ORRCA Queensland Inc.

May 2009

Rule Book

To be read in conjunction with the latest ROAR Approval Lists

Rulebook Updates

May 2009	Minor changes to qualifying format and reworded battery capacity rules.
February 2009	New minimum weights
November 2008	New battery list
February 2008	

Table of Contents

1. Off-Road Vehicles - 2WD Buggy, 4WD Buggy, & 2WD Truck

1.1. Appearance

1.1.1. All Buggies & Trucks are to be a reasonable representation of an off-road or dirt track type vehicle.
1.1.2. Buggies must have racing buggy type bodies.
1.1.3. Trucks must have racing truck type bodies.
1.1.4. Open cockpit or roll cage type bodies must have a driver figure (head, arms & shoulders) of realistic appearance, colour and garb.
1.1.5. No Vehicle shall compete or practice on the track without a body or roll cage firmly affixed. If the body of the car becomes loose or fall off the Race Director may direct the driver of the vehicle to pull off the track, until the part is reattached.
1.1.6. Openings in the body for wing mounts, antennas, & cooling vents etc shall be kept to a minimum. No more than 6mm clearance is allowed. Specifically servos, receivers, speed controllers, batteries and servo savers must not protrude through the body shell.
1.1.7. All buggy and truck bodies must be painted. No clear lexan bodies allowed.

1.2. Dimensions and Weight

1.2.1. 2WD & 4WD Buggy:

Max. Length:	457mm
Max. Width:	250mm
Max. Height:	203mm
Min. 2WD Weight:	1475g
Min. 4WD Weight:	1589g

1.2.2. 2WD Truck:

Max. Length:	457mm
Max. Width:	330mm
Wheelbase Range:	229mm to 292mm
Min. Weight:	1701g

1.3. Wings

1.3.1. Buggies may have a maximum of two wings, one for the front and one for the rear
1.3.2. Maximum size of wings:
Front: 127mm x 63mm chord
Rear: 177mm x 76mm chord
Maximum side dams sizes:
Height: 50mm
Length: 100mm
1.3.3. Trucks may have a rear spoiler fitted. The max. Chord of the spoiler is 60 mm and is measured from the wings width extremities and does not include any portion of the main body of the Truck.
1.3.4. No “Add-ons”, Side dams, or wings allowed except if produced by the body manufacturer.

1.4. Wheels and Tyres

1.4.1. Tyres must be black except for sidewall detailing.
1.4.2. Spiked tyres are allowed but spikes must be of a pliable material. No form of metal or hard plastic spikes will be allowed.
1.4.3. Foam tyres and foam/cap tyres are not allowed but internal foam inserts in moulded rubber tyres are permitted.

1.4.4. Buggy Rim dimensions:

Max. Bead mounting diameter:	56mm
Min. Bead mounting diameter:	41mm
Max. Diameter:	62mm
Max. Width:	38mm

1.4.5. Buggy Tyre dimensions:

Max. Width:	45mm
Max. Diameter:	90mm

1.4.6. Truck Rim dimensions:

Max. Bead mounting diameter:	57mm
Min. Bead mounting diameter:	55mm
Max. Diameter:	62mm
Max. Width:	51mm

1.4.7. Truck Tyre diameters:

Max. Width:	60mm
Min. Width:	51mm
Min. Diameter:	95mm

Note: Bead mounting dimensions are measured at the point where the internal tyre bead meets the wheel. An internal locking ring may be used for the purpose of retaining the tyre only. The ring cannot be used to increase the wheels original size and/or the stiffness of the tyre sidewall.

1.5. Race Classes

1.5.1. 2WD 540 – Johnson 540, 27t, fixed timing and grey end belled motor, 6 cell Nimh only
1.5.2. 2WD, 4WD Stock and 2WD Stock Truck – Brushed or Brushless motors allowed (as per rule 2.10.4), 6 cell Nimh (max) only, Lipos allowed
1.5.3. 2WD, 4WD and Truck Modified – Brushed or Brushless motors allowed (as per rule 2.10.3), 6 cell Nimh (max) only, Lipos allowed

1.6. Duration

1.6.1. 2WD 540, Stock, & Modified Buggy: 6 Minutes plus completion of last lap.
1.6.2. 4WD Stock Buggy: 6 Minutes plus completion of last lap.
1.6.3. 4WD Modified Buggy: 5 Minutes plus completion of last lap.
1.6.4. 2WD Stock Trucks: 6 Minutes plus completion of last lap.
1.6.5. 2WD Modified Trucks: 5 Minutes plus completion of last lap.

2. On-Road Vehicles

2.1. Classes

2.1.1. Novice Class

2.1.1.1. No age limit
2.1.1.2. No Brushless motors allowed (as per Motor specifications – 2.10.5)
2.1.1.3. Nimh or Lipo battery packs allowed (as per Battery specifications – 2.8)
2.1.1.4. 6 cell Nimh or 7.4v Lipos – hard cased only
2.1.1.5. Weight Limit regardless of battery type is 1425grams including lap timing equipment
2.1.1.6. If driver/entrant has placed in the top 3 of any ORRCA QLD or AARCMCC sanctioned event, regardless of class or scale, the driver/entrant is not eligible for this class.

2.1.2. Stock Class

2.1.2.1. Brushed and Brushless motors allowed (as per Motor specifications – 2.10.4)
2.1.2.2. Nimh or Lipo battery packs allowed (as per Battery specifications – 2.8)
2.1.2.3. 6 cell Nimh or 7.4v Lipos – hard cased only
2.1.2.4. Weight Limit regardless of battery type is 1425 grams including lap timing equipment

2.1.3. Modified Class

2.1.3.1. Any Brushed or Brushless motors allowed (as per Motor specifications 2.10.3)
2.1.3.2. 5 cell Nimh battery packs only (as per Battery specifications – 2.8)
2.1.3.3. No Lipos allowed.
2.1.3.4. Weight limit is 1425 grams including lap timing equipment.

