rescue boat, which has to be stationed on the left or right hand side of the starting jetty for FSR-O/H and F1

classes. For FSR-V classes the rescue boat is stationed outside the centre M buoy. The organizer must provide crews for the rescue boat.

- f) Inflatable boats, and other boats which could be damaged on impact and endanger the life of the crew, must not be used as rescue boats. The crew of the rescue boats must wear life jackets.
- g) The rescue service is controlled by the competitions manager. In FSR-V classes, the model must be rescued in the shortest possible time, causing minimum disturbance to models still racing and ensuring that all competitors are treated fairly. Powered rescue boats must be used slowly, so that the bow waves have no adverse influence on the race. The continuous circling of the rescue boat within the course should be avoided. If not busy rescuing model boats, the rescue boat must be stationary outside the centre M buoy.
- h) In classes FSR-O/H and F1, models are only rescued after completion of the race and all model boats are off the water.
- i) During the race nobody is allowed in the racing water. Competitors not obeying this rule will be disqualified. During the race your boat may be recovered from the side and may re-enter the race without interfering with other competitors.
- j) The starting jetty has to be divided into approximately 1.5 meter sections for each competitor. The starting positions must be numbered and allocated prior to the race.
- k) At a provincial or national event the organizers may provide a 1m high platform for the pilots to drive from.
- l) The raised platform must also be numbered with starting positions. The competitor is left with the choice as to which level they wish to drive from.
- m) In order to ensure a quick, easy rescue, all FSR boats must have a proper lifting point.

6.2 Competition course and duration of the race in the FSR-V classes

- a) The competition will be held on an M course as shown in drawing 1. The competition course has to be placed to suit the dam and conditions, but must be as near to parallel to the jetty as possible.
- b) A competition consists of two 20 minute heats. After the first 10 minutes, and every 5 minutes following, there will be a verbal announcement of time elapsed.

6.3 Procedures for races in the FSR-V classes

- a) The course is navigated in an anti-clockwise direction. For every heat, a maximum of 12 and a minimum of 5 competitors are allowed. For a class to qualify as a nationally run class the minimum (5) amount of boats must comprise of pilots belonging to a minimum of two different clubs. For FSR-H the minimum (2) amount of boats must comprise of pilots belonging to a minimum of two different clubs. If more than 12 competitors have entered the competition, they should be split into equal groups of no more than 12. The make up of the groups should be random, taking into consideration the available crystals. This will be checked by the judges. For the first heat the start positions are allocated by the organizer. For the second heat, the start positions are reversed.
- b) If the heat is split into groups, all groups should be run consecutively with the aim that the same weather conditions apply to all competitors.
- c) The winner in the FSR-V classes will be determined by the competitor having completed the most laps after both heats. Pilots must complete the lap they are on after the end of the race. The scorers will note the total number of completed laps plus the time delay to complete the last lap. If there is a tie on the number of completed laps, the total time delay for all heats will be taken into consideration.
- d) Before the start of each race a radio check has to be carried out to determine if the pilot's radio equipment is working properly with no interference. After the check, no protest will be entertained.
- e) After the radio check, the preparation time begins.
- f) The preparation time is 2 minutes. During this time the pilots are allowed to start and tune their boat's engine. Boats may be placed in the water but must not be released.
- g) After the preparation time, starters order time of 30 seconds begins. During this time boats must be on the jetty with engines switched off. Pilots may not attend to their boats or engines during this time.
- h) The race can be started anytime during the last 30 seconds by an acoustic signal. After the signal, the engines may be started and boats launched.
- i) After the start of the race the pilot may leave the jetty and go to the platform. The pilot may leave the jetty or platform to rescue their boat or to fetch spare parts. However, while driving, the pilot must not leave the jetty or platform. The pilot is not allowed to remove the transmitter from the start position until the race is over.
- j) All buoys must be negotiated in accordance with the course. Touching the buoys is allowed. Only those laps negotiated in accordance with the course are counted.
- k) If a buoy is passed on the wrong side. The boat is allowed to re-circle the buoy without interfering with other competitors. If the pilot does not re-circle the buoy, the lap will not be counted.

