LARGE SCALE OFFROAD

Inc 1/5th and 1/6th

GENERAL RACE & EVENT RULES

CAR SPECIFICATIONS FOR

STATE AND NATIONAL EVENTS

2024 RCRA LARGE SCALE OFFROAD NATIONALS FIELD

Hosted by SSME/LSOR

Contents

ALL COMPETITORS AND SUPPORT STAFF MUST READ, COMPLETE AND SIGN THE RCRA CODE OF CONDUCT PRIOR TO COMPETING OR ASSISTING AT A STATE OR NATIONAL EVENT

1. ANNUAL RACE FORMAT

There will be multiple annual events in the Large-Scale off-road category, being State titles and a national title, all events will be held at an RCRA approved facility and run to current RCRA large-scale off-road rules.

1.1 ANNUAL RULE REVISION

The RCRA large-scale off-road rules will be reviewed on a yearly basis at the conclusion of the last official sanctioned event for the year, unless otherwise raised by an affiliated club delegate.

The procedure for rule review will be that the requested changes or modifications be put in writing and addressed to the National delegate via the elected club delegates, an electronic meeting/discussion will be undertaken by the national delegate involving all the elected club delegates to review and decide on the requested changes.

The club delegates have been voted in via their rank-and-file members therefore they are entrusted by their clubs to act on the club's behalf in the decision-making process.

Where required the club delegates may be asked to conduct a vote amongst the financial members of their club on a specific topic to then come to a collective decision nationally.

All decisions and rule changes are derived via a democratic voting process therefore collectively agreed upon, once all questions and topics have been finalized the rule document can be updated.

1.2 RCRA Large Scale Off Road Section AGM

The annual large-scale off-road section AGM is to be held on the weekend of the section's national titles, there is to be a meeting held on the Saturday afternoon at the conclusion of the days racing where all positions will be made vacant.

Positions available.

- National Large-Scale off-road Delegate
- 2 x Technical Officers to support the delegate.

Nominations for the positions will be taken from the floor and voted on by a show of hands from the members in attendance, majority rule decides, and the newly elected delegate and officers will be announced to the floor.

In the event of a change of delegate or officer all information and documentation are to be forwarded across to the newly elected persons.

1.3 RCRA Event support committee

At the commencement of a State or Nationals Titles the attending current elected club delegates along with the National Large-Scale off-road delegate (If in attendance) will gather to form a support committee.

The purpose of the committee will be to assist and support the Host club and Race Director with any disputes and or difficult decisions required during the running of the event, the committee will provide advice and support to the host club for the purpose of clarity and direction.

If required and the situation calls for it a vote will be taken on the matter presented to achieve a resolution to move forward, I the event of a deadlock the National Delegate will cast the deciding vote.

As always, the RCRA Code of Conduct is to be adhered to by all parties involved.

Online Link - https://rcra.org.au/public/docs/downloads/aarcmcc-code-of-conduct-v1.pdf

1.4 Classes and Permitted Vehicles per category

1.4.1 1/5th - 1/6th Scale 2WD EFRA

Further specifications for this class are outlined in Section 12 below.

1.4.2 1/5th - 1/6th Scale 4WD EFRA

Further specifications for this class are outlined in Section 12 below.

1.4.3 1/5th – 2WD Baja/Baja SC Class

Class requirements are the vehicles are or based on the HPI Baja chassis only, either as a buggy or short course body style, all technical specifications are list in section 12 below.

1.4.4 1/5th – 4WD Short Course

Further specifications for this class are outlined in Section 12 below.

1.4.5 Classification and allocation of vehicles for classes

With the sport constantly evolving and manufacturers releasing new and varied vehicles to the public there is the need for the RCRA (LSOR) committee and club delegates to discuss vote and allocate the vehicles to the appropriate class for competition.

The emphasis should always be on the intent to place the vehicle where it was manufactured for, keeping in mind the sense of fairness within the competition and maintaining to the best of our ability and even playing field.

As always, these decisions will be a majority rule basis after appropriate discussion amongst the group.

1.4.6 Custom or Self Built cars

Custom or self-built cars are allowed in all classes if they fulfil the technical rules and specifications applicable, ***they should be presented to the club delegate for review and compliance.***

As always, the technical advisors and national delegate are available for consultation if required.

1.4.7 Number of cars per class

There needs to be a minimum of 8 cars per class to sanction and run the class.

1.4.8 RCRA rankings

The results of the State and Nationals Titles will give RCRA a ranking list for the countries drivers, this list will be updated after each annual State and National event.

1.4.9 Maximum vehicles for an event

The number of cars to be entered in one Large Scale race meet is limited to 100.

1.4.10 Eligibility for participation

Participants must be paid up financial members of their local RCRA Large scale off road affiliated club in the state they reside to be permitted to participate in a State or National event, if there is not a club in the state, they live they can become a member of the nearest club to them. They must also compete in 3 club rounds prior to the State or Nationals.

2. Event Format for National and State Titles – Race Procedures

2.1 Event Format, Duration of Practice, Heats and Finals

1. National events will run from Thursday through to Sunday entries/numbers permitting.
2. State event will run Friday to Sunday entries/number permitting.
3. Events can start a day later if the entry numbers aren't high enough, but they must always conclude on a Sunday afternoon.

2.1.1 Day 1 – Practice

Morning Session

30-minute open practice sessions held in correct classes for shake down and transponder checks a maximum of 10 cars on the track at any one time.
Drivers are only permitted a 10-minute run inside the applicable 30-minute window under race directors' control.

Afternoon Session – *Subject to Time and Scheduling

30-minute open practice sessions held in correct classes for shake down and transponder checks a maximum of 10 cars on the track at any one time.
Drivers are only permitted a 10-minute run inside the applicable 30-minute window under race directors' control.

*The event timing and scheduling should be planned ahead of time, then agreed with the race director and host club. This information is to be made available to all participants prior to the start of the event and be discussed at the day 1 drivers briefing.
The 1st heat for the event can be run on the afternoon of day 1 if required.
If this is the case the afternoon practice session may not be run.