2.1.4. General specifications for all classes

2.1.4.1 Four wheel drive only
2.1.4.2 Pan type chassis are not allowed (1/10th and 1/12th scale chassis)
2.1.4.3 Chassis must have independent suspension to all four wheels
2.1.4.4 Each wheel must have a flexible joint (dogbone/universal/cvd) in its drive shaft

2.2. Appearance

2.2.1. No part of the chassis, including wheels/tires/axles, may protrude outside the body shell when viewed from above.
2.2.2. No part of the motor or the electric's may protrude out side the body shell.
2.2.3. Aerodynamic shaped parts (splitters / diffusers /tunnels etc) may not be fitted to the underside the chassis.
2.2.4. The chassis must not be shaped to gain an aerodynamic advantage.
2.2.5. removed
2.2.6. Only single speed drive train allowed.
2.2.7. Bodies can be any 4-door sedan touring car body that is 195mm wide.
2.2.8. Bodies may not be cut above the lower door line or above the rear bumper line.
2.2.9. Bodies must be securely fixed to the chassis at all times during a race.
2.2.10. The only cut outs allowed on the body are, clearance for the wheels (wheel arches), mounting drill holes, antenna drill hole, and lap timing equipment drill hole.
2.2.11. All wheel arches must be cut out as on the original car with only minimal clearance between the wheels and the wheel arches allowed.
2.2.12. All windows must be clear or translucent grey/black. Windows may not be cut out.

2.3. Dimensions and Weight

2.3.1. Car Dimensions

	MIN (mm)	MAX (mm)
• Wheel base	50	270
• Width (with body shell)	175	195
• Length (overall with body shell)	360	460
• Height (to top of roof ready to race)	115	175
• Wing Width (including end plates and supports)	125	190
• WingChord	---	45
• Wing end plate (when separate)	---	40x20
• Wheel diameter (excluding tire bead)	45	50
• Tire diameter (when mounted)	55	67

2.3.2. Car Weights:

2.3.2.1. Touring Cars in racing trim – 6 Cell and lipo classes minimum weight including lap timing equipment will be 1425 grams.

2.3.2.2. Touring Cars in racing trim - 5 Cell class minimum weight including lap timing equipment will be 1425 grams.

2.4. Wings

2.4.1. Only one wing is allowed, fitted in the same place as the wing on the original car.
2.4.2. Any wing that come with the original body maybe used any replacement wing must be as close in size as the original.
2.4.3. Only single element wings.
2.4.4. No additional pieces allowed that aren't from the original body manufacturer.
2.4.5. Front wings /splitters/ spoilers must be moulded into the body shell in the same positions as the original car.
2.4.6. Wings /splitters/spoilers/side dams must fix rigidly to the body and or wing and may not be removed whilst the car is in motion.

2.5. Tyres

2.5.1. Moulded rubber tires only.
2.5.2. Tires must be black, except for sidewall detail.
2.5.3. Foam or rubber moulded inserts may be fitted inside moulded rubber tyres.
2.5.4. Pneumatic tires are allowed.
2.5.5. Tyre warmers allowed.
2.5.6. Tyre additives are allowed.
2.5.7. Tyre cleaners or traction additives must be approved by the Organiser.

Controlled Tyre

2.5.8. These Tyres will be self supplied by the competitor.

2.5.8.1. Moulded rubber tyre to be advised by ORRCA QLD in conjunction with the host club, 2 months prior to the titles.

2.5.8.2. Inserts are open.

2.5.8.3. Wheels are open.

2.5.9. A maximum of 3 sets (4 tyres in a set) per competitor for the event.

2.5.10. Sets will be required to be checked in prior to the event.

2.6. Bumpers

2.6.1. Foam bumpers must be fitted.
2.6.2. No part the bumper may extend outside the body shell when viewed from any direction, or be lower than the chassis.

2.7. Race Class Duration

2.7.1. Novice classes will be 6 min plus completion of last lap.
2.7.2. Stock classes will be 6 min plus completion of last lap.
2.7.3. Modified classes will be 5 min plus completion of last lap

2.8. Batteries

2.8.1. Nickel Metal Hydride – 6 (maximum) Sub-C size cells . The individual cell dimensions are in accordance with Production tolerances (44x23mm diameter with factory installed heat shrink).
The cells must be rated by the manufacturer as 1.2 volts and up to but not exceeding 4600mAh capacity.
2.8.2. All batteries must be commercially available for hobby use.
2.8.3. Batteries may not be changed during a race.
2.8.4. Batteries must bear manufacturer's identification on either the unopened total pack or on each individual cell. If the identification is missing the user must prove the legality of the cells to the race director's satisfaction.
2.8.5. Lithium Polymer Battery – 7.4v (2 cells only)

2.8.5.1. Must be factory sealed in a hard case
2.8.5.2. No modifications allowed to the case and/or the battery
2.8.5.3. No soft cased Lipos allowed (for car battery)
2.8.5.4. Must not exceed 7.4v – 5400mah
2.8.5.5. Minimum rating of 20C
2.8.5.6. Must be on ROAR approved Lipo battery list. This list is to be read in conjunction with rule 2.8.5.4
2.8.5.7. Any physical distortion, denting, puncturing or damage to the hard case of the lipo battery will deem the lipo battery to be ineligible for use at ORRCA QLD events.
2.8.5.8. Overcharging is not allowed (voltage higher than 8.4v)
2.8.5.9. Must have Lipo sack or other device (fire mitigation device able to withstand and contain a destructive failure without showing a flame)
2.8.5.10. Must be used with electronic speed control that has a either a inbuilt cut-off or used with an external cut-off device installed (6volts minimum).
2.8.5.11. Must be charged using a Lipo capable charger only at a maximum rate of 1C.

2.9. Miscellaneous Vehicle Specifications

2.9.1. Rollover antennas are not allowed. Antennas must be of a flexible non-metallic material. NB. Piano wire or fibreglass not allowed.
2.9.2. 2WD Buggies/ Cars must be driven by the rear wheels only. Front wheel drive cars must enter the 4WD classes. Trucks 2WD only.
2.9.3. No vehicle shall be constructed as to be dangerous to persons or cause damage to other cars.
2.9.4. Only 1 car per driver per class is allowed. In the event of a broken chassis, the Race Director must inspect chassis before replacement of the chassis is permitted.
2.9.5. Automatic multi ratio gearboxes are not allowed.
2.9.6. Reverse may be fitted, but must not be used during racing or practice otherwise a penalty may apply to the driver.