- l) A slower boat can be overtaken on either side. During the overtaking maneuver the slower boat must keep its line. It is up to the faster boat to overtake the slower boat without interfering with it. The overtaking boat must keep its line or lane until it is at least 3 meters ahead of the slower boat. It may then move into the racing lane in a smooth line.
- m) The faster boat is not allowed to interfere with the slower model during the overtaking maneuver.
- n) The boat on the race line which is less than 5 boat lengths from a buoy has right of way. A maneuver to force a boat to take the inside of a buoy in order to overtake is not permitted.
- o) If a boat stops during a race, it can be retrieved by the rescue boat, causing minimum disruption to the other boats. The lap on which the boat stopped is not counted.
- p) Boats returned by the rescue boat must resume the course from the starting position. After the new start the laps will be added to those previously achieved.
- q) FSR-V boats can be repaired and refueled during a heat. Only laps completed during the heat will be counted.
- r) If a boat loses the number plate during the race, the boat is to be brought in and a new number fitted before racing can commence. Any laps done without the number will not be scored.
- s) A race can be frozen or stopped by the competitions manager due to exceptional circumstances (e.g. sheered off buoys or rescue boat out of action)

Rules for freezing a race:

- i To stop a race, the competitions manager gives an acoustic signal, the same as at the end of a race. At the same time as the signal is given, the clock that measures the duration of the race is stopped. Boats must complete the lap they are on.
- ii The time from when the signal was given until the models pass the finish line, must be recorded. The models must be taken from the water and the engines stopped.
- iii Competitors and assistants have to step back from the models. Repairs and adjustments are not permitted. During the interruption in the race models can be rescued.
- iv No work will be allowed on rescued boats until the race is re-started.
- v After resolving the cause for the interruption, the competitions manager will give a start signal following the same procedure as at the

- beginning of the race. The time keeping will continue with the start signal.
- vi If the race is stopped within the first three minutes, it will be annulled and restarted from the beginning.
- t) If a heat had to be frozen, all the laps and times must be added together.
- u) In cases of unfair behavior, interference with other competitors, not following the rules or endangering of spectators / rescue boat crew (e.g. collision with the starting jetty) the chief judge can pronounce the following penalties:
- i The first occurrence of not following the racing rules, where no other boat has stopped as a result of the incident, a warning will be given – 1st warning.
 - ii The second occurrence of not following the racing rules, or a more serious incident, will be punished with a one lap deduction – 2nd warning.
 - iii The third occurrence of not following the racing rules, or and exceptionally serious incident, or causing another boat to stop, will be punished by a two lap deduction – 3rd warning.
 - iv The fourth occurrence of not following the racing rules, or exceptionally inconsiderate behavior of a competitor will be punished by disqualification – 4th warning. The model must be taken out of the water immediately.
 - v If a model touches the rescue boat, the competitor is disqualified from that heat. The model must be taken out of the water immediately.
 - vi A model may not pass the rescue boat within 3m at full speed. For the first infringement a warning will be given. The second time in the same heat is a disqualification. This decision will be made by the chief judge and will not be questioned. The model must be taken out of the water immediately. The competitor must be verbally and visually notified of the penalty. There is no possibility of an appeal against the decision. The chief judge must record the penalty and the boat number of the competitor.
- v) The end of the race is indicated by an acoustic signal. After the final signal, pilots must complete the lap they are on. The scorers will record the time delay to complete the last lap. This time will be recorded with the number of laps.

6.4 Lap counting for FSR-V races

- a) Lap counting can be manual or computerized.

6.4.1 Manual lap counting

- a) With manual lap counting, referees for counting will be provided by the organizer. The referees (judges) are responsible for the careful and proper lap counting. If a difference of opinion exists amongst the lap counting referees, the decision lies with the chief judge.
- b) The lap counters must work in pairs, one calling and one recording the boat number as it crosses the start/finish line.
- c) The lap counter must be seated in line with the start/finish line.

6.4.2 Computerized lap counting

- a) For computerized lap counting the lap counters must work in pairs, one calling and one recording the laps on the computer.
- b) In the event of lasers or transponders being used, the computer will record the laps automatically.
- c) Lap counters will only do the lap counting. Any lap deductions will be recorded by the assistant judges and will be deducted from the total laps recorded after the end of the heat.
- d) There is only one finish for all models in the race. The lap counters will be located in a raised position in line with the finish line.
- e) In the event of equal number of laps, the competitor whose model passes the finish line first, will be the winner.

