LARGE SCALE OFFROAD

Inc 1/5th and 1/6th

GENERAL RACE & EVENT RULES

CAR SPECIFICATIONS FOR

STATE AND NATIONAL EVENTS

Disclaimer

These rules apply in Australia only. If an international event is held, or one of our drivers competes internationally, the current rules for the governing racing body used for the event will apply.

Contents

1.0 Annual Race Format

The Large-Scale Off-Road category will conduct multiple annual events, including State Titles and a National Title. All events must be held at an RCRA-approved facility and conducted in accordance with the current RCRA Large-Scale Off-Road rules.

1.1 Annual Events Planning

All clubs should prepare a draft annual or seasonal event calendar by October or November to support RCRA's review of State and National event applications in December. To facilitate this process, the RCRA Secretary will issue a Google Form in November each year to eligible affiliated clubs, requesting nominations for State and National events.

The annual RCRA LSOR calendar of State and National events must be published in early December. This timing allows clubs sufficient opportunity for planning and promotion, and allows vendors, venues, and hosts to be consulted appropriately on proposed dates. *Note: Some local councils have grant application deadlines around November each year, and some facilities host multiple clubs and require event plans well in advance of the proposed year.*

1.2 RCRA Large Scale Off Road "Section Meeting"

The annual Large-Scale Off-Road Section Meeting will be held during the weekend of the section's national titles. The meeting will take place on Saturday afternoon at the conclusion of racing, and all positions will be declared vacant at that time.
Nominations must be submitted electronically using the Google Form distributed by the RCRA Secretary. All clubs will receive the form link via the email addresses held on file by the RCRA. Clubs must then share the link with their members so they can submit nominations.

Positions available:

- National Large-Scale Off-Road Section Head
- Two committee members to support the Section Head and State Delegates

Nominations for available positions may also be taken from the floor during the meeting. However, for any such nomination to be considered, all required information and prerequisites must be completed in the Google Form after the meeting.
If there is a change of Section Head or committee member, all relevant information and documentation must be transferred to the newly elected person.

1.3 Annual Rule Revision Process

The RCRA large-scale off-road rules are reviewed annually after the final sanctioned event of the year, unless state delegate representatives raise a matter earlier.

Rule review process

- Requested changes or amendments must be submitted in writing to the Section Head through the elected club or state delegates.
- Rule change proposals must be submitted within three months after the event. Proposals received after this period will not be accepted.
- The proposals are then collated and distributed to all RCRA LSOR-affiliated clubs.
- Each club shares the proposals with its members for review.
- Members vote **Yes** or **No** on each proposal, and club representatives record the results in a spreadsheet.

Vote tally and publication

Votes for each proposal are tallied by state across all registered LSOR clubs in Victoria, South Australia, and Queensland. Each state records a single **Yes** or **No** result for each proposal, and those state results determine the final national outcome.

After the votes have been counted and confirmed, the National Large-Scale Off-Road Section Head will publish the results. Updating the rule document may take up to four weeks, but the National Delegate will share the outcome electronically with clubs and on the RCRA Facebook page to keep the process transparent.

1.4 RCRA Event support committee

At the commencement of each State or National Title event, the elected State Delegates, together with the National Large-Scale Off-Road Delegate if present, will form the event support committee.

Purpose

The committee supports the host club and the Race Director by assisting with dispute resolution and providing guidance on complex decisions during the event. Its role is to provide clear, practical advice so the event can continue in an orderly manner.

The Race Director must have a printed copy of the rules in race control at all times.

Decision-making

When required, the committee may vote on a matter to reach a resolution. If the vote is tied, the Section Head will cast the deciding vote.

Conduct

All parties involved must always comply with the RCRA Code of Conduct.

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

1.5 Supported Classes and Categories Raced

1.5.1 1/5th-1/6th Scale 2wd Efra, 1/5th-1/6th Scale 4wd Efra, 1/5th-2wd Baja/Baja SC Class, 1/5th-4wd SC. Technical specifications for all classes are detailed further in the document from section 10 onwards.

1.5.2 Classification and allocation of vehicles for classes

As the sport continues to evolve and manufacturers release new and varied vehicles, the RCRA (LSOR) committee and state representatives will review and allocate vehicles to the most appropriate competition class.