2.1.2 Day 2 - Heats

10 minutes is the permitted duration on a rolling staggered start for all heats.
A 3-minute warm up will be programmed in with the 10-minute heat to follow concurrently.

2.1.3 Day 3 - Heats

10 minutes is the permitted duration on a rolling staggered start for all heats.
A 3-minute warm up will be programmed in with the 10-minute heat to follow concurrently.

2.1.4 Day 4 - Sub and Main Finals

Last round of Qualifying if required.
A Final: 30 minutes
B Final: 20 minutes
C Final: 15 minutes
D Final: 15 minutes

2.2 Finals & Sub Finals Systems

2.2.1 Finals system

The RCRA (A, B, C) Final's system will be used.

2.2.2 A Final qualifier

The top 7 placed drivers qualify directly into the A final along with the next 3 fastest.

2.2.3 B Finals qualifiers

B Finals will be the next 7 drivers along with the next 3 fastest.

2.2.4 C Finals qualifiers

C Finals will be the next 7 drivers along with the next 3 fastest.

2.2.5 Numbers of drivers

The racing format will be published in the event and invitation information.
The Race Director has the jurisdiction to add drivers to finals to make the event run on time.

2.2.6 Driver numbers for heats and finals

Heats run 10 drivers and depending on entrant numbers and track configuration the race director may choose to increase it to 12 to save time. All finals sub and mains have 10 cars maximum.

3. STARTS / QUALIFYING SYSTEM

3.1.1 Qualification

Qualification will be run in accordance with the current RCRA ruling concerning combined points specifically.

3.1.2 Qualification Points

In each round, drivers will score points based in the laps and times achieved. 1st=150, 2nd=147, 3rd=145, 4th=144, 5th=143, 6th=142, 7th=141, 8th=140, 9th=139, 10th=138, 11th=135, 12th=134 … TQ =1 extra point.

3.1.3 Qualification Points - Ties

In every round, in case of a tie, the points will be equally awarded to each driver, and the first driver not to tie, will receive one point less than the drivers that did tie.
An alternative point structure may be used, if so the event hosts and race director are to inform the competitors prior to the event commencing.

3.1.4 Qualification Points – Equal Points ruling

In a case of two or more drivers having the same point score, the next best point score determines position. If still unable to resolve with the next best rounds, then the driver with the fastest laps and times in his best score will determine position.

3.1.5 Qualification round points inclusions

A: The driver's best four (4) rounds shall be counted when (6) qualifying rounds have been run.
B: 5 Rounds of qualifying, 3 rounds will be counted, 4 Rounds of qualifying 3 rounds will be counted.
C: If weather affects the racing it is at the discretion of the race director to achieve a result.

3.1.6 Qualification rules – Minimum heats required - No heat, no points

All events have a minimum requirement of heats to be completed to achieve the correct qualifying order (as referenced in 3.1.4 - Qualification rounds points inclusion).

If a driver cannot attend a heat due to extenuating circumstances, they are to inform race control. The Race Director will assess the circumstances and assist where possible to achieve an outcome that is fair and reasonable. If a driver does not participate in a heat, they receive no points.

If a driver is at the event and their vehicle is in working order, they must participate in every heat they are listed for.

If a driver refuses to participate in their heats with no logical explanation to the race director, they may be disqualified from the event.

3.2 Scrutineering / Safety

3.2.1 Code of conduct

On day 1 of an event, all competitors are to present to race control to complete their registration, pay any outstanding race fees and sign into the daily attendance sheet as well as the RCRA Code of Conduct.

Online link - https://rcra.org.au/public/docs/downloads/aarcmcc-code-of-conduct-v1.pdf

3.2.2 Safety and Scrutineering Inspections Items

All vehicles will have to present to the scrutineer where they will check the following items, all these items must be in place and functioning for the vehicle to pass and then compete.

ABSOLUTELY NO CARS ON TRACK UNTIL THEY HAVE BEEN SCRUTINISED AND PASSED

1. Functioning Red or Yellow stop button on the fan shroud of the motor.
2. A clearly marked 'E' symbol next to the opening in the body for the Red of Yellow stop button.
3. Working brakes showing the vehicle can be brought to a stop safely.
4. An electronic kill switch that,
   a) turns the engine off when the TX signal is lost.
   b) turns the engine off when the battery power is lost.
5. No sharp objects bolts or screws protruding from the vehicle.
6. A fuel cap that seals well, making sure there not fuel seeping from the tank or cap.
7. Conformation of the Transponder number and that it is plugged into power.
8. The vehicle will be checked for weight and dimensions respective of the class it entered.
9. Logging the engine tag and marking of the chassis.
10. Finally, when the vehicle has passed, fitting a coloured zip tie indicating the car has passed scrutineering.
11. The car will have the radio/kill switch/brakes and E stop checked each day of the event and a different coloured zip tie will be fitted once again to show the car has passed.

3.3 Race Starts / Penalties

3.3.1 Grid starts

When using the Formula 1 grid start procedure, a one-lap trial start must be made to check transponders. Following the trial lap completion, the official start will be made within 15 seconds of the last car becoming stationary in its grid position. No mechanics are allowed on the track and any car missing from the grid must start from pit lane once the entire on track field has passed.

3.3.2 Early start

Early starts (e.g.: any part of a car touching the starting line) will be penalized 10 seconds up to 1 lap. This penalty will be issued by the Starting official or Timekeeper and must be announced immediately after the start. The penalty will be marked on the results sheet.

3.3.3 Jump starts

Under no circumstances will the race be stopped due to a jump-start or false start, the penalty for a jump start is a stop-go penalty.

3.3.4 Stop go penalties

If a stop-go penalty has been issued to a driver the penalty is to be completed within the first 3 laps of the first final the participant is in. The penalty is to be completed in the designated stop-go penalty area which will be identified and explained clearly to all competitors at the drivers meeting prior to the finals starting.