6.5 Scoring in FSR-V classes

- a) The competition result is decided on the number of valid laps and the delay time after deduction of any penalty laps.
- b) If there are 12 or less competitors entered for a particular class, only 2 heats have to be run. The total number of laps and delay time from both heats will be counted to determine the winner and other places.
- c) The places will be decided by the number of laps achieved. When there is more than one competitor with the same number of laps, the competitor with the shorter delay time will be placed higher.
- d) Year end positions will be determined by taking the results achieved from each pilot's 8 best races of the year. Each pilot will be allowed to discard 2 race results or non-participation.

6.6 Composition of results list in the FSR-V classes

- a) The following items should be recorded in the result list of a competition in FSR-V:
 - Type, place and date of the event

- Sequence of placing
- Class
- Surname, Christian name
- Number of valid laps and time fractions. Deducted laps shown in brackets.
- Name of the judge
- Signature of the chief judge

6.7 Competition course and duration of a race in the FSR-O/F1 classes

- a) The competition will be held on an M course as shown in drawing 1. The competition course has to be placed to suit the dam and conditions, but must be as near to parallel to the jetty as possible. Racing will be in a clockwise direction.
- b) A competition consists of six 5 minute heats.

6.8. Procedures for races in the FSR-O / F1 classes

- a) A heat must have a minimum of 5 and a maximum of 8 boats in a class. For a class to qualify as a nationally run class the minimum (5) amount of boats must comprise of pilots belonging to a minimum of two different clubs. For FSR-H the minimum (2) amount of boats must comprise of pilots belonging to a minimum of two different clubs. If there are more than 8 boats entered in a class, the boats are to be divided into 2 groups which must be run consecutively.
- b) The starting positions on the jetty will be drawn from a hat for the first heat of the day. Thereafter the competitors will line up according to how they finished their last heat.
- c) The winner in the FSR-O / F1 classes will be determined by the competitor having completed the most laps after all the heats. Pilots must complete the lap they are on after the end of the race. The scorers will note the total number of completed laps plus the time delay to complete the last lap. If there is a tie on the number of completed laps, the total time delay for all heats will be taken into consideration.
- d) Before the start of each race a radio check has to be carried out to determine if the pilot's radio equipment is working properly with no interference. After the check, no protest will be entertained.
- e) Each race consists of three independent phases:
 - Preparation time (Pit time) 2 minutes
 - Control time (Milling time) 30 seconds
 - Course time (Race time) 5 minutes
- f) During preparation time all boats must be on the jetty. Pilots may work on their models, start the engine, and boats may be launched. During control time no boats may be launched. Preparation time and control time must not be delayed or cancelled, unless in exceptional circumstances at the chief judge's discretion.

- g) After the start has been signaled no further boats may be launched until all boats on the water have passed the start / finish line.
- h) The competitors must drive their boats around the course in a clockwise direction.
- i) During milling time, to ensure the safety of all boats, boats must keep to the lanes they are in as if they were racing. Cutting in front of other boats, zigzagging across the course, circling boats etc. to avoid crossing the start line early will be penalized by one lap. Boats making use of a clutch may not come to a dead stop on the water.
- j) At the end of the milling time the race officially starts when an acoustic signal is given, regardless of where the boats are positioned on the water.
- k) Boats crossing the start / finish line before the acoustic signal have a false start and therefore their race only begins after they have crossed the start/finish line again.
- l) FSR-O / F1 boats may be repaired and / or refueled during a heat. Only laps completed during the heat will be counted.
- m) During the race time the competitor may leave the start position to pick up the model or to fetch spare materials. However while driving, the competitor must not leave the start position.
- n) All buoys must be negotiated in accordance with the course. Touching the buoys is allowed. Only those laps negotiated in accordance with the course are counted.
- o) If a buoy is passed on the wrong side, the pilot is not allowed to circle the buoy and will be penalized with one lap at the end of the heat.
- p) A slower boat can be overtaken on either side. During the overtaking maneuver the slower boat must keep its line. It is up to the faster boat to overtake the slower boat without interfering with it. The overtaking boat must keep its line or lane until it is at least 3 meters ahead of the slower boat. It may then move into the racing lane in a smooth line.
- q) The faster boat is not allowed to interfere with the slower model during the overtaking maneuver.
- r) The boat on the race line which is less than 5 boat lengths from a buoy has right of way. A maneuver to force a boat to take the inside of a buoy in order to overtake is not permitted.
- s) If a boat loses the number plate during the race, the boat is to be brought in and a new number fitted before racing can commence. Any laps done without the number will not be scored.