1.5.3 Classification principles

Vehicles should be placed in the class that best matches their original design and intended purpose. Classification decisions should also support fairness and, as far as possible, maintain an even playing field for all competitors.

- Classify vehicles according to their original design.
- Consider the manufacturer's intended purpose for the vehicle.
- Prioritise fairness across the class.
- Aim to maintain as even a competition field as possible.

Final decisions will be made by majority after appropriate discussion among the committee and representatives.

1.5.4 Custom or Self-Built Cars

Custom or self-built cars are permitted in all classes, provided they comply with the applicable technical rules and specifications. Each vehicle must be presented to the club delegate for review and compliance approval.

Consultation

The technical advisors and Section Head are available for guidance if needed.

1.5.5 Number of cars per class

A minimum of eight cars is required for a class to be sanctioned and run.

1.5.6 RCRA rankings

Results from State and National Title events will be used to maintain an RCRA ranking list for drivers across the country.
This ranking list will be updated after each annual State and National event and uploaded to the RCRA LSOR Facebook page.

1.5.7 Maximum vehicles for an event

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

1.5.8 Eligibility for participation

Participants must be current financial members of an affiliated RCRA club to be eligible to compete in a State or National event.
Participants must also have competed in three club rounds before the State or National event.

2.0 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 to Sunday, subject to entry numbers.
2. State events will run from Friday to Sunday, subject to entry numbers.
3. Events may start a day later depending on entry numbers, but all title events must conclude on a Sunday afternoon.

2.1.1 Day 1 – Practice

Morning Session

Session format

Practice will be run in 30-minute open sessions by class for shakedown runs and transponder checks, with a maximum of 10 cars on track at any one time. Each driver is limited to one 10-minute run within the relevant 30-minute session, under the Race Director's control.

Afternoon Session – *Subject to Time and Scheduling

Session format

Afternoon practice will be run in 30-minute open sessions by class for shakedown runs and transponder checks, with a maximum of 10 cars on track at any one time. Each driver is limited to one 10-minute run within the relevant 30-minute session, under the Race Director's control.

Scheduling and communication

The event timetable should be planned in advance and agreed with the Race Director and host club. It must be provided to all participants before the event begins and reviewed at the Day 1 drivers' briefing.
If required, the first heat of the event may be run on the afternoon of Day 1.
In that case, the afternoon practice session may not be held.

2.1.2 Day 2 - Heats

All heats will be run over 10 minutes using a rolling staggered start.
A three-minute warm-up will be scheduled before each 10-minute heat.

2.1.3 Day 3 - Heats

All heats will be run over 10 minutes using a rolling staggered start.
A three-minute warm-up will be scheduled before each 10-minute heat.

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, and C finals 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 may adjust the number of drivers in finals if required to keep the event running to schedule.

2.2.6 Driver numbers for heats and finals

Heats will normally run with 10 drivers. Depending on entry numbers and track configuration, the Race Director may increase this to 12 to save time. All sub-finals and main finals are limited to a maximum of 10 cars.

3.0 STARTS / QUALIFYING SYSTEM

3.1.1 Qualification

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

3.1.2 Qualification Points

In each round, drivers will score points based on laps completed and times achieved. Points will be awarded as follows: 1st = 150, 2nd = 147, 3rd = 145, 4th = 144, 5th = 143, 6th = 142, 7th = 141, 8th = 140, 9th = 139, 10th = 138, 11th = 135, 12th = 134, and so on. TQ receives one additional point.

3.1.3 Qualification Points - Ties

In each round, if two or more drivers are tied, equal points will be awarded to each tied driver. The next driver not involved in the tie will receive one point fewer than the tied drivers.
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

If two or more drivers have the same total points score, the next best points score will determine the position. If the tie still cannot be resolved, the driver with the faster lap and time in their best scoring round will be placed ahead.

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 require a minimum number of heats to be completed in order to establish the correct qualifying order, as set out in the qualification points inclusion rules.

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

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

If a driver refuses to participate in their scheduled heats without a reasonable explanation acceptable 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 must be presented to the scrutineer for inspection. The following items must be fitted and functioning for the vehicle to pass scrutineering and be permitted to compete.