3.3.5 Stop go penalty area/box

A designated Stop-Go area is to be clearly marked on the track; it is to be positioned away from the racing line as to not interfere with fellow racers when a penalty is enforced.
In the event a track layout does not cater for an area for a box to be marked an elevated pit lane may be used instead.

3.3.6 Stop go penalty management

The stop-go penalty itself must be managed by a track marshal, the marshal is to be in position to witness the car coming to a stop, the marshal will waive the car on when the 3 to 5 second penalty has been completed.

3.4 Starts - Other rulings

3.4.1 Race Director Discretion

The Race Director may only interrupt the start of the race and elect for a re-start if he considers the starting procedure, or the start was not carried out correctly.

3.4.2 Delayed starts

All races will commence as scheduled with no exceptions. If a driver is late, he or she shall then start from pit lane when the race commences.

3.5 Finals and related operating procedures

Each category as already stated in their specifications and point 3.4.4 has a maximum fuel allowance for the finals, if you have qualified for a final in your category the following procedures are in place and need to be followed.

Present to the staging area with your car, transmitter and 2 x measured fuel bottles, making sure your fuel tank is empty. You are NOT required to drain your fuel lines or carburettor as has happened in the past; it has been deemed potentially dangerous for the motors to run them dry as it may lean seize them.

Once all race participants are gathered in the staging area a member of the race committee will inspect the vehicles for engine tags and safety inspection tags. *refer rule 8.2* (These items should already have been put in place on the first day of the event). The race committee member will also inspect your car to confirm your fuel tank is empty.

Once the race committee member is satisfied you will be instructed to fill your fuel tanks with the specified measure of fuel for your class.

3.5.1 Fuel for finals

Each class requires 2 fuel bottles with either 700ml, 800ml or 850ml depending on the class being run, check the technical specification sheet for further information. If a delay has been called it is up to the driver whether they decide to use their second fuel bottle, no more fuel will be issued once the 2nd bottle has been used.

3.5.2 No refuelling during a race

Once the race has started and in progress, the cars are NOT allowed to be refuelled.

3.6 Mechanical or Radio delay – Semi Final and Final only

The window of opportunity to call for a mechanical or radio delay commences once your car has been fuelled for the semi-final or final, must be before the 1-minute mark prior to the starter's buzzer.

The delay can only be called once per race, the duration of the delay is 10 minutes only and it will be timed and enforced by the race director.

If the delay is called for mechanical reasons the track will remain open if it is called for radio and transmitter reasons the track will be closed.

Once the delay has been called all cars are under the instructions of the race director, he may instruct the cars to be parked in the pits and shut down or he may instruct the cars to shut down and be left on the grid, in either case once shut down the TX and RX's on the vehicles can be turned off.

If the delay is called for because of radio reasons the mechanics are only allowed turn off the engine and receiver, they are NOT allowed to make any mechanical adjustments or change tyres.

The remaining competitors in the field are NOT permitted to carry out any repairs or adjustments to their vehicles, only the competitor who called for the delay may have his vehicle attended too.

There will be NO refuelling of the cars during a Mechanical or Radio delay.

The driver requesting the delay for whatever reason must start the race from pit lane.

3.7 Track Watering during an event

The typical procedure is that the track and surrounding area will be well watered in the days leading up to the event, the purpose of this is to get the moisture deep into the substrate to keep the dust down and the traction up.

Products like Dustex can be used and will help hold the moisture in the surface, during the event it is important that the watering is structured during heat rounds so as all classes could run on a damp surface, this keeps it fair for all competitors.

As a Blue groove starts to form on the race line, keep the watering to the edges and loose surfaces only, watering the blue groove will make the surface extremely slippery and be a total disadvantage.

It is the discretion of the race director and his committee to use their collective experience and judgment to manage this process, all tracks and surfaces differ so there will not be 1 solution for all.

4. Wet Track / Inclement Weather Situations / Race Interruptions

4.1.1 Facilities

All off-road race facilities must have water on site and could wet the track down to control dust and provide traction, there must not be water standing anywhere on the track and there will be no racing if rain is falling.

4.1.2 Wet track

The decision on whether the track is too damp will rest with the race committee on the day, if the weather has been severely inclement on the days preceding a scheduled event, a decision will be made to reschedule the event to a different date by the event organizer.

4.1.3 Event interrupted

In the case of a race that is interrupted for more than 60 minutes for reasons beyond the control of the race organizers, the track committee together with the event organizers can make the decision whether to cancel, postpone or continue the event.

4.1.4 Heat interrupted

In the case of an interruption of a heat, the entire heat will be re-run.

4.1.5 Procedure for interrupted race

In the case of an interruption of a heat or final the following procedure will be used.

4.1.6 Re-starts and Re-Fuelling

If less than 10 minutes of a final has been run the results will be cancelled and a new start will occur. Vehicles may be repaired and refuelled before the new start in accordance with the specified fuel measure for their class under the control of the race committee.
If more than 10 minutes of a final have been run the results now of interruption will be kept. The new start will be given for the time which remains to complete the final.
The two results will be added to give the final and definitive placing, if the second start cannot be made for any reason the results from the first part will be used as the final and definitive placing.

4.1.7 No re-start

When the interruption takes place after 75% or more of the race is past the results at the time of interruption will become the result.

4.1.8 Drivers procedure during interruption

When an interruption occurs, the drivers will leave their radios at the start line under the control and supervision of the race director. The competitors are required to shut down their cars and turn their radios off.

4.1.9 Decisions due to rain - Rain procedure during qualifying and finals

The Race Director and the Referees are jointly responsible for the decision to stop a race in the event of rain. If the Sub Finals or Finals cannot be run, due to ANY reason. The final event classification will be decided on qualifying results.

For this clause to take effect, all heats must be run in their entirety.

5. Track Requirements / Mandatory Facilities

5.1 Track Closure and Modification rule

Clubs hosting a state or national title are required to close their track 4 weeks prior to an event giving time for track preparation and modifications to be completed.