- t) A race can be frozen or stopped by the competitions manager due to exceptional circumstances (e.g. sheered off buoys or rescue boat out of action)

Rules for freezing a race:

- i To stop a race, the competitions manager gives an acoustic signal, the same as at the end of a race. At the same time as the signal is given, the clock that measures the duration of the race is stopped. Boats must complete the lap they are on.
 - ii The time from when the signal was given until the models pass the finish line, must be recorded. The models must be taken from the water and the engines stopped.
 - iii Competitors and assistants have to step back from the models. Repairs and adjustments are not permitted. During the interruption in the race models can be rescued.
 - iv No work will be allowed on rescued boats until the race is re-started.
 - v After resolving the cause for the interruption, the competitions manager will give a start signal following the same procedure as at the beginning of the race. The time keeping will continue with the start signal.
 - vi If the race is stopped within the first one minute, it will be annulled and restarted from the beginning.
- u) If a heat had to be frozen, all the laps and times must be added together.
- v) In cases of unfair behavior, interference with other competitors, not following the rules or endangering of spectators / rescue boat crew (e.g. collision with the starting jetty) the chief judge can pronounce the following penalties:
- i The first occurrence of not following the racing rules, where no other boat has stopped as a result of the incident, a warning will be given – 1st warning.
 - ii The second occurrence of not following the racing rules, or a more serious incident, will be punished with a one lap deduction – 2nd warning.
 - iii Running over or crashing into a stopped boat after it has been announced will be punished by disqualification from that heat. The model has to be taken out of the water immediately.
 - iv The competitor must be verbally and visually informed by giving the competitor a written penalty.

- v In exceptional cases of continuous infringement of the rules or in cases of bad behavior a competitor can be banned from further participation in the race meeting by the chief judge.
- w) The end of the race is indicated by an acoustic signal. After the final signal, pilots must complete the lap they are on. The scorers will record the time delay to complete the last lap. This time will be recorded with the number of laps.

6.9 Lap counting for FSR-O / F1 races

Lap counting can be manual or computerized.

6.10 Basic rules and penalties in the FSR-O / F1 classes

Failing to comply with the following rules could result in a disqualification from one heat or the entire competition.

6.10.1 Weaving turns

- a) Excessive weaving on the course is not permitted, except when giving way or to avoid a collision. Minor steering corrections to the left and right, or to overtake other boats is allowed.
- b) The following cases will be penalized by a one lap deduction:
 - A weaving turn in excess of 45 degrees.
 - When a competitor endangers another model by turning or weaving.

6.10.2 Right of way

- a) Reliable turning and steering techniques as well as sporting fairness are requirements for the correct use of the race course.
- b) The normal racing line is the line closest to the outline of the course. Boats on the racing line have right of way.
- c) A boat on the normal racing line has the right to maintain its course.
- d) A boat overtaking a boat ahead which is on the same racing line must be at least 3 meters ahead before it has the right of way.
- e) The following cases will be penalized by a one lap deduction:
 - Not following the rules that specify the right of way.
 - Preventing another boat from overtaking by zigzagging, making S-turns, etc.

6.10.3 Negotiating / passing the buoys

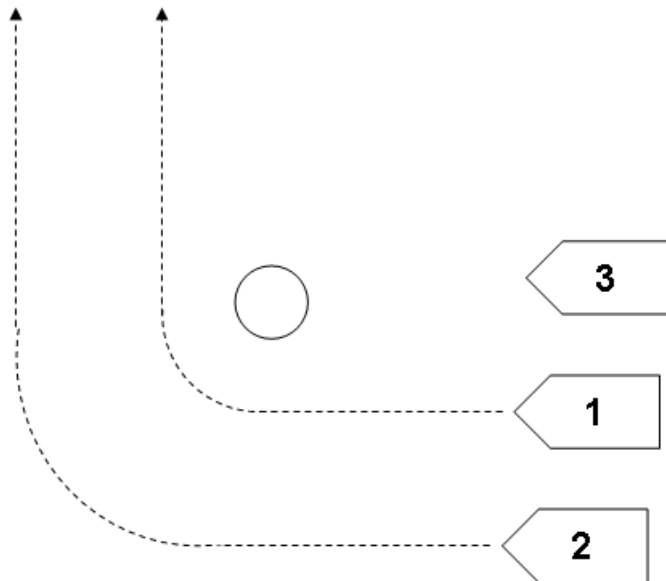
- a) Buoys 1, 2, 4 and 5 must be negotiated on the outside, while buoy 3 (the middle M buoy) must be negotiated on the inside.