No car may enter the track until it has passed scrutineering.

1. A functioning red or yellow stop button mounted on the fan shroud of the engine.
2. A clearly marked “E” symbol next to the body opening for the red or 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 if transmitter signal is lost;
   b) turns the engine off if battery power is lost.
5. No sharp bolts, screws, or other protrusions may extend from the vehicle.
6. A fuel cap that seals properly, with no fuel seeping from the tank or cap.
7. Confirmation of the transponder number and that it is connected to power.
8. Confirmation that the vehicle meets the weight and dimensional requirements of the class 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 radio, kill switch, brakes, and emergency stop will be checked each day of the event. A different coloured zip tie will then be fitted to indicate that the vehicle has passed the daily inspection.

3.3 Race Starts / Penalties

3.3.1 Grid starts

When the Formula 1 grid start procedure is used, a one-lap trial start must be conducted to confirm transponder operation. After the trial lap has been completed, the official start must be given within 15 seconds of the last car becoming stationary in its grid position. No mechanics are permitted on the track, and any car missing from the grid must start from pit lane after the on-track field has passed.

3.3.2 Early start

An early start, including any part of a car touching the starting line before the signal, will incur a penalty of 10 seconds up to one lap. This penalty will be issued by the starting official or timekeeper and must be announced immediately after the start. The penalty must also be recorded on the results sheet.

3.3.3 Jump starts

Under no circumstances will a race be stopped because of 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 is issued to a driver, it must be served within the first three laps of the first final in which that driver competes. The penalty must be served in the designated stop-go area, which will be clearly identified and explained to all competitors at the drivers' briefing before the finals commence.

3.3.5 Stop go penalty area/box

A designated stop-go area must be clearly marked on the track and positioned away from the racing line so that serving a penalty does not interfere with other competitors.
If the track layout does not permit a marked stop-go box, an elevated pit lane may be used instead.

3.3.6 Stop go penalty management

A stop-go penalty must be supervised by a track marshal. The marshal must be in position to confirm that the car has come to a complete stop and will release the car once the three- to five-second penalty has been served.

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.
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 has a maximum fuel allowance for finals as set out in the relevant class specifications. If a driver qualifies for a final, the following procedures apply and must be followed.

Drivers must report to the staging area with their car, transmitter, and two measured fuel bottles, ensuring that the fuel tank is empty. Drivers are not required to drain their fuel lines or carburettor. Running engines dry for this purpose has been deemed potentially dangerous because it may cause a lean seizure.

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, the driver will be instructed to fill the tank with the specified fuel quantity for that class.

3.5.1 Fuel for finals

Each class requires two fuel bottles of either 700 ml, 800 ml, or 850 ml, depending on the class. Refer to the technical specifications for details. If a delay is called, the driver may choose whether to use the second fuel bottle. No further fuel will be issued once the second bottle has been used.

3.5.2 No refuelling during a race

Once a race has started, cars must not be refuelled.

3.6 Mechanical or Radio delay – Semi Final and Final only

A mechanical or radio delay may only be called after the car has been fuelled for a semi-final or final, and before the one-minute mark prior to the starter's buzzer.

A delay may only be called once per race. The delay duration is limited to 10 minutes and 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 or 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 be shut down and left on the grid. In either case, once shut down, the TX and RX on the vehicles can be turned off.

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

The remaining competitors in the field must not carry out repairs or adjustments to their vehicles. Only the competitor who called for the delay may have their vehicle attended to.

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.

4.0 Track Requirements / Mandatory Facilities

4.1 Track Closure and Modification rule

Clubs hosting a State or National Title must close their track four weeks before the event to allow sufficient time for preparation and any approved modifications.

Permitted changes

Track changes may include an altered layout, additional jumps or rhythm sections, or running the course in the opposite direction. These changes are intended to refresh the track for all competitors and help maintain a level playing field.

4.2 Track inspections

Large-scale off-road tracks will be inspected by RCRA officials and the attending Race Director to confirm that safety provisions are in place for drivers, mechanics, race officials, and spectators.