2.10. Motors

2.10.1. Motors Specification:

Size: 05 sized displacement.
Max. Diameter: 36.02mm
Max. Length: 53mm (Excluding bearing housing and shaft)
Shaft Diameter: 0.125 inch. Production tolerances allowed.

2.10.2. General Motor Rules.

2.10.2.1. Ceramic magnets only (no cobalt or rare earth magnets)
2.10.2.2. Motors must be generally available through retail outlets for hobby use.
2.10.2.3. Motors can, end-bell, & armature must be from the same manufacturer model.
2.10.2.4. No Hybrids.

2.10.3. Modified Class Motors:

2.10.3.1. Brushed Motor

2.10.3.1.1. Bearings, # of magnets, timing, springs and brushes are all open.

2.10.3.2. Brushless Motor

2.10.3.2.1. Sensor or Sensor-less allowed.

2.10.4. Stock Class Motors, 27 turn, Fixed 24 deg, Motors:

2.10.4.1. Motors with bearings or bushings are allowed.
2.10.4.2. Motor timing must be (keyed into the end bell) fixed at 24 deg.
2.10.4.3. Motor Cans must have a maximum of two magnets only.
2.10.4.4. Brushes and brush hood will be lay-down configuration only.
2.10.4.5. No End-bell modifications allowed.
2.10.4.6. Brush springs are open.
2.10.4.7. Brushes shaping or modifying to allow timing advancement is prohibited.
2.10.4.8. Brush serrations and cavities are permitted but full face outline must remain.
2.10.4.9. The Timing Key in the End-Bell must not be worn to allow rotation.
2.10.4.10 Brushless Motors allowed.
2.10.4.10.1 Any commercially available ROAR approved 17.5t brushless motor allowed.

2.10.5. Novice Class, 27 turn, Fixed Timing, Motor; Johnson 540 (683) Grey End bell motor.

2.10.5.1. Motor must be sealed.
2.10.5.2. No modifications allowed.
2.10.5.3. No Brushless motors allowed
2.10.5.4. Motors to be supplied by ORRCA QLD or the organisers

2.11. Radio Equipment

2.11.1. Radio equipment may be inspected at any time during the event.
2.11.2. The only frequencies to be used are:
27 MHz 29 MHz 40 MHz 2.4 GHz
2.11.3. Competitors found using any other frequencies, in racing or practice may be disqualified from the event. No reversal of crystals allowed.
2.11.4. Drivers must have a spare frequency to change to upon request of the Race Director. In the event of a frequency clash the lower qualifier must change.
2.11.5. Transmitters are not to be taken onto the track at any time.
2.11.6. A maximum of two control devices may be used, i.e. two servos' or a servo and speed controller.
2.11.7. Gyros are not allowed.
2.11.8. At major events transmitters may be impounded after open practice and will only be released for official racing. Transmitters will be released at the end of the days racing or if the entrant is leaving the event.
2.11.9. During open practice, frequency pegs must be used and returned immediately after use. A ten minute limit may be enforced if courtesy is not given to drivers on the same frequency.
2.11.10. Transmitters must be powered by not more than 9 AA size cells, each with a maximum of 1.5 volts. There is no restriction on the capacity (amp hours) of these batteries. 11.4V lipo packs are allowed.
2.11.11. No separate battery pack may be used to power the transmitter.
2.11.12. The race director may delay the start of a race due to radio interference. Anyone not on his or her assigned frequency may be disqualified from that heat or final.

2.12. Speed Controllers

2.12.1. Electronic and mechanical speed controllers may be used. However only forward may be used during racing.
2.12.2. Speed controllers may only have timed delay, current limiters and keyboard programs. These programs must only be capable of adjustment whilst the car is stationary.

2.13. Driver Aids

2.13.1. On-board Traction control, active suspension and steering control by gyroscopes are not allowed, however, slipper clutches and fluid clutches are allowed Off-Road classes.
2.13.2. Sensors fitted to the car for the purpose of measuring suspension movement, wheel spin or tire slip are not allowed
2.13.3. Only two channels may be used in the receiver's for controlling the car.
2.13.4. Using spare receiver slots to power auxiliary equipment (eg. personal transponder, cooling fans) is allowed.

3. Driver Responsibilities

3.1. Scrutineering

3.1.1. It is the responsibility of each driver to ensure their car meets all specifications.
3.1.2. At all events cars may be checked at the completion of each heat.
3.1.3. Cars will be impounded at the completion of finals for further technical inspection.
3.1.4. Failure to pass scrutineering will result in disqualification from that particular race and warning will apply to the driver.
3.1.5. Cars may be inspected at any time during the racing program.

3.2. Marshalling

3.2.1. Marshalling shall be done by drivers or a substitute who has been authorised by the Race Director.
3.2.2. The Race Director must be told of a substitute marshal prior to the marshal being required.
3.2.3. All marshals shall be at their designated point by the end of the 30 seconds to the start warning.
3.2.4. Marshals must not perform repairs on vehicles in place of their normal duties. An inoperative vehicle must be placed upside down outside the track for collection by the Pit Crew.
3.2.5. Drivers must marshal the race following theirs as directed by the Organisers.
3.2.6. Only Race Officials and Marshals are allowed on the track whilst a race is in progress.
3.2.7. Failure to marshal during qualifying heats may result in a 1 lap penalty from the drivers best qualifying score of the day and a warning will apply to the driver.
3.2.8. Failure to marshal, during finals or final, may result in a 1 lap penalty from the drivers best final score of the day and a warning will apply to the driver.
3.2.9. Failure to marshal, where there are no finals or qualifying, may result in a 1 lap penalty from the drivers best score of the day and a warning will apply to the driver.