- b) Buoy penalties are given by the assistant judges and not fellow boater. It is not possible to protest their decision.
- c) The following cases will be penalized by a one lap deduction:
 - Passing a buoy on the wrong side. There will be a one lap penalty for each buoy missed.
 - Cutting, crossing or driving through the race course.
- d) If a competitor cannot steer their boat properly they will receive a warning. If their driving does not improve, they will be disqualified from the heat and will be told to remove their boat from the water after completing the lap they are on.

6.11 Rules for overtaking in the FSR-O / F1 classes

The following examples are only guidelines for the judges and cannot be cited by competitors in a possible protest. In the situations described below serious danger could arise to other boats or spectators. In this case, the chief judge may order the competitor causing the danger to discontinue the race. The competitor will be disqualified from this heat and will receive no points.

Example No. 1



Boat number 1 has the right of way.

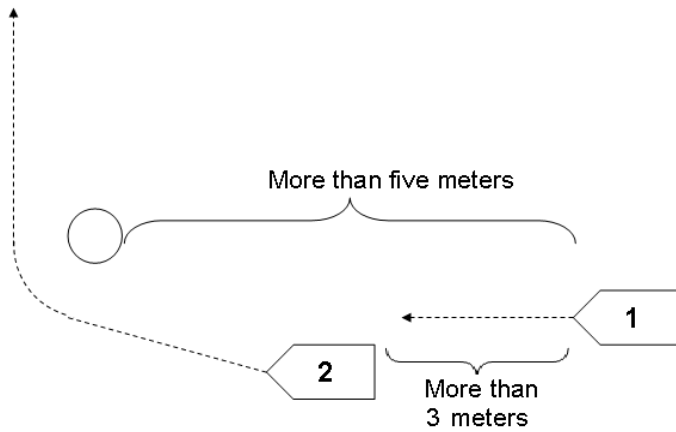
Boat number 2 must keep to the lane it is in.

Boat number 3 must slow down and allow boat number 1 and boat number 2 to pass the buoy.

Boat number 3 may not cut in front of boat number 1.

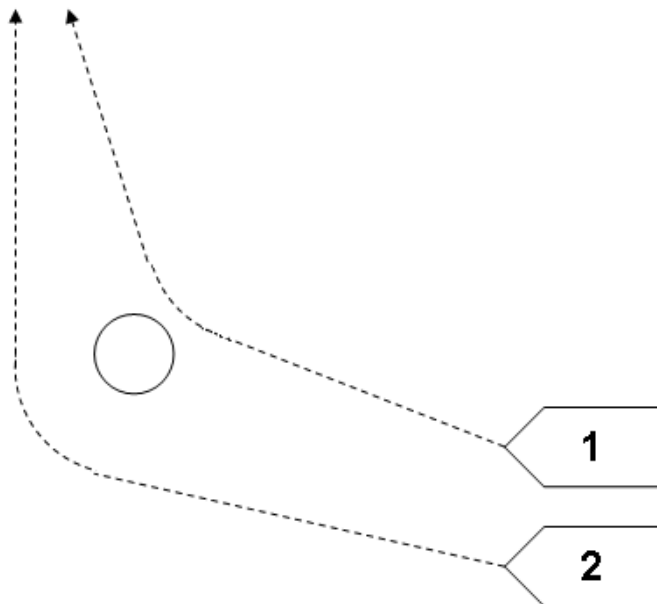
Boat number 2 may not cut in front of boat number 1.

Example No. 2



Boat number 2 overtakes correctly if it is more than 3 meters ahead of boat number 1 and if boat number 1 is more than five meters from the buoy.