4.3 Trackside race timing monitor

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

4.4 Pit segregation and layout

The pit area must be separated from the track area. Dedicated entry and exit lanes must be provided so that vehicles can move to and from the pits without placing pit staff in direct danger during racing. Pit lane entry and exit lanes must be at least 1 metre wide.
The pit lane may be elevated for ease of access for mechanics. If it is not elevated, it must incorporate a change of direction so that a car cannot enter the lane at full speed in a straight line.

4.5 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.

4.6 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.

4.7 Track Length and Width

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

4.8 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.

4.9 Timing loop/Start Finish line/Grid Spacings

The Start/Finish line must be clearly visible. If it cannot be clearly marked on the track surface, it may be identified with a row of flags over the timing loop or with markers on either side of the track. The timing loop must be installed so it does not damage vehicles.

Grid spacing

The distance from 1st to 2nd on the grid must be 3.5 metres. From 2nd to 10th, each grid position must be spaced 3.0 metres apart.

5.0 Wet Track / Inclement Weather Situations / Race Interruptions

5.1 Facilities

All off-road race facilities must have water available on site so the track can be dampened to control dust and maintain traction. Water must not be allowed to pool anywhere on the track, and racing must not proceed while rain is falling.

5.2 Wet track

The race committee will decide whether the track is too wet for racing on the day. If severe weather in the days before the event makes the venue unsuitable, the event organiser may reschedule the event.

5.3 Event interrupted

If an event is interrupted for more than 60 minutes for reasons beyond the control of the organisers, the track committee and event organisers may decide whether to cancel, postpone, or continue the event.

5.4 Heat interrupted

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

5.5 Procedure for interrupted race

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

5.6 Re-starts and Re-Fuelling

If less than 10 minutes of a final have been completed, the results will be cancelled, and a new start will be given. Vehicles may be repaired and refuelled before the restart in accordance with the specified fuel allowance for that class under the supervision of the race committee.
If more than 10 minutes of a final have been completed, the results at the time of interruption will stand. The restart will then be run for the remaining time needed to complete the final.
The results from both parts will be combined to determine the final placings. If the second start cannot be run for any reason, the results from the first part will become the final result.

5.7 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.

5.8 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.

5.9 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.

5.10 Track Watering during an event

The track and surrounding area should be thoroughly watered in the days leading up to an event to drive moisture into the surface, reduce dust, and improve traction.

Products such as Dustex may be used to help retain moisture in the surface. During the event, watering should be managed between heat rounds so that all classes race on conditions that are as consistent and fair as possible.

As a blue groove forms on the racing line, watering should be limited to the edges and loose surface areas only. Watering the blue groove may make the surface extremely slippery and disadvantage competitors.

The Race Director and event committee may use their judgment and experience to manage this process, as track layouts and surface conditions vary and no single method will suit every venue.

6.0 Mandatory Facilities and compliance

6.1 Attendance, induction, and rules availability

All competitors must sign the attendance register at the start of each day's competition. Competitors and support staff must read, understand, and complete the safety induction sheet kept at race control, and must sign the attendance register for each day they are present.

No signature, no start. A copy of the rules and induction sheet must be attached to the event application. New members and casual drivers must read and understand the club rules before they compete. All participants are expected to read and understand the rules before the season begins.

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 organisers must ensure that vehicles cannot enter public areas.
The safety of the public, drivers, mechanics, and officials must be maintained at all times through safe and functional track and facility design.
An adequately stocked first aid cabinet must be accessible within the pit area at all times.
The phone details for emergency services must be displayed and a phone available in the event of an incident.

7.0 Drivers / Marshals / Marshalling Obligations

7.1 Marshals directions

Drivers will act as marshals as directed by race control. All drivers are responsible for knowing when they are required to marshal. Marshalling duties will usually occur after the race just completed.

7.2 Marshals replacements

If a driver is unable to fulfil their marshalling duties, they are responsible for arranging a replacement. All marshals must have completed the relevant club safety induction and must be competent and responsible.

7.3 Marshals age requirement

Marshals must be at least 16 years of age. If a junior driver is participating, their parent, guardian, or host at the track may marshal on their behalf, provided they have the required experience. If not, the driver must arrange a suitable replacement.