Track changes can consist of an altered layout, the addition of jumps or rhythm sections, even running in the opposite direction all designed to create change for all and level the playing field as such.

5.2 Track inspections

Tracks for the Large-Scale off-road racing will be inspected by the RCRA Officials regarding safety provisions for drivers, mechanics, race officials, and spectators.

5.3 Trackside race timing monitor

A monitor must be placed in the pit area or under the rostrum during all State and National finals.

5.4 Pit segregation and layout

The pit area must be separated from the track area, there is to be an entry and exit lane where the vehicles can access to and from to prevent any pit staff being in direct harm's way whilst racing. The pit lane entrance and exit lanes must be at least 1 meter wide.

The pit lane can be elevated for ease of access for the mechanics, if it is not elevated it needs to have a change of direction so a car cannot charge straight into the lane at full speed.

5.5 Pit access

The Pits are only accessible by the competitors and their support staff, NO members of the public are permitted to access the pit area for any reason.

5.6 Track aspects and design

The maximum distance from the drivers stand to the farthest point of the track can be no more than 60 meters.

5.7 Track Length and Width

Track length can be a minimum of 200 meters, maximum 400 meters; lane width is a minimum of 4.0 meters, Tracks must be constructed with a reasonable variety of small and large corners going both left and right. The straights must have different lengths.

5.8 Track Lanes

The lanes must be clearly visible by all competitors from all positions of the rostrum, track markers must be clearly marked and not constructed in a way that will damage a vehicle, they must be solid enough not to be moved by the cars.

5.9 Timing loop and Start/Finish line

The Start/Finish line must be clearly visible for all to see, if the track surface it loses it can be defined with a row of flags over the loop and 1m high or markers on either side of the track. The timing loop must be placed in a way so as not to damage the cars.

6. Mandatory Facilities and compliance

6.1 Attendance, induction, and rules availability

All competitors are required to sign the attendance book at the start of each day's competition, all competitors and support staff are to read, understand and complete the safety induction sheet that will be kept at Race control, and they must sign the attendance register for each day they are there.

No signature No start! A copy of the Rules and Induction sheet will be attached to the event application sheet. New members and casual drivers are required to read and understand club's rules before they can compete. Everyone is required to read and understand all rules before season starts.

6.2 Facilities provisions

Adequate sanitation must be provided on site for both Male and Female competitors and participants.
There must be mains power available.
The pit area must be large enough to set up worktables and provide for weather protection for all.

6.3 Safety of public and provision for emergencies

The track committee and event organizers must always make sure that a car never encounters the public.
The safety of the public, drivers, mechanics, and track staff must be always maintained by a safe and functional track and facility.
There must be an adequately always stocked first aid cabinet accessible within the pit area.
The phone details for emergency services must be displayed and a phone available in the event of an incident.

6. Drivers / Marshals / Marshalling Obligations

6.1 Marshals directions

Drivers will act as marshals, and they will be directed by race control. It is expected that all drivers are responsible to know when they are required to marshal. (Marshalling duties typically occur after the race you just completed)

6.2 Marshals replacements

If a driver is unable to fulfil their marshalling duties it will be up to them to find a replacement for themselves. All marshals are to have completed the appropriate club safety induction form, they must show themselves to be competent and responsible.

6.3 Marshals age requirement

Marshals can be no younger than 16 years, if a junior driver is participating their parent, guardian or host at the track will marshal for them provided they have the correct experience to do so, if not a replacement must be found by the driver.

6.4 Cars being marshalled

When a vehicle is being marshalled, the driver must have the brakes on. The marshal will only then correct your car. When the cars are in ready position, marshal will lift his or her hand up to signal the driver that it is safe to drive. Marshal can but is not responsible to restart the engine if stalled.

6.5 Marshals minimum protective equipment requirements

Marshals must wear:

- fluorescent safety vests
- eye protection
- appropriate enclosed footwear (i.e., lace up shoes or safety boots)

Marshals are advised to wear:

These are a personal option up to the individual:

- Protective gloves to prevent burns and other hazards.
- Hearing protection due to loud noise risks

Any injuries must be investigated and reported in writing.

7. Accidents / Crashes

7.1 Yellow Light – Hazard on track

A '" yellow flag" situation will be announced if an incident occurs, this will be via an audible signal (buzzer) that can be operated at the race director's discretion.
Instructions of the incident location will be given by the race director; additional yellow flashing lights and marshal flags are optional to further identify to drivers that an accident has occurred.
During the "yellow flag" period, the area where the accident occurs is under caution, cars are required to slow enough that they can stop immediately if required and no overtaking of other cars is permitted.

Racing will recommence at race speed in the area following the official announcement "Caution Clear" and once marshals have left the track. A driver disregarding this rule will be penalised by deducting one lap from the driver concerned in the heat, sub-final or final.
An official warning must be issued. Continual disregard to this rule will result in the driver being called before the race committee for review of the rule breach.

7.2 Attending to breakdown

Mechanics can enter the track to retrieve the car of their driver, the mechanic may restart the engine (3x) behind the marshalling barrier, a steering arm can be clicked back on a ball end all other repairs are to be carried out at pit lane where the cars can re-enter the race in a safe manner.

Mechanics or spectators entering the track from outside the pit lane area to retrieve the car will produce a penalty for that car. Penalties can be given as a stop and go or a one lap deduction, the Race Director and referees will inform the Team Managers and Driver about the sort of penalty issued.

7.3 Designated Stop-Go point and clarification

Stop-go penalties are to be completed within the first 3 laps of the first final raced by the competitor

Three stop and go penalties for one car during one race will lead to disqualification (Black Flag)

A designated Stop-Go area is to be clearly marked on the track; it is to be positioned away from the racing line as to not interfere with fellow racers when a penalty is enforced.