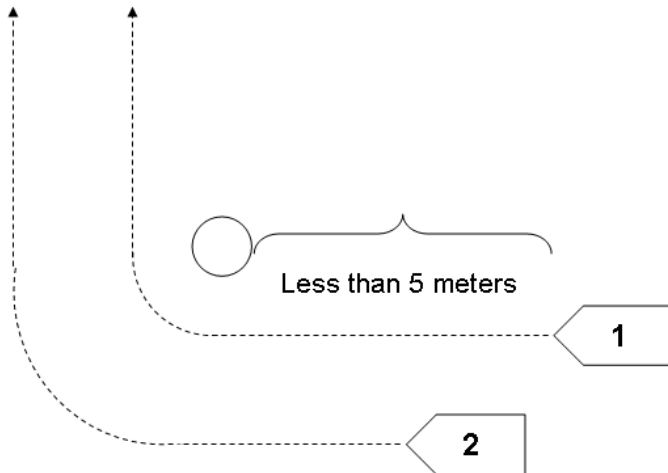
Example No. 3



Boat number 2 receives a 1 lap penalty because it forced boat number 1 to pass the buoy on the inside to avoid a collision.

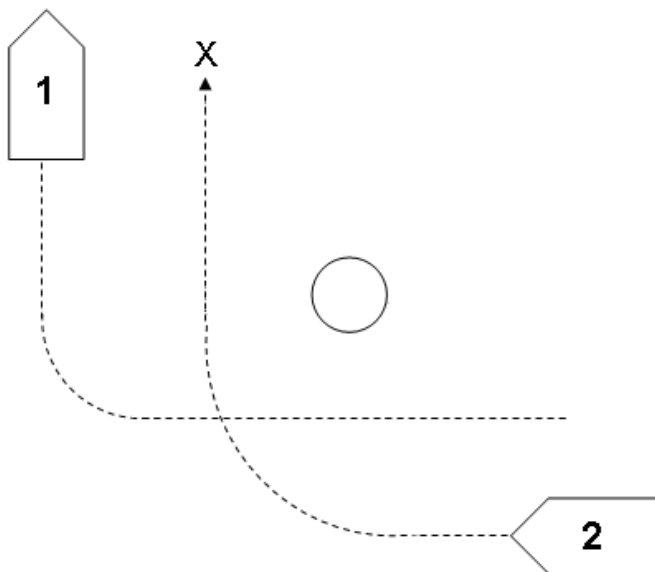
Boat number 1 will not receive a 1 lap penalty subject to a decision by the chief judge.

Example No. 4



Boat number 2 correctly leaves the racing line clear.

Example No. 5



Boat number 1 leaves the inside racing line clear because it turned wide. It allows boat number 2 to overtake by making a tighter turn to position X. Boat number 2 has the right of way.

6.12 Calculation of final results in all classes

- a) Each competitor receives the following points according to the place achieved:

| | | | | |
|-----------------|-------|---|-----|--------|
| 1 st | Place | = | 400 | points |
| 2 nd | Place | = | 300 | points |
| 3 rd | Place | = | 225 | points |
| 4 th | Place | = | 169 | points |
| 5 th | Place | = | 127 | points |
| 6 th | Place | = | 96 | points |
| 7 th | Place | = | 72 | points |
| 8 th | Place | = | 54 | points |

To qualify for a place the pilot must have successfully completed at least one lap.

- b) The total amount of laps completed during the pilot's best four heats will be added together to determine the final placing for the day. If there is a tie between two competitors, the lap delay times will be taken into account.
- c) In FSR-V classes, both the heats will count to determine the final placing for the day.

7. Methods for measuring noise levels in the FSR categories

7.1 General

- a) The measurement microphone must be positioned as follows:
- Height 1 meter, approximately 200 mm above the water level.
 - Position 25 meters to the right for FSR-V and 25 meters to the left for FSR-O / F1 at a right angle to the centerline of the FSR course and 22 meters away from the line connecting buoys 1 and 5 (the two lowest buoys).
 - The measurement microphone must be located at right angles with the connecting line of the two lowest buoys and securely positioned.
- b) It is not necessary to pass the noise measuring equipment at full speed.
- c) Faults with a silencer which cause excess noise levels must be corrected immediately. The model must be taken off the water on completing the commenced lap, failing which the competitor will be disqualified.

7.2 Noise measuring methods in FSR-O / F1 classes

- a) At least one noise measurement must be taken for each model during the race, under the following conditions:
- There should be no other boat within 15 meters of the model being measured.
 - The noise measurement must be taken when the boat is on the base line and at least 15 meters away from the microphone.
- b) When more than one measurement is taken for a boat, the recorded noise level will be the average of all the measurements.