7.4 Cars being marshalled

When a vehicle is being marshalled, the driver must apply the brakes. The marshal will then reposition the car. Once the car is correctly placed, the marshal will raise a hand to signal that it is safe to continue. A marshal may restart a stalled engine but is not obliged to do so.

7.5 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.

7.6 Respect of marshals

Respect for marshals

Lane dividers are substantial and a car may become caught if it hits one head-on or at an angle. If your vehicle needs to be marshalled, please be patient and show respect to the fellow drivers acting as marshals.

Marshal responsibilities

Marshals must make every reasonable effort to return a stranded vehicle to the track in the correct lane. If they are unsure, they should look to the drivers' stand for guidance.

Driver expectations

Drivers should understand that mistakes can happen under pressure and appreciate that someone is assisting their vehicle. Marshals should also attend to cars as they would expect their own to be attended, without unnecessary delay.

8.0 Accidents / Crashes

8.1 Yellow Light – Hazard on track

A “yellow flag” situation will be declared if an incident occurs. This will be indicated by an audible signal such as a buzzer, operated at the discretion of the Race Director.
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.

8.2 Attending to breakdown

Mechanics may enter the track to retrieve their driver’s car. A mechanic may restart the engine up to three times behind the marshalling barrier and may refit a steering arm to a ball end. All other repairs must be carried out in pit lane so that the car can return to the race safely.

If a mechanic or spectator enters the track from outside the pit lane area to retrieve a car, that car will incur a penalty. Penalties may be issued as a stop-go penalty or a one-lap deduction. The Race Director and referees will inform the team manager and driver of the penalty applied.

8.3 Designated Stop-Go point and clarification

- Stop-go penalties must be completed within the first three laps of the competitor’s first final.
- Three stop-go penalties for the same car in a single race will result in disqualification (black flag).
- A clearly marked stop-go area must be positioned away from the racing line so that penalties can be served without interfering with other competitors.

8.4 Protests

A protest may be lodged if a competitor believes another competitor is cheating. The protest must be submitted in writing to the Race Director within 10 minutes of the end of the race and must be accompanied by a **$50** fee, which will be paid to the host club.
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.

8.5 Technical Infringements

If a car is found to be illegal, the driver may be disqualified from the event and may be subject to further disciplinary action, including suspension, if the breach is determined to be deliberate cheating or an intentional attempt to gain an advantage.

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

9.0 ENGINES CAPACITIES & FUEL – TECHNICAL INFORMATION

9.1.1 Number of Tagged Engines

Two tagged engines are permitted, with one nominated for racing. Both engines must be presented at Day 1 scrutineering, with one fitted to the car and the second presented separately.

Both engine tag numbers must be recorded by the scrutineers. If the first engine suffers a catastrophic failure, it must be presented to race control for verification before the second tagged engine is installed. Changing an engine during the event incurs a stop-go penalty in the final as per point 3.3.2 of the rules.

9.1.2 Tagged Engine Repair Penalty Clarification

Any internal repair requiring removal of the engine tag or wire, or separation of the cylinder head and crankcase, 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.

9.1.3 Tagged Engine Removal – For External Repairs

If an engine suffers a cracked flywheel, broken fan shroud, faulty coil, electrical issue, or similar external failure, it may be removed and repaired without penalty.
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

9.1.4 Authorisation of Engine Repairs

In the case of a replacement engine or cylinder head, the Race Director is the only person authorised to approve the change after consulting the head scrutineer and/or technical adviser. This will incur a penalty in the first final.

9.1.5 Re-Tagging / Recording of Repaired Engine

In the event of either point 9.1.3 or 9.1.4 occurring the repaired or replacement engine will need to be re-tagged with the tag number being updated with race control.

9.1.6 Engine tagging requirements

All engines used in an RCRA-sanctioned event must have a correctly installed engine tag. The copper or stainless wire used to retain the tag must pass through the cooling fins near the head studs, then through the crankcase, with the ends joined neatly and the 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.

9.2 Engine types and capacities

The engine must be a single-cylinder two-stroke unit with either a pull starter or an external electric starter.
Electric starters may only be used in pit lane and must not be used on the racetrack.
A secure cover must be fitted to prevent contact with the flywheel or any other moving parts.