7.4 Protests

A protest may be called if a competitor believes another competitor is cheating. A protest must be in writing and handed to the Race Director within 10 minutes of the end of the race, there is also a fee of **$50** for the protest; this fee will go to the host club of the event.
If a protest occurs the competitor will be asked to show their car for technical inspection, in the case of the engine being subject of the protest the competitor will be asked to remove the engine from their car at the end of the day and pull it down in a clean environment. If the competitor is found to be compliant, they will be issued a gasket kit free of charge to put their engine back together after the inspection is complete.

7.5 Technical Infringements

If your car is deemed illegal the driver of this car may receive a 12-month ban from the sport if you are caught cheating or intentionally breaching the rules to gain an advantage, you will be disqualified from the event.

Cheating will not be tolerated on any level; the driver is always solely responsible for the vehicle.

8. ENGINES CAPACITIES & FUEL – TECHNICAL INFORMATION

8.1.1 Number of Tagged Engines

Two tagged engines are allowed with one nominated to race. Both engines are to be presented to day one scrutineering, one is to be in the car the second in hand.

Both engine tag numbers will be documented by the scrutineers and if the 1st engine suffers a catastrophic failure, it's to be presented to race control for verification prior to the installation of the 2nd tagged engine. Changing an engine during the event incurs a stop-go penalty in the final as per point 3.3.2 of the rules.

8.1.2 Tagged Engine Repair Penalty Clarification

Any internal repairs to the engine where the engine tag and wire are removed, and the head and crankcase are separated will incur a stop-go penalty in the first final.
This penalty will also be applied in the situation where a second engine is used.

A penalty is only issued when the head and crankcase need to be separated or the engine tag wire is cut.

8.1.3 Tagged Engine Removal – For External Repairs

Where an engine suffers a cracked fly wheel, broken fan shroud, faulty coil, or electrical issues for example. It can be removed and repaired without any penalty!

To reiterate a penalty will only be issued when the head and crankcase are separated as stated in point 8.1.2

8.1.4 Authorisation of Engine Repairs

In the case of a replacement engine or cylinder head the race director is the only person to authorize this after consultation with his head scrutineer and or technical advisor. This will incur a penalty in the first final.

8.1.5 Re-Tagging / Recording of Repaired Engine

In the event of either point 5 or 6 occurring the repaired or replacement engine will need to be re-tagged with the tag number being updated with race control.

8.1.6 Engine tagging requirements

All engines used in a RCRA sanctioned event need to have a correctly install engine tag. The copper or stainless wire used to retain the tag must run up through the cooling fins where the heads studs are located, then down through the crankcase and back with the 2 ends connected neatly and the copper numbered tag attached.
The purpose is to prevent the removal of the head from the crankcase and carry out any unapproved repairs or modifications.
In the event of a billet crankcase being used the tag wire still must pass through the crankcase in a fashion so it cannot be removed, if there are no obvious provisions a 3mm hole may be drilled in a web or brace portion of the casing to achieve this.

8.2 Engine type and capacity

The engine is to be a single cylinder 2 stroke pull starter or external electric starter.
Electric starters can only be used in pitlane, under no circumstances are they to be used on the racetrack.
There must a secure cover in place to prevent people touching the flywheel or any moving parts.
Legal engine sizes for each class are listed below:
2wd Baja/Baja SC – 30.5cc Maximum
2wd Efra – 26cc Maximum
4wd Efra – 30cc Maximum
4wd Short Course – 30.5 ported or 32cc Stock Maximum
Refer to specific classes for more detailed information.

8.3 Engine and Transmission limitations

No Turbo charging, Fuel injection, Supercharging.
Wankel or rotary valve/ distribution engines are allowed.
Cars with electric drive, propellers or rocket fuel drive are not allowed.
Cars can only have one gear; no multispeed transmissions are allowed.

8.4 Ignition systems – Applicable to all 4 classes

All ignitions must be mechanically fixed, only manual static adjustment is allowed.
The flywheel can only have 1(one) pair of magnetic poles (i.e., One North and One South)
No drop-down ignition coils or smaller than standard flywheels are allowed.
Only standard Zenoah or CY car engine type flywheels are allowed.
Flywheels must be fully circular with the only allowance for modification being the lightening of the cooling fins with a mill or lathe and or the cross drilling or machining of holes to reduce rotating mass.
No battery-operated ignition allowed. Only a passive ignition system using R.P.M. as the single input parameter is allowed.

It must be noted that an incorrectly modified flywheel can be extremely dangerous and has the potential to explode and cause severe injury, it is imperative that any modifications are carried out by a professional person.

8.5 Fuel Line Length

Fuel lines on a vehicle are to be no more than 100mm longer than the factory installed lines, you cannot coil up a length of hose inside the vehicle to enable a higher fuel volume, the 100mm extra length option is purely if the vehicle is running a lightscale or similar air box and the line needs some flexibility to accommodate it.

8.6 Chassis Tagging and Limitations

Only one tagged chassis is allowed, in exceptional circumstances the race director may allow a second chassis because of a catastrophic failure or major impact.
Race control will supply a specific numbered sticker that will be placed on the chassis at the beginning of the event, the scrutineering team will seal the sticker with lacquer or paint to prevent its removal.

Under absolutely NO circumstance shall a replacement vehicle be allowed in any class or event.

8.7 Authorization of a chassis repair

In the event of a chassis change being required the same process must be followed as listed for engine repairs regarding authorisation of the work.

8.8 Repaired Chassis Safety Check

When a Chassis change has occurred, the vehicle must present to the race scrutineer for a thorough inspection and safety check including all normal running functions of the car inclusive of Engine, Steering, Brakes, bumper, and body mounts to ensure the vehicle is fit to return to the track.

This all must take place for the vehicle to be deemed safe for racing before the chassis can then be re-tagged and put back in the field.

8.9 Fuel and 2 Stroke oils

The only fuel permitted will be unleaded petrol available from your local service station. Special fuels like AVGAS and added Nitro or Octane boosters are NOT allowed. Ethanol Fuels are also not permitted. The only additive allowed is 2 stroke oil.
Random fuel tests may be made at any time during a race meet.