- c) The competitor must be notified immediately after the first heat if their boat exceeds 90dB/A. If after the second heat the boat still exceeds the noise level they will receive a warning. Once a pilot has received a warning for noise levels, they have until the next race meeting to reduce the noise level to below 90dB/A. If at the next meeting they attend the noise level is still exceeded, they will immediately be disqualified from the days racing and no points will be awarded for the days racing.

7.3 Noise measuring methods in FSR-V classes

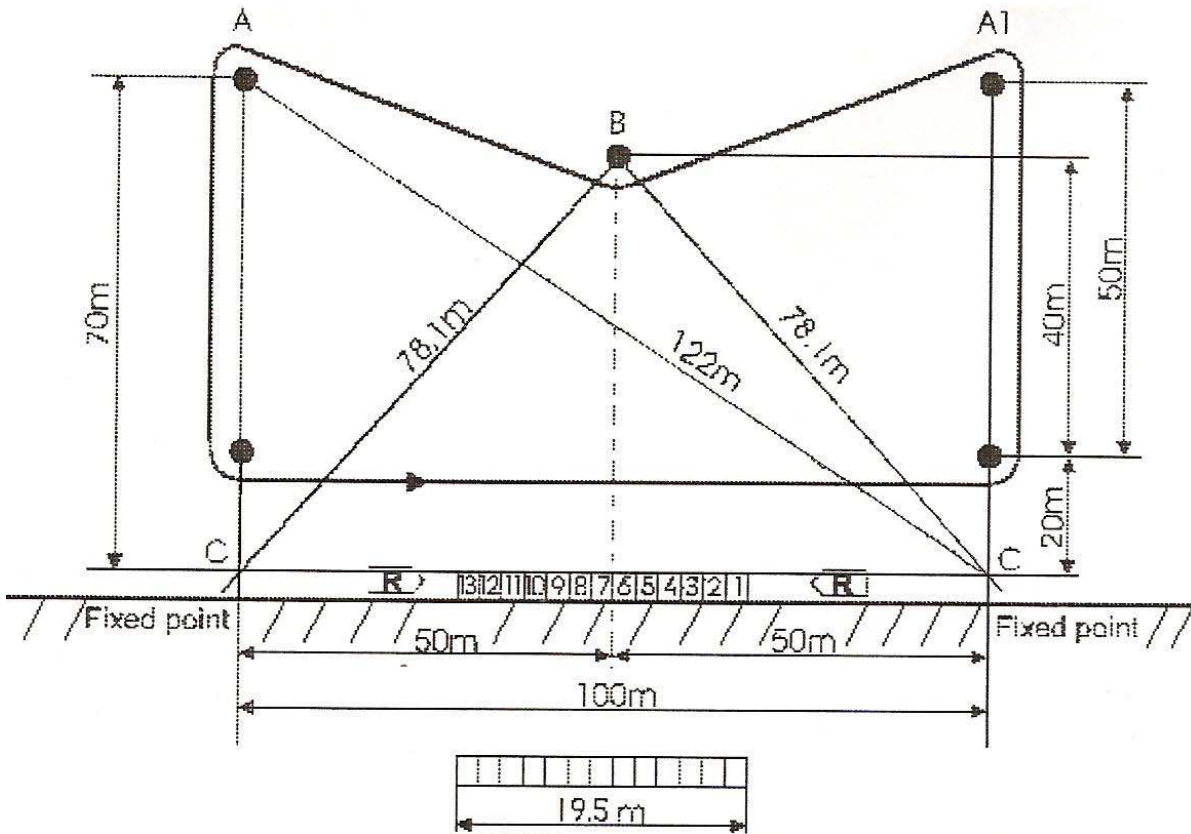
- a) At least three noise measurements must be taken for each model during the race, under the following conditions:
- There should be no other boat within 15 meters of the model being measured.
 - The noise measurement must be taken when the boat is on the base line and at least 15 meters away from the microphone.
 - The measurements must be evenly spaced during the race.
- b) The competitor must be notified immediately after the first heat if their boat exceeds 90dB/A. If after the second heat the boat still exceeds the noise level they will receive a warning. Once a pilot has received a warning for noise levels, they have until the next race meeting to reduce the noise level to below 90dB/A. If at the next meeting they attend the noise level is still exceeded, they will immediately be disqualified from the days racing and no points will be awarded for the days racing.

7.4 Re-testing boats deemed to be above maximum noise levels

- a) Any boat that is deemed to be above the maximum noise level must be re-tested with no other boats running that could influence or interfere with the reading.