The legal engine sizes for each class are listed below:

Classes / Categories	*Engine Capacity Option 1*	*Engine Capacity Option 2*
2wd Baja/Baja SC	Max Capacity 30.5 cc	Stock 32cc Zenoah or similar
2wd Efra	Max Capacity 26 cc Efra ported	Stock 32cc Zenoah or similar
4wd Efra	Max Capacity 30 cc Efra ported	Stock 32cc Zenoah or similar
4wd Short Course	Max Capacity 30.5 cc	Stock 32cc Zenoah or similar

Refer to specific classes for more detailed information related to what is permitted and what isn't

9.3 Engine and Transmission limitations

Turbocharging, fuel injection, and supercharging are not permitted.
Wankel or rotary valve/distribution engines are allowed.
Cars with electric drive, propeller drive, or rocket propulsion are not permitted.
Cars can only have one gear; no multispeed transmissions are allowed.

9.4 Ignition systems – Applicable to all 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.

9.5 Fuel Line Length

Fuel lines must be no more than 100 mm longer than the factory-installed lines. Fuel hose must not be coiled inside the vehicle to increase fuel volume. The additional 100 mm allowance is only to accommodate installations such as a Light scale air box where extra flexibility is required.

9.6 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.

9.7 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.

9.8 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.

9.9 Fuel and 2 Stroke oils

Permitted fuel
The only fuel permitted is unleaded petrol purchased from a standard service station.
Prohibited fuels and additives
Special fuels such as AVGAS, nitro, octane boosters, and ethanol-based fuels are not permitted. The only additive allowed is 2-stroke oil.
Testing
Random fuel tests may be carried out at any time during a race meeting.
Random fuel tests may be made at any time during a race meet.

10.0 Detailed Engine Options for all classes further to item 9.2

10.1 Baja/Baja SC Engine Options

Option 1
The maximum capacity allowed for this class is 30.5cc with no porting restrictions.

Option 2

Engine configuration
32cc Zenoah engines are permitted in this class, provided they remain internally standard with no modifications. The standard flywheel must also be retained.
Carburettor limit
The carburettor supplied with the standard 32cc Zenoah engine has a 13.5 mm venturi.
The allowable changes for the stock 32cc option are a tuned exhaust, aftermarket air cleaner or carbie.