9.0 EFRA Class Motor Porting allowances – 2wd Efra 26cc Max - 4wd Efra 30cc Max

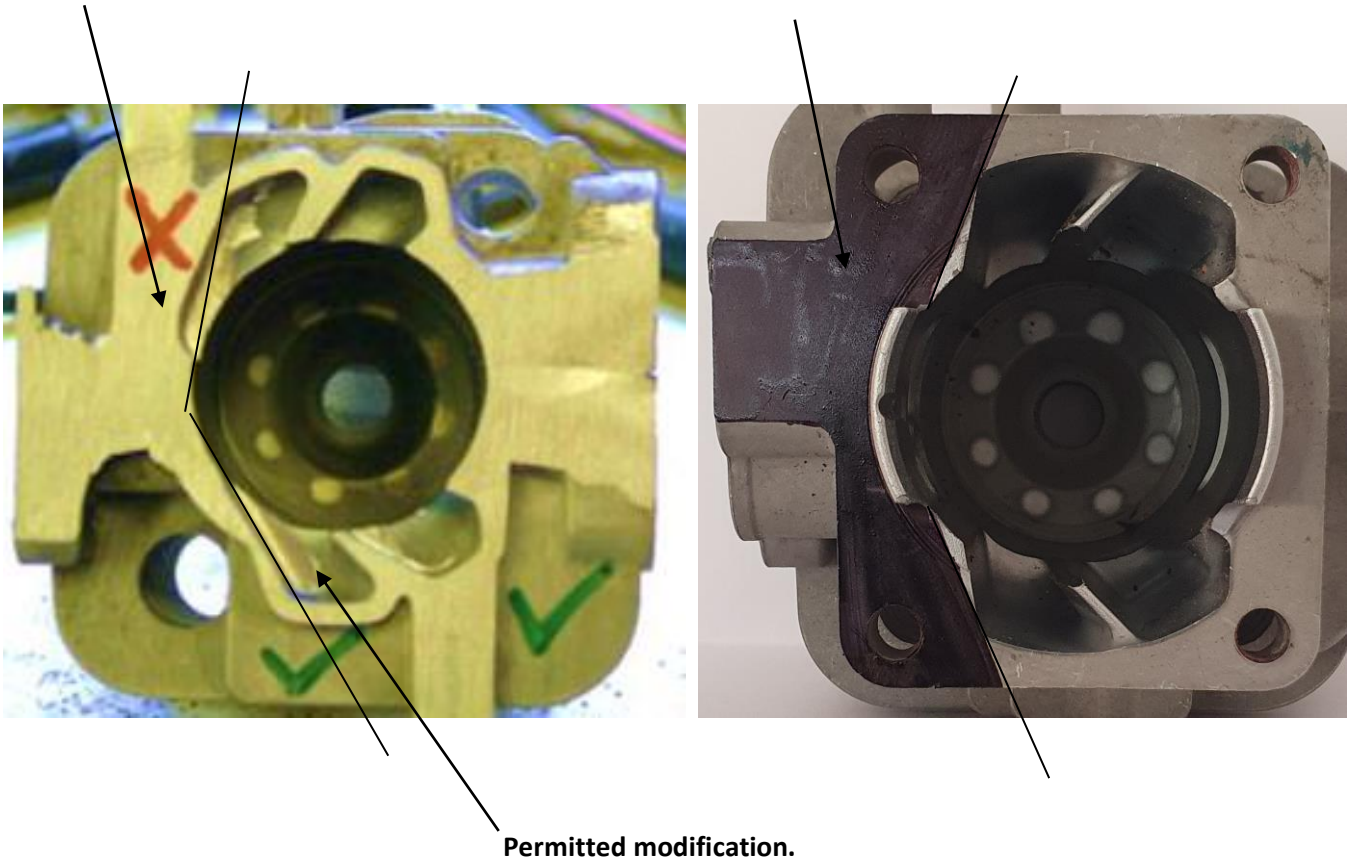
9.1 Port modifications

Only open deck admission ports are allowed, the removal of material is free if the modified shape of the transfer/admission ports walls are in the direction of the cylinder bore at all times.
This means that the ports can be modified, but the new shape must be in the direction of the cylinder bore at all times and not create an under cut or pocket that is forward of the cylinder wall.

A picture is worth a thousand words; please see the below picture of a cylinder that has been sectioned. One side has been modified legally (Green ticks, right side of the black line) and one side is illegal (Red Cross, left side of the black line). This rule only applies to the transfer ports; the intake port can be modified changing the timing. The image on the right is an unmodified head, the area colored in black cannot modified.

Illegal under cutting

No Modifications can be made in the black area.



Permitted modification.

The image on the left has been taken from the Efra handbook, the image on the right has been created for clarity within this document.

9.2 Baja/Baja SC Class Motor Porting allowances – 2wd Maximum 30.5cc

9.2.1 Baja/Baja SC Engine limits

The maximum capacity allowed for this class is 30.5cc with no porting restrictions.

9.3 SHORT COURSE ENGINE OPTIONS

9.3.1 Short Course Engine limits

Engine options for this class are as follows.

Option 1

Motors based on the G270 crankcase and head can be a maximum capacity of 30.5 cm^3.
there are **No** engine restrictions with this style of engine, piston ported, reed cases are all allowed, the maximum carburettor venturi size is 13mm for all G270 based engines.

Option 2

32cc Zenoah Engines are permitted in this class but they must remain stock internally with no modifications whatsoever and the standard flywheel must remain.
The Carburettor that is supplied with the stock 32cc Zenoah has a venturi diameter of 13.5mm, the maximum allowed for this engine in this class is 14mm.

The allowable changes for the stock 32cc truck are a tuned exhaust, aftermarket air cleaner or carbie.

9.3.2 Head and reed case configurations

The use of the ADA and TS style head kits are permitted as are Reed Case engines if the porting is compliant as per points listed in point 9.3.1, only for engine option 1. The 32cc engine must remain as stock as listed.

9.3.3 Admission ports

The maximum number of admission ports is limited to 4.