3.3. Conduct and Penalties

3.3.1. All participants must strictly observe the instructions of the Race Director and Officials.
3.3.2. Foul or Abusive language will not be tolerated and may at the discretion of the Race Director bring disqualification of the offending driver from the race or event.
3.3.3. The consumption of alcohol or non-prescription drugs by drivers or officials during the race meet is not permitted.
3.3.4. Warnings and/or a “Stop Go Penalty” may be issued, to a Driver, by the Race Director and appointed referees for the following: (Stop Go Penalty for driving infringements only and are not redressed by the driver)

- Unsportsmanlike driving or behaviour.
- Unintentional hitting of other vehicles.
- Consistent or deliberate corner cutting.
- Driving in a manner dangerous to other vehicles, eg. Driving against traffic.
- Deliberate swerving to block a vehicle attempting to pass. Note: A driver is permitted to hold their racing line when in front of a vehicle if both vehicles are on the same lap.
- Drivers failing to give way to faster cars during qualifying.
- Drivers failing to give way to lapping cars during racing.
- Abusive language or swearing.
- Abusing marshals.
- Pit crews going onto the track.
- Coaching of drivers during a race.
- Failing to pass scrutineering.
- Failure to marshal.
- Failing to return a transponder.
- Failing to obey instructions of officials.
- Using reverse.
- Other misconduct.

3.3.5. A combination of 2 warnings in any race may result in the disqualification of the offending driver from that race.
3.3.6. A combination of 3 warnings/penalties on any day may result in the disqualification of the offending driver from that particular class.
3.3.7. The Race Director may report any person to the ORRCA Committee for further investigation and penalty. Once reported, the issue will be discussed by the ORRCA Committee, at the next ORRCA committee meeting.
3.3.8. ORRCA QLD reserves the right to refuse entry to any person for any event.

3.4. General

3.4.1. Open toed sandals, thongs or bare feet will not be permitted on or near the track. Failure to wear adequate footwear will prohibit Competitors, Pit Crew or Marshals from participating in the event.
3.4.2. Cars are to be driven only within the confines of the track and may not be driven in the pits.
3.4.3. All cars must travel in the direction of racing at all times, racing or practice.
3.4.4. Cars will not be permitted to race in an state that is not drivable or in dangerous condition.

3.5. Appeals

3.5.1. Appeals, or verbal protests regarding any decision by an Official, including lap counting results or warnings, must be lodged with the Race Director immediately after the posting of that events results, or the decision concerned.
3.5.2. Should the Race Director's decision on the matter be disputed or considered unsatisfactory the person may lodge an official protest.

3.6. Official Protest

3.6.1. An official protest must be in writing and accompanied by a $30 fee. The money will be refunded if the protest is upheld. The official protest must be lodged no more than 20 minutes after the completion of the race concerned or the decision concerned and may be handed to the Race Director or ORRCA Executive Committee person.
3.6.2. In the event of an Official Protest a jury will be formed. This jury will consist of one member from each ORRCA affiliated club. (State event) or ORRCA Australia affiliated State, (national event) represented at the event and a Chairperson will be elected. The jury's decision will be final.

4. Facilities and Equipment

4.1. Track Specifications: Off-Road

4.1.1. Length of the track to be 100 metres minimum, measured at the centre line.
4.1.2. Lane width to be minimum of 3 metres with 2.5 metres minimum at the apex and 3 metres minimum on the main straight and through the first bend.
4.1.3. Main straight should be minimum 24 metres.
4.1.4. Jumps should be liberally used throughout the circuit.
4.1.5. Bumps, either a series of "stutter bumps" or moguls should be employed to enhance the overall personality and challenge of the track.
4.1.6. Additional aspects such as, drop-offs elevation changes, berms etc, may also be used.
4.1.7. Designs must include both left and right hand turns and has one or more straights.
4.1.8. Grids and finish line must be clearly marked on the track.
4.1.9. Edges and apexes must be constructed so as to not cause damage to cars and of a height that does not obscure a car when viewed from the drivers stand.
4.1.10. Track maintenance should be carried out in such a way, to ensure a consistent and fair track is made available to all entrants regardless of the number of heats or rounds.
4.1.11. Track repairs should be carried out regularly between heats, small amounts at a time, in such a way as to keep the track as consistent as possible. At no time should the track be groomed all over during the race day.
4.1.12. 240 Volt AC power must be available.

4.2. Track Specifications: On-Road

4.2.1. Length of the track to be 100 metres minimum, measured at the centre line.
4.2.2. Lane width to be minimum of 3 metres with 2.5 metres minimum at the apex and 3 metres minimum on the main straight and through the first bend.
4.2.3. Main straight should be minimum 24 metres.
4.2.4. Chicanes, shape bends, off-camber corners, hairpins, sweeping corners, slight rises and falls of the track, should be liberally used throughout the circuit.
4.2.5. Designs must include both left and right hand turns and has one or more straights.
4.2.6. Grids and finish line must be clearly marked on the track.
4.2.7. Edges and apexes must be constructed so as to not cause damage to cars and of a height that does not obscure a car when viewed from the drivers stand.
4.2.8. Track maintenance should be carried out in such a way, to ensure a consistent and fair track is made available to all entrants regardless of the number of heats or rounds.
4.2.9. Track repairs should be carried out regularly between heats, small amounts at a time, in such a way as to keep the track as consistent as possible. At no time should the track be groomed all over during the race day.
4.2.10. 240 Volt AC power must be available.

4.3. Drivers Stand

4.3.1. Drivers stand must be built of sturdy construction and be a height so that all parts of the track are clearly visible.
4.3.2. It should be capable of holding 10 drivers comfortably spaced.
4.3.3. The drivers stand should be located between 1metre and 3metres from the racing surface.
4.3.4. During racing only the Drivers taking part in the current race, and Officials, are permitted on the Drivers Stand.