10.2 2WD & 4WD Efra Class Motor Options

Option 1 - Efra Ported allowances – 2wd Efra 26cc Max - 4wd Efra 30cc Max

10.2.1 Port modifications

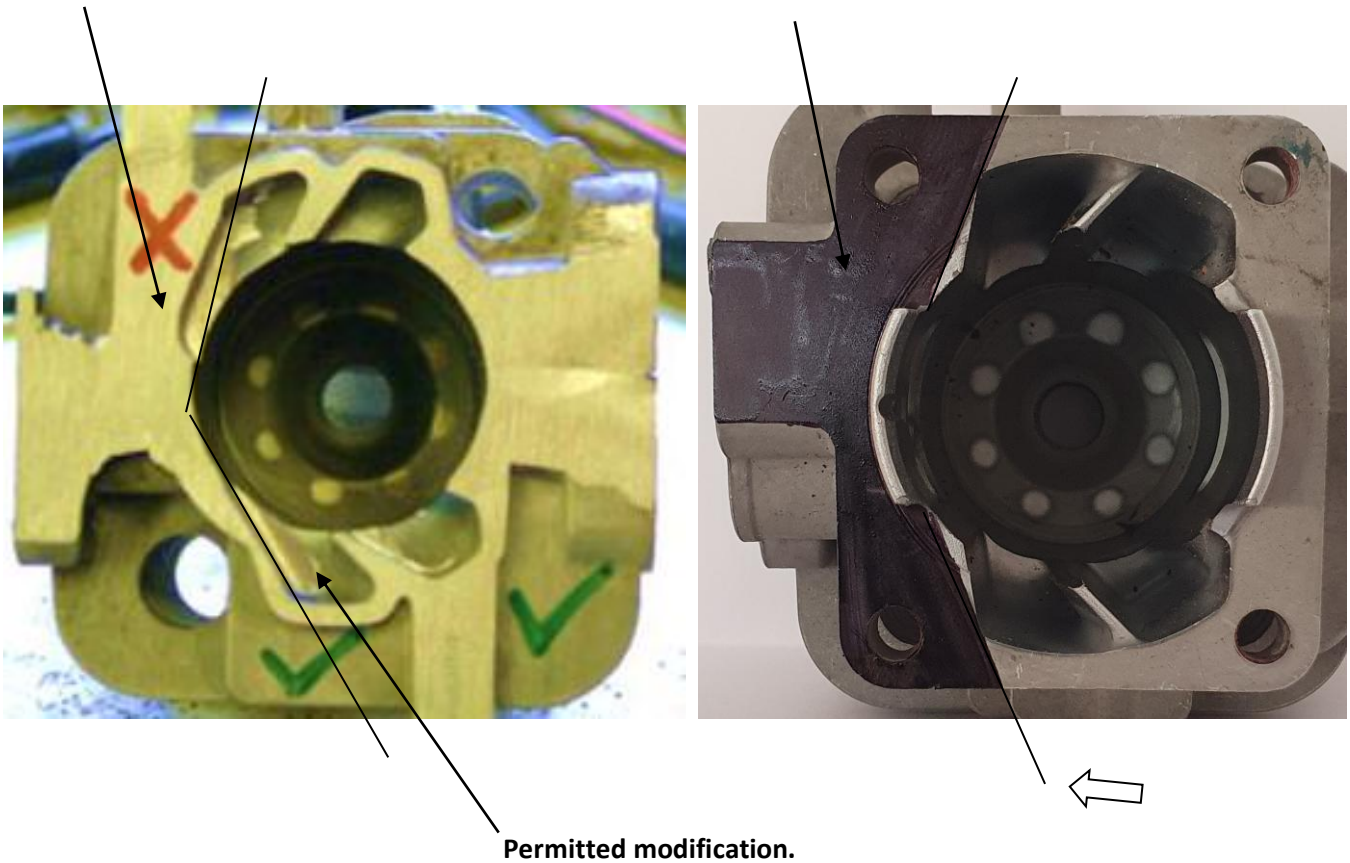
Only open deck admission ports are allowed; the removal of material is free if the modified shape of the transfer/admission ports walls are in the direction of the cylinder bore at all times.
This means that the ports can be modified, but the new shape must be in the direction of the cylinder bore at 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.

Option 2 – 32cc Stock – Efra 2wd and 4wd buggies

Engine configuration

32cc Zenoah engines are permitted in this class, provided they remain internally standard with no modifications. The standard flywheel must also be retained.

Carburettor limit

The carburettor supplied with the standard 32cc Zenoah engine has a 13.5 mm venturi.

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

10.3 SHORT COURSE Engine Options

10.3.1 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

Engine configuration

32cc Zenoah engines are permitted in this class, provided they remain internally standard with no modifications. The standard flywheel must also be retained.

Carburettor limit

The carburettor supplied with the standard 32cc Zenoah engine has a 13.5 mm venturi. For this class, the maximum permitted venturi diameter is 14 mm.

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

10.3.2 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.

10.3.3 Admission ports

The maximum number of admission ports is limited to 4.

10.3.4 Two-piece cylinders not permitted.

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

10.3.5 Cooling

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

10.3.6 Crankshafts

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

10.3.7 Air Filters

An air filter must be fitted to the carburettor.