8. Guide to measurement and set up of a FSR-V / O & F1 course

In order to set up an FSR course you need two fixed points 100m apart, 2 x 70m strings and 2 x 122m strings (points C-A-C, C-A1-C) and 2 x 78.1m strings (C-B-C).



9. Detailed class specifications:

9.1 Gas Stock Class

a) Hull type

Any CAT or "V" design hull may be used, from any manufacturer. (no 3 or 4 points, hydro's, canards). Own designs may also be used, but direct pirate copies of commercially available hulls will not be permitted to participate.

When sufficient entries permit, the class will be split to allow a CAT heat and a "V" heat.

b) Drive hardware and rudders

Any type of surface-drive hardware may be used.

Propellers are open to suit the boater's set-up, altitude or race conditions.

Any type of rudder system may be used. (In-line, off-set, twin rudder etc.)

c) Other hardware

The use of auto-bailers, turn-fins and after-planers are permitted. Any attachments to a hull may not protrude past the sides of a boat so as to damage other boats in case of accidental contact during overtaking.

d) Engine mountings

Any type or design engine mountings may be used.

e) Exhaust system

e.1) Cooling block

Any design cooling block may be used.

e.2) Header pipe

The header must be 22mm o/dia (constant) from the motor up to the point where it meets tuned-pipe (1st cone). The header can be of any configuration to suit the specific hull. (90-deg, 105-deg, wrap-to-centre, custom etc) The header may be attached to the tuned-pipe by any means. (Clamped, welded or attached with o-ring design etc...).

e.3) Tuned pipe

The tuned-pipe must be of a simple 2-cone design only. No multi-cone or gradually increasing angle pipes are allowed. a Box-silencer may also be used.

The noise level of the pipe must be in the prescribed limits as set by SAMPBA (90 Db). Any type/form of silencing may be used to comply with the required maximum noise level.

f) Motor

This class shall use the Zenoah G260PUM motor and no other.

The motor is stock as in supplied by manufacturer and may not be modified in any way. No material may be removed or added in any way.

The pull-starter orientation may be rotated to suit the boater's preference.

All parts on the motor must be as supplied by the Zenoah Company. Stripped threads may be repaired by using helicoils.

g) Carburetion

Only the Walbro 644 and 257 carbs may be used. These may have the choke butterfly removed (644) and bolt-on velocity stack removed. No other modifications may be made to the internals and flow path of the carburetor or isolator block.

h) Base gasket

Only the blue bas gasket as supplied by Zenoah may be used. No aftermarket (compression enhancing) gaskets may be fitted.

i) Piston

Piston shall be the manufacturer supplied one only. No lightening or relieving of piston is allowed.

j) Ignition Coil and spark plug

The black ignition coil may be relocated when hull constraints dictate it. The OEM champion plug and the NGK RZ 7 C spark plug may be used. NO multi-spark or Iridium type plugs will be permitted.

k) Bearings

As parts availability is scarce the 2 main bearings may be replaced with off the shelf bearings. No ceramic (Boca) bearings may be fitted.

l) Seals

Only OEM Zenoah seals may be fitted, Seal retaining springs may not be removed. No aftermarket zero drag seals may be fitted.

m) Fuel, oils and additives.

Any octane fuel readily available at public pump-stations may be used.

Any 2-stroke oil readily available through public retail may be used.

No octane boosting fuel additives may be used.

In the interest of fairness, any boater should be willing to sell at cost price a test tank of ready-mixed fuel to any other competitor who suspects foul-play.

n) Scrutinizing

Any competitor's motor may be open to scrutiny by the race organizer and 2 other members appointed by the committee. At this motor inspection the race organizer would supply a new blue base gasket to replace the one on your motor. (Your choice to use it or not). If at any time a motor is deemed to have been modified the member would lose all his/her points for the season to that date. On your second offence you would be brought before the committee where you may be suspended from the club indefinitely.

Subject to an official protest, a competitor's motor will be subject to this scrutinizing process. If the protest is upheld the cost is to the offender. If the protest fails, cost is to the protestor.

Amendments:

Revision 3

Stock class rules finalized and updated

September 2010

Revision 4

Minimum amount of boats to qualify as a National race
Increased from 3 to 5.
Pilot Assistant (Pit Man) rule specified.

June 2011