4.4. Lap Counting

4.4.1. Lap counting shall be by computer system, preferably with an AMB type system.
4.4.2. National titles events must use an AMB 20 transponder system with minimum AlyCat software or equivalent system.
4.4.3. Transponders must be firmly secured by the competitors in a position that is compatible with the operation of the system.
4.4.4. Personal Transponder can be used.
4.4.5. Numbers should be used as a back up to transponders however, races will not be re-run due to loss or failure of a transponder.
4.4.6. Failure to return a transponder before the end of the next race may result in, disqualification of the driver from that particular race and a warning will apply to the driver.
4.4.7. Drivers and pit crew are not permitted in the lap scoring area.

5. Racing Program

5.1. Race Format

5.1.1. First round of grid positions will be by random draw, thereafter drivers will start in order of finishing positions from each previous race. (Computer system permitting)
5.1.2. Starting grid must be cleared by the end of the 30-second to the start warning. All cars not on the starting grid by then must start from the rear of the grid.
5.1.3. Finals will start from a staggered (each vehicle back from the next) and offset (not directly behind each other) grid with a minimum of 2 metre between rows of vehicles.
5.1.4. There will be no restarts due to jump starts.
5.1.5. A vehicle will be judged to have jumped the start if all the wheels of the vehicle pass over its grid line position, prior to the official start signal. This may result in a 10 second penalty.
5.1.6. There will be a penalty line, 1 meter in front of the first row of the grid. Any vehicle crossing that line before the actual start may receive a 1 lap penalty and a warning will apply to the Driver.
5.1.7. Any race stopped due to race equipment malfunction or official's error will be re-run after a suitable delay.

5.2. Race Director

5.2.1. The Race Director is under the direct authority of the relevant ORRCA Executive Committee and is responsible for running the Event.
5.2.2. The Race Director is responsible for ensuring that the following tasks are done correctly:

- Lap counting and display of results.
- Starts.
- Marshalling.
- Scrutineering and Transponders.
- Frequency control.
- Issuing of warnings.
- Receiving of protests.
- Calling the jury.

5.2.3. At major meetings the Race Director should appoint Referees to observe the racing (and must include at least one (1) race referee on the driver's stand overseeing the racing at all times along with the race director)
5.2.4. The Race Director may make urgent decisions for safety or unforeseen situations.
5.2.5. Should any decision made by the Race Director be disputed or considered unsatisfactory an Official Protest may be lodged.

5.3. Drivers Meeting

5.3.1. A Drivers Meeting must be held each day prior to the commencement of racing.
5.3.2. Drivers should be introduced to Race Director and other Officials.
5.3.3. Any local rules should be explained or pointed out to the Competitors.
5.3.4. The race program should be explained by the Race Director and any questions shall be answered at this Meeting.

5.4. Racing Program

5.4.1. ORRCA Executive Committee, Club Delegates (State Events), National Delegates (National Titles), will determine possible changes to the race procedure in unusual or extreme circumstances.
5.4.2. Off-Road 2WD and 4WD may be raced on separate days, with Truck races on the 4WD day.
5.4.3. A practice period, minimum 30 minutes, should be allowed at the commencement of each days racing.
5.4.4. For the Nationals, the track should be available for open practice for a minimum of 2 days prior to the commencement of the event, subject to rain.

5.5. Qualifying

5.5.1. Qualifying will consist of a minimum of three rounds with a maximum of six rounds.
5.5.2. Qualifying to be conducted under Round by Round Method.
5.5.2.1.1. A driver's best 2, 3 or 4 (dependant on number of rounds) fastest qualifying times during the qualifying heats will decide their final and grid position.
5.5.2.1.2. If there are 6 rounds of qualifying, then 3 rounds will count
5.5.2.1.3. If there are 5 rounds of qualifying, then 3 rounds will count
5.5.2.1.4. If there are 4 rounds of qualifying, then 2 rounds will count
5.5.2.1.5. If there are 3 rounds of qualifying, then 2 rounds will count
5.5.3. Ties will be broken by next best qualifying times as necessary.
5.5.4. Individual starts may be used during qualifying.
5.5.5. Qualifying heats will consist of between 3 and 10 drivers.

5.6. Finals

5.6.1. Finals will consist of between 5 and 10 drivers.
5.6.2. All National Finals will consist of the maximum 10 drivers, if entries allow.
5.6.3. There will be 3 Finals for each "A Class", with results decided by taking each drivers best 2 positions out of 3 of the Finals. Points will be awarded for positions, 1point for first, 2 points for second etc. The lowest score wins.
5.6.4. A tied score will be broken by there qualifying position for the Finals.
5.6.5. Other Finals can be a one off sudden death race, but may be run with 3 finals if time allows.

5.7. Wet Weather

5.7.1. A rain day should be allowed for in the race program.
5.7.2. The Race Director may interrupt racing due to rain or if there is water on the track.
5.7.3. If rain interrupts racing or qualifying the program can restart, from the last completed race, after a suitable delay.
5.7.4. At least 2 rounds of qualifying must be completed for an event to be decided if cancelled due to rain.
5.7.5. If rain interrupts Finals, any Finals that have been completed will stand. Where "A Finals" consist of 3 legs, the results of any final legs completed will be used to determine results. I.e. If 2 legs of the "A Finals" are completed then both will be used to determine results with qualifying used in the event of a tie. All other results will be decided using qualifying positions.

5.8. Concourse de Elegance

5.8.1. Entries to be in the name of those who have put the most input into the finishing of the vehicles body. The body painter must be present to receive the concourse trophy.
5.8.2. Drivers may enter one vehicle in Concourse for each class in which they are racing.
5.8.3. Entries must be race legal when presented for judging.
5.8.4. Entries must compete in at least one race in the class in which they are entered, in the same configuration in which they contested the concourse and must complete at least 50% of that race.
5.8.5. Entries will be judged in accordance with the Concourse de Elegance Judges Sheet, see Appendix A

Appendix A) Concourse de Elegance Judges Sheet

Using the following points as a guide, judges should overview the entries and select a maximum of 4 vehicles for detailed judging as below. Allot each vehicle points between 1 and 10 with 5 points being average in each category. Zero if not applicable, eg no interior detail .