10.3.8 Fuel and Additives

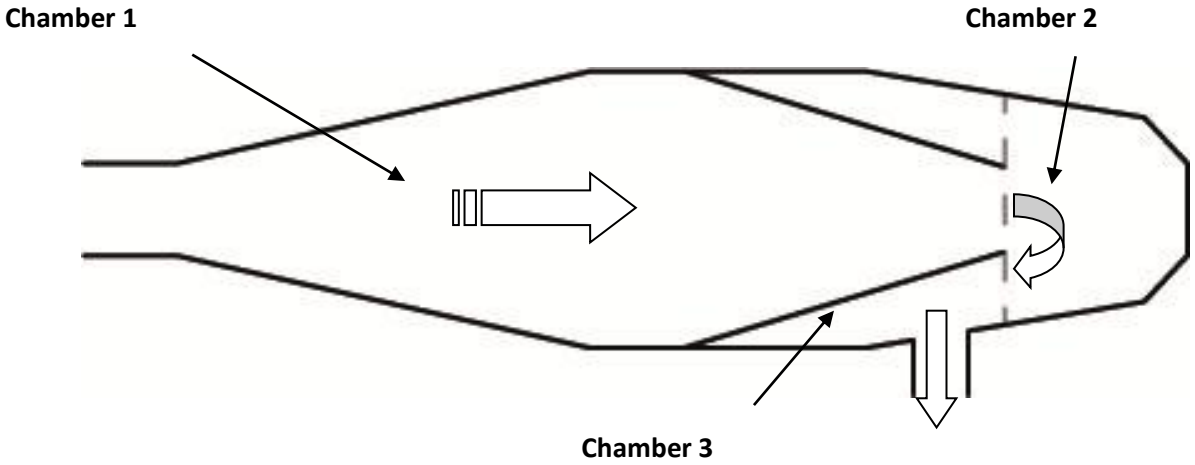
Locally available Unleaded Pump Fuel only is permitted (No Ethanol content) with a 2-stroke oil additive. Forbidden are all special fuels and extras such as AVGAS, octane boosters and race fuel.

11. EXHAUST / NOISE REDUCTION TECHNICAL REQUIREMENTS

11.1 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



11.2 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.

11.3 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

11.4 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.

11.5 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 b 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.

11.6 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.

11.7 Exhaust outlets

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

11.8 Brakes

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

11.9 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.

<u>The use of an electronic kill switch system is compulsory.</u>

The manual engine stop button position must be marked 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.

11.10 Transmissions

Variable ratio transmission is not allowed.

11.11 Systems limitations

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

11.12 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**

11.13 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.

11.14 Vehicle Dimensions

Class dimensions

Each class has specific dimensional requirements set out later in this document, including maximum length, width, and height.

Measurement process

At events, vehicles are typically measured using plywood boxes purpose-built for each class. This is the quickest and simplest way for scrutineers to check whether a vehicle complies with the class requirements.

Compliance

Your vehicle must meet these requirements to be eligible to compete. If it is found to be non-compliant, you will have the opportunity to correct the issue and present the vehicle again for inspection.

11.15 Chassis Requirements

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.
Baja/Baja SC class - Vehicles in this class must be based on the HPI Baja chassis and may be configured as either a buggy or short course body style, 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 1.5.5

11.16 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**
Engine Details				
Option 1	**Max 26 cc Efra ported**	**Max 30 cc Efra ported**	**Up to 30.5 cc**	**Up to 30.5 cc**
Option 2	**32cc Stock**	**32cc Stock**	**32cc Stock**	**32cc Stock**
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 purpose of this section is to explain in layman's terms what is expected of a driver, no matter what class they compete in, including situations 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

Direction of travel

Drivers must always maintain the correct direction of traffic on the track. At no time may a driver travel in the reverse of the nominated direction, whether during practice, heats, or finals.

Rejoining safely

If a driver crosses a lane divider, they must continue in the correct direction of traffic, move their vehicle to the side of the track, and slow sufficiently to allow any cars they may have passed to regain their proper racing position. Drivers are expected to act with courtesy and good judgment and must not place their car in a position that could disrupt the racing line of other competitors.

Overtaking after recovery

After regaining position on the track, the driver must complete one full lap before attempting to overtake the car ahead.

13.3 Kerb hopping, corner cutting

- Using two wheels on the kerb is not a breach of the rules.
- Using three wheels on the kerb or island may be considered corner cutting and may result in a caution or penalty.
- If a driver in any class repeatedly and deliberately short-cuts any section of the track, the race marshals and Race Director will advise the driver and issue one warning.
- If the behaviour continues after that warning, the driver will be penalised one lap for each blatant infringement.

Disclaimer

These rules apply in Australia only. If an international event is held, or one of our drivers competes internationally, the current rules for the governing racing body used for the event will apply.