9.3.4 Two-piece cylinders not permitted.

The 2 Images Shown above are of a 2-piece cylinder, these are **NOT LEGAL and CANNOT** be used.

9.3.5 Cooling

The Engine must be air cooled with the air being directly driven by the flywheel.

9.3.6 Crankshafts

The crankshaft must be of split shaft configuration, with enclosed big end. No half crankshafts allowed. (In accordance with appropriate class)

9.3.7 Air Filters

An air filter must be fitted to the carburettor.

9.3.8 Fuel and Additives

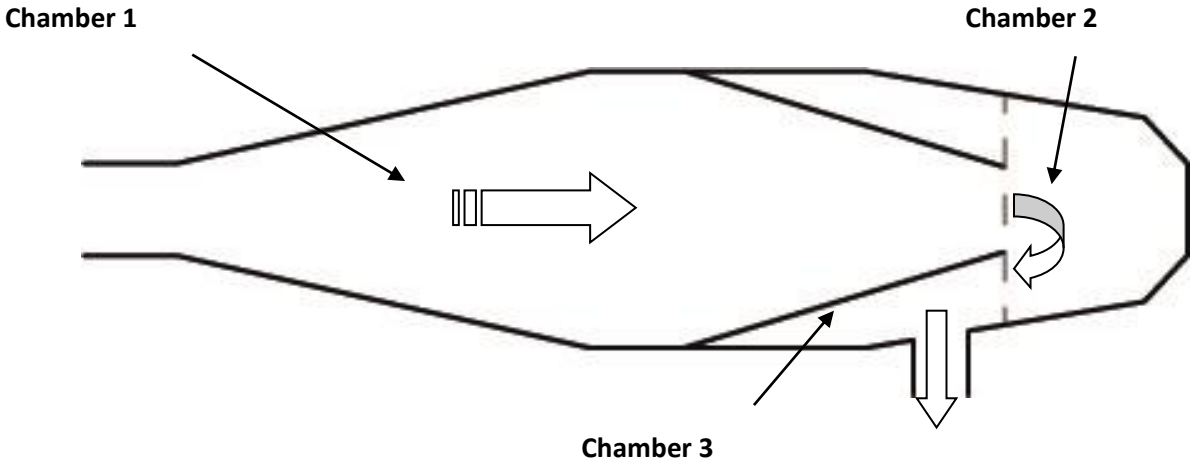
Locally available Unleaded Pump Fuel only is permitted (No Ethanol content) with a 2-stroke oil additive. Forbidden are all special fuels and extras such as AVGAS, octane boosters and race fuel.

10. EXHAUST / NOISE REDUCTION TECHNICAL REQUIREMENTS

10.1 Silenced Pipes

All CARS IN ALL CLASSES MUST RUN SILENCED PIPES, THERE IS NOT EXCEPTION TO THIS RULE OTHER THAN AN UN-MODIFIED STOCK CAN

Below is a sectional view of a typical silenced pipe showing the 3 chambers internally



10.2 Noise level limit

A silenced pipe with a maximum allowable noise level of 89 dB (A) measured at 10 meters, 1 meter above the track.

10.3 Noise Measuring Device

Note: A mobile Phone app is not deemed accurate enough and therefore is not to be used.
The Digital Sound level meter must comply with the following.
- Meets IEC61672-1 standards compliance
- It must have a sound testing range of 30dbA – 130dbA
- Operate in a frequency range of 31.5Hz to 8000Hz
- Have the selectable option of both Fast and Slow range
- It must also be capable of measuring both A, C weighted levels
- (A level being the most common single measure for general purpose loudness)
- All devices must be calibrated

10.4 Noise Testing Procedure

To be measured correctly a single car must pass at full speed on a solo run when the reading is taken, the decibel meter is to be positioned 10m away at a height of 1m.
The test is to be taken in an open space as far away from buildings or fences to avoid sound reverberation.
The Meter is to be set at fast and max, so it captures the single highest reading when the car passes.
Note: The person testing the vehicle cannot be talking at the time whilst operating the decibel meter as this can cause a false reading.

10.5 Race Directors Discretion

The Race Director has the authority to instruct a car to be tested if he feels it exceeds the sanctioned limits, whoever the testing is to be done but at the conclusion of the heat, semi-final or final.

The race director does not have the authority to bring a car in during the running of a race for the simple reason if his judgment is wrong that can ruin the persons chances of progressing forward in the event.

The driver of the vehicle in question is to be informed by race control that his or her car is under suspicion and the completion of the race, the driver is to co-operate with the race committee to test the noise level of the vehicle using the method outlined above and achieve a result.

If the car passes the test, it is to be reinstated without ramification, if the car fails the competitor will lose their best qualifying round score and be instructed to change the pipe to a compliant one before they race next.

The competitor and race control are reminded that all in attendance have signed the RCRA code of conduct and they are expected to work together to achieve the correct outcome.

10.6 Exhaust Mounts and Supports

The exhaust must be well mounted and supported by the correct mounts for its type, with the Efra 2wd and Efra 4wd cars the exhaust must be contained inside the body except for the outlet which may protrude 20mm.

10.7 Exhaust outlets

Maximum inside diameter, tail end of exhausts is 13 mm.

10.8 Brakes

The car must have a functioning brake, which must be capable of keeping the car stationary whilst the engine is running.

10.9 Fail safe mechanisms (electronic and manually actuated)

Both mechanical / manual and remote / electronically actuated fail safes must be fitted to the car in case of car malfunction.

The use of an electronic kill switch system is compulsory.

The manual engine stop button position must be market with an E (size 20 mm) on the body shell.

For an added safety measure, you can have a second kill switch fixed near the rear window to allow easy access. This kill switch should be away from hot or moving parts.

11 Transmissions

Variable ratio transmission is not allowed.

11.1 Systems limitations

No remote function other than steering, throttle, brake, and electronic kill switches can be operated via remote control by the driver.

11.2 Bodies / Measurements

Car bodies, in general, must be to the manufacturers design, NO externally added air scoops or intakes are to be installed, you are free to drill holes in the body shell/panels for extra constant airflow.