Category	***Car 1***	***Car 2***	***Car 3***	***Car 4***
Originality of design.				
Use of theme (R/C related scores more).				
Technical proficiency (sharp lines, even fading, mistake free).				
Degree of difficulty (complexity, fine detail).				
Use of colour.				
Special paint effects (imaginative, 3D effects).				
Use of stickers.				
Condition of body/car (shine, cleanliness).				
Special fittings (driver figure, interior detail)				
General overall appearance.				
Total Points				

Appendix B) Reciprocal Rights

Amongst ORRCA member clubs there is an unwritten agreement that ORRCA members presenting as visitors at another ORRCA club and, who show a current ORRCA Qld. Membership card, will be treated in the same way as members of the club being visited. In particular this relates to race fees at clubs where a premium is charged for non-members.

Some clubs may not adhere to this unwritten agreement but members are encouraged to show their card at nomination time - and ask. Obviously members who cannot show a current membership card will NOT be allowed any benefit.

Appendix C) ROAR Approved Lithium Technology Batteries List

This list is to be read in conjunction with rule 2.8.5.4

Type	Description	Part Number	Approval Date
Li - Poly	Acepow GS-ace 4000mAh	GS-ace-001	May 1, 2009
Li - Poly	Chargery PS 5200-2S	PS5200-2S	September 28, 2008
Li - Poly	Core 7.4V 3250 MAH LIPO PACK	CR034	February 28, 2008
Li - Poly	Core 7.4V 5000 MAH LIPO PACK	CR004	February 28, 2008
Li - Poly	Diggity Designs RC Ripstick 5300mAh	DD - 5300	November 3, 2008
Li - Poly	Enerland 5000	PQ-5000RXQ	May 1, 2009
Li - Poly	Enerland 5100	PQ-5100RXP	May 1, 2009
Li - Poly	Enertech 3400	SEI3400	May 3, 2008
Li - Poly	Fantom 3200	FAN26340	May 1, 2009
Li - Poly	Fantom 3300	FAN26200	May 1, 2009
Li - Poly	Fantom 4300	FAN26205	May 1, 2009
Li - Poly	Fantom 5000	FAN26540	May 1, 2009
Li - Poly	Fantom 5000 (4 cell)	FAN27550	May 1, 2009
Li - Poly	Fantom 5400	FAN26210	May 1, 2009
Li - Poly	GP Ultra Power 4300 Series (4000mAh)	TC302	May 1, 2009
Li - Poly	GP Ultra Runtime 5300 Series (5000mAh)	TC301	May 1, 2009
Li - Poly	H - Energy Li-Po 5200mAh	RC-Li-Po HE006	November 3, 2008
Li - Poly	Harris RC 3200	HRC3200	September 5, 2008
Li - Poly	Hobbico Team Checkpoint 5400	TCPC3656	February 4, 2008
Li - Poly	Hyperion 4000mAh LiPo	HP-SW35-4000RP-2S	February 18, 2009
Li - Poly	Hyperion 4000mAh LiPo	HP-SW27-4000RP-2S	February 18, 2009
Li - Poly	Hyperion 4200mAh Saddle	HP-SW30-4200SP-2S	February 18, 2009
Li - Poly	Hyperion 5000mAh LiPo	HP-SW30-5000RP-2S	February 18, 2009
Li - Poly	Hyperion 6000mAh Saddle	HP-SW30-6000SP-2S	February 18, 2009
Li - Poly	Losi 7.4V 5000 MAH 2 Cell LIPO	LOSB9861	February 28, 2008
Li - Poly	Losi 4400mAh 2S 30C HP HC LIPO	LOS B9862	September 28, 2008
Li - Poly	LRP Vtec Lipo 5300 hardcase	79862	April 16, 2008
Li - Poly	MaxAmps 4200SS 7.4V	LIPO-4200SS-74	July 20, 2008
Li - Poly	MRC/RFI Battery 3300	RC2S30C3300	May 1, 2009
Li - Poly	MRC/RFI Battery 3300	RC2S25C3300	May 1, 2009
Li - Poly	MRC/RFI Battery 4000	RC2S25C4000	May 1, 2009
Li - Poly	ORCA 4000mAh LiPo	OB40725C	February 17, 2009
Li - Poly	ORCA 4000mAh LiPo	OB40735C	February 17, 2009
Li - Poly	Orion 3400 Race Spec	ORI 14008	September 28, 2008
Li - Poly	Orion 3600 Race Spec	ORI 14005	February 6, 2008
Li - Poly	Orion Carbon Edition 3200	ORI 14001	February 6, 2008
Li - Poly	Orion Platinum Edition 4800	ORI 14000	February 6, 2008
Li - Poly	Orion Platinum Two 5000	ORI 14010	September 28, 2008

Appendix C) ROAR Approved Lithium Technology Batteries List (cont.)

Type	Description	Part Number	Approval Date
Li - Poly	Orion Racespec 3800	ORI 14009	July 24, 2008
Li - Poly	Pro Tek RC Supreme Power 3800	PTK-LPH-3880-2S30	May 1, 2009
Li - Poly	Pro Tek RC Supreme Power 5000	PTK-LPH-5000-2S35	May 1, 2009
Li - Poly	Pro-Match Racing Team Edition Lipo	2506	July 20, 2008
Li - Poly	Racers Edge 4000	RCELP2S4000	May 1, 2009
Li - Poly	Racers Edge LP 5000	LP2S5000	July 20, 2008
Li - Poly	Reedy 5000 mAh	709	December 31, 2008
Li - Poly	Reedy 5100 mAh Saddle Pack	710	December 31, 2008
Li - Poly	Reedy LIPO 3200mAh PRO	705	February 28, 2008
Li - Poly	Reedy LIPO 5000mAh	704	February 28, 2008
Li - Poly	Reedy LIPO 5000mAh PRO	703	February 28, 2008
Li - Poly	Scooters Motorworks Power Pack 3800 mAh	SMW38	December 31, 2008
Li - Poly	Scooters Motorworks Power Pack 5300 mAh	SMW53	December 31, 2008
Li - Poly	SMC 3200 mAh	3240CM	December 31, 2008
Li - Poly	SMC 4000 mAh	4028LD or 4028LT	February 28, 2008
Li - Poly	SMC 4000 Single Cell	5025S	December 31, 2008
Li - Poly	SMC 5000 mAh	5028LD or 5028LT	February 28, 2008
Li - Poly	SMC 5200 mAh	5240CM	December 31, 2008
Li - Poly	SMC C-Max 4700	4740CM	May 1, 2009
Li - Poly	SMC Lightning Volts	3228LD (Deans)	July 24, 2008
Li - Poly	SMC Lightning Volts	3228LT (Tamiya)	July 24, 2008
Li - Poly	SMC Lightning Volts 4000mAh	4124LD/4124LT	September 28, 2008
Li - Poly	SMC Lightning Volts 4900mAh	4925SP	September 28, 2008
Li - Poly	SMC Lightning Volts 5000 mAh	5224LD/5224LT	September 28, 2008
Li - Poly	SMC Sport Max 4500	5428LD/4528LT	May 1, 2009
Li - Poly	SMC Sport Max 5000	5028SM	May 1, 2009
Li - Poly	SMC Sport Max 6000	6028LD/6028LT	May 1, 2009
Li - Poly	Speed Passion 4000 mAh Racing	SLR4035H	May 1, 2009
Li - Poly	Speed Passion 5300 mAh Racing	SLR5303H	May 1, 2009
Li - Poly	Team Checkpoint 4900	TCPC3654	August 7, 2008
Li - Poly	Team Losi 14.8V 5000	LOSB9864	December 31, 2008
Li - Poly	Team Losi 4800 mAh Saddle Pack	LOSB9867	December 31, 2008
Li - Poly	Tekin 3400	TT1600	May 3, 2008
Li - Poly	Thunder Power 3200 Pro Race	TP3200-2SPR	December 31, 2008
Li - Poly	Thunder Power 4200 Pro Race	TP4200-2PSR	December 31, 2008
Li - Poly	Thunder Power 4300 Sport Race	TP4300-2SSR	December 31, 2008
Li - Poly	Thunder Power 5000 Pro Race	TP5000-2SPR	December 31, 2008
Li - Poly	Thunder Power 5000 Pro Race - 30	THP5000-2SPR30	November 16, 2008
Li - Poly	Thunder Power 5000 Pro Race - 40	THP5000-2SPR	November 16, 2008

Appendix C) ROAR Approved Lithium Technology Batteries List (cont.)

Type	Description	Part Number	Approval Date
Li - Poly	Thunder Power 5400 Sport Race	TP5400-2SSR	December 31, 2008
Li - Poly	Thunderpower 2700 Sport Race	TP2700-2SSR	December 31, 2008
Li - Poly	Thunderpower 3300 eXtreme Racing	TP3300-2SXR	May 18, 2008
Li - Poly	Thunderpower 3300 Sport Race	TP3300-2SSR	December 31, 2008
Li - Poly	Thunderpower 3900 Pro Race	TP3900-2SPR	May 18, 2008
Li - Poly	Thunderpower Extreme Race	TP5100-2SXR	April 16, 2008
Li - Poly	ThunderpowerSport Race	TP5400-2SSR	April 16, 2008
Li - Poly	Toppow 3600	TPL36002S1P	May 1, 2009
Li - Poly	Toppow 4000	TPL40002S1P	May 1, 2009
Li - Poly	Toppow 5000	TPL50002S1P	May 1, 2009
Li - Poly	Trakpower 3200	TP3002S	April 11, 2008
Li - Poly	Trakpower 3200 Saddle Pack	TP32002SSP	July 20, 2008
Li - Poly	Trakpower 32002S	TP32002S(30)	July 24, 2008
Li - Poly	Trakpower 36002S	TP36002S(30)	July 24, 2008
Li - Poly	Trakpower 4800 Saddle Pack	TP48002SSP	April 11, 2008
Li - Poly	TrakPower 4900 7.4 LiPo	TP49002S	February 28, 2008
Li - Poly	Trakpower 5400	TP54002S	June 2, 2008
Li - Poly	Trinity IP 4200 mAh	HW2S4200V1/TRI20805	November 3, 2008
Li - Poly	Trinity 5000 (Bullet Plug)	CC2S5000V4/TRI20288	May 1, 2009
Li - Poly	Trinity 5000 (wired)	HW2S5000V4/TRI20289	May 1, 2009
Li - Poly	Trinity Intellect IP3800	CC2S3800V1 - TRI20620	April 16, 2008
Li - Poly	Trinity IP 3200 mAh	HW2S3200V1/TRI20804	November 3, 2008
Li - Poly	Trinity IP 3800	CC2S3800V3/TRI20807	November 3, 2008
Li - Poly	Trinity IP 4600 mAh	HW2S4600V2/TRI20552	November 3, 2008
Li - Poly	Trinity IP 5000	HW2S5000V1/TRI20809	December 16, 2008
Li - Poly	Trinity IP 5000	CC2S5000V1/TRI20808	December 16, 2008
Li - Poly	Trinity IP4200 4200 mAh Saddle Pack	TP2S6000V1/TRI20811	December 31, 2008
Li - Poly	Trinity IP4200 6000 mAh Saddle Pack	TP2S4200V1/TRI20810	December 31, 2008
Li - Poly	TrueRC 5000	2S2P5000_20C	May 1, 2009
Li - Poly	Yeah Racing 3200 mAh	LP-0032	December 31, 2008
Li - Poly	Yuntong 5000	YT90018	June 2, 2008
Li - Poly 8th Scale	Fantom 4200 (4 cell)	FAN27545	May 1, 2009
Li - Poly 8th Scale	Fantom 5400 (4cell)	FAN26305	May 1, 2009
Li - Poly 8th Scale	Thunder Power 4200 Pro Race (4 cell)	TP4200-4SPR	May 1, 2009
Li - Poly 8th Scale	Thunder Power 5000 Pro Race (4cell)	TP5000-4SPR	May 1, 2009
Li - Poly 8th Scale	Thunder Power 5000 Sport Race (4 cell)	TP5000-4SSR	May 1, 2009
Li - Poly 8th Scale	Thunder Power 5400 Sport Race (4 cell)	TP5400-4SSR	May 1, 2009
Li - Poly Saddle	Fantom 5400 Pro Racing Saddle	FAN27540	May 1, 2009
Li - Poly Saddle	Speed Passion 4200 Saddle	SLR423SH	May 1, 2009
Li - Poly Saddle	Speed Passion 5500 Saddle	SLR553SH	May 1, 2009
Li - Poly Saddle	Thunder Power 5400 Pro Race Saddle	TP5400-2SPRS	May 1, 2009
Li - Poly Single	Fantom 5000 Single Cell	FAN27600	May 1, 2009
Li - Poly Single	Thunder Power 5000 Pro Race Single Cell	TP5000-1SPR	May 1, 2009