Body shells must be made from Polycarbonate or Polyurethane, under no circumstance should aluminium or composite aluminium material be used.

They must be fully painted except for the windows; short course bodies must cover the wheels

Access to the Stop button must be maintained and clearly marked with a red **E**

11.3 Tyres

Tyres must be black; the design of the tyre profile is free. Tyres must be specific for the class they are used in and compliance with the rules and dimensions of the specific class and commercially available.
Tyre additives or treatment compounds are completely forbidden.

11.4 Vehicle Dimensions

All classes have their relevant specifications listed further along in this document, within those specifications there are the dimensions listed for the maximum length, width, and height of each class.

It is standard procedure at an event for the cars to be check measured in plywood box's purpose built for each class, this is the quickest and easiest method for the scrutineers to determine the legality of your

Your vehicle will be checked for compliance and must fit to be eligible to compete, if the car is not compliant you will have the opportunity to correct it and represent to the scrutineers.

11.5 Chassis Requirements

Baja/Baja SC class – 2wd Efra - 4wd Efra - 4wd Short Course –
The chassis must be flat underneath aside from front kick up and side stiffeners, no screws may extend beyond the underside of the chassis.

If you have a car and are unsure on which class it should go, contact your local club delegate for clarification and direction - Re: point 1.4.5

11.6 Clutch and Brake

The model cars must have a working clutch and brake system, other than active ABS systems there are no restrictions for brakes. (i.e., active ABS not permitted)

12. TECHNICAL REQUIREMENTS for all classes

	Classes			
Items	**2wd Efra**	**4wd Efra**	**2wd Baja**	**Short course**
Engines	up to 26 cc	up to 30cc	up to 30.5cc	30.5cc or 32cc
Min Length	n/a	n/a	n/a	850 mm
Max Length	820 mm	820 mm	950 mm	1000 mm
Min Width	n/a	n/a	n/a	480 mm
Max Width	480 mm	480 mm	520 mm	530 mm
Min Height	n/a	n/a		300 mm
Max Height	360 mm	360 mm	380 mm	350 mm
Min Wheelbase	n/a	n/a	n/a	600 mm
Max Wheelbase	599 mm	599 mm	n/a	650 mm
Min Weight	10 kgs	10 kgs	10 kgs	14 kgs
Max Weight	20 kgs	20 kgs	20 kgs	20 kgs
Wing Size	300 x 140 mm	315 x 140 mm	n/a	500 x 100 mm
Wing overhang	150 mm past axle	150 mm past axle	150 mm past axle	180 mm past axle
Front Bumper min	100 mm	100 mm	60 mm	300 mm
Front Bumper max	220 mm	220 mm	220 mm	410 mm
Rear Bumper max	300 mm	300 mm	300 mm	300 mm
Fuel Limits for finals	700 ml	800 ml	700 ml	850 ml
Rim diameter	160 mm max	160 mm max	160 mm max	160 mm max
Rim width	75 mm max	75 mm max	75 mm max	75 mm max
Tyre diameter	190 mm	190 mm	190 mm	190 mm
Tyre Max	85 mm	85 mm	85 mm	85 mm

12.1 Vehicle measurement process

1. Minimum width is measured at full suspension ride height.
2. Maximum width is measured with the suspension fully compressed.
3. Maximum height is measured with the suspension fully compressed.
4. Maximum wing overhang is measured from the centre of the rear drive shafts.
5. Wheelbase is a maximum length regardless of suspension position.

12.2 Bumpers

All models must have a front bumper; a rear bumper is allowed but not mandatory they must be made from a flexible material, the dimensions for each class are listed in the above chart.

In the case of the bumper falling off the car during a race, the car will be deemed unsafe & must pull into pit area immediately, if this happens in a heat and the car does not stop & proceeds to finish the race the driver will lose their best qualifying round.

If it happens during a final and the driver ignores the direction of the race director, they can be disqualified.

13. Driving Etiquette and Expectations

The idea of this section is to explain in layman's terms what is expected of a driver no matter what class they compete in, where they happen to cut a corner because of a racing incident.

13.1 Intent of track barriers

The track consists of different type barriers around it and in specific sections of the track they will act as a buffer and in most cases a funnel which will direct the wayward cars back on to the correct racing line.

13.2 Maintaining direction on track

The direction of the traffic on the track is to be maintained (i.e., you are not at any time to drive in the reverse of the nominated direction). There is no exception to this rule during a race day in practice, heats, or finals. If a driver crosses a lane divider, they will be expected to continue to drive in the correct traffic direction, they must move their vehicle to the side of the track and slow sufficiently to let the cars they may have passed regain the correct racing position. It would be expected that the driver of the said vehicle has the courtesy and common sense not to place their car in a precarious position that would upset the driving line of any of the other cars in the race.

Once you have corrected and on track you are required to complete 1 full lap before attempting an over taking manoeuvre on the car in front.

13.3 Respect of marshals

It must be noted that the lane divider that will be in place will be of a decent size and a driver's car may get snagged if they hit it head on or a 45-degree angle, if your vehicle is in the unfortunate position that it must be marshalled, please have patience, and show respect to your fellow drivers who are acting as marshals. Marshals must make every effort to place the stranded vehicle back on the track in the correct lane. We realize that when under pressure mistakes can be made so the marshal should attempt to look at the drivers stand and seek direction if unsure, in turn the driver must show enough patience and appreciate that someone is attending their vehicle. It must also be requested that the marshals attend the cars as they would expect theirs to be attended and not take too long.

13.4 Kerb hopping, corner cutting

It needs to be stated that 2 wheels up on the curb is not a breach of the rules, 3 wheels on the curb or island may be deemed to be cutting the corner and could result in a caution and or penalty. If a blatant and continued attempt is being made to short cut any section of the track by any driver in any class, Marshals of the relevant race and race director on the day will make the fact known to the offending driver and they will be warned only once. If it continues, they will be penalized a lap for each blatant infringement.