Appendix D) ROAR Approved Brushless Motor List

Type	Manufacturer	Name/Description	mH*	Approval Date
1:8	Neu/Castle Motor	1515 - 2200CM	N/A	January 19, 2009
21.5 Spec	Novak	3421SS Pro 21.5T	52.7	February 19, 2009
21.5 Spec	Tekin	Redline 21.5 P/N TT2250	49.5	February 21, 2009
21.5 Spec	Trinity	TRI 10415 Pulse 21.5T	55	November 14, 2008
Modified	LRP	Brushless N.E.O. 1 gray can, black end caps, VTEC		September 19, 2005
Modified	LRP	Vector X11 Brushless w/bonded or sintered rotor		July 1, 2007
Modified	LRP	Vector X12 Brushless (any wind)		March 11, 2009
Modified	Castle Creations	CM36S/4600CMS	N/A	January 19, 2009
Modified	Castle Creations	CM36S/6900CMS	N/A	January 19, 2009
Modified	Castle Creations	CM36S/7700CMS	N/A	January 19, 2009
Modified	Castle Creations	CM36S/5700CMS	N/A	January 19, 2009
Modified	Checkpoint/Hobbico	ALL IN' TCPCXX (XX refers to wind)		July 14, 2008
Modified	Hacker	E40 (any wind)		February 25, 2008
Modified	Losi	Losi Xcelorin LOSB9404 (10.5T) and LOSBxxxx		May 14, 2008
Modified	Novak	Ballistic 3603		April 15, 2009
Modified	Novak	Ballistic 3605		April 15, 2009
Modified	Novak	Ballistic 3608		April 15, 2009
Modified	Novak	Velociti bare A1 can ends, purple bands		September 19, 2005
Modified	Novak	1050 Teardown, bare A1 can ends, purple band		March 28, 2005
Modified	Novak	3410SS 10.5 Pro		February 5, 2008
Modified	Orion	Vortex 2008 Race X.XT ORI28128 (4.0T), ORI28129 (4.5T) and other winds		May 17, 2008
Modified	Orion	Vortex 2008 Stock 10.5 P/N ORI28140		May 18, 2008
Modified	Orion	Vortex Brushless 128XX w/sintered rotor (XX refers to wind)		July 1, 2007
Modified	Speed Passion	SP Competition 2.0 with 13.0 rotor P/N RA 13825 (w/o fan)		May 14, 2008
Modified	Speed Passion	Speed Passion Competition Series 13835 (any wind)		February 25, 2008
Modified	Speed Passion	SP Competition 2.0 P/N 13825 & 13835 (all winds/rotors listed below)		May 14, 2008
Modified	Speed Passion	SP Competition 2.0 with 12.0 rotor P/N RB13835-ER2 (w/fan)		May 14, 2008
Modified	Speed Passion	SP Competition 2.0 with 12.5 rotor P/N 13835-ER1 (w/fan)		May 14, 2008
Modified	Speed Passion	SP Competition 2.0 with 12.0 rotor P/N RB 13845 (w/fan)		May 14, 2008
Modified	Speed Passion	SP Competition 2.0 with 13.0 rotor P/N RB 13835 (w/fan)		May 14, 2008
Modified	Tekin	Redline Type S P/N TT22XX (XX refers to wind)		July 22, 2008
Modified	Tekin	Redline 10.5 Type S P/N TT2253		July 22, 2008
Modified	Trinity	TRI 10209 10.5 (green timing plate)		February 27, 2008
Modified	Trinity	TRI 10403 Pulse Mod (all winds)		November 18, 2008
Modified/10.5 Spec	Trinity	TRI 10412 Pulse 10.5	11.0	November 18, 2008
Stock	LRP	Vector X11 Stockspec 17.5T	38.5	February 15, 2008
Stock	Hacker	E40 - 17.5T	33.0	July 28, 2008
Stock	Losi	Xcelorin 17.5 LOSAB9406	32.5	February 29, 2008
Stock	Novak	3417SS 17.5 Pro	36.5	February 15, 2008
Stock	Orion	Vortex 2008 Stock 17.5	31.5	October 17, 2008
Stock	Speed Passion	SPF175 Ultra Sportsman Stock	34.5	May 8, 2008
Stock	Tekin	Reline 17.5T Type-S P/N 2251	33.0	July 24, 2008
Stock	Trinity	TRI 10220 17.5T (red timing plate)	34.0	May 20, 2008
Stock/17.5 Spec	Trinity	TRI 10414 Pulse 17.5T	34	November 14, 2008
Super Stock	Hacker	E40 - 13.5T	22.5	February 25, 2008
Super Stock	Losi	Xcelorin 13.5 LOSAB9405	19.2	February 29, 2008
Super Stock	LRP	Vector X11 Stockspec 13.5T #50840, black motor shaft	22.5	February 27, 2008
Super Stock	Novak	3413SS 13.5 Pro	21.0	February 15, 2008
Super Stock	Orion	Vortex 2008 Stock 13.5 P/N ORI28141 - Rotor without fan	19.5	June 6, 2008
Super Stock	Speed Passion	SPF135 Ultra Sportsman Stock	21.7	May 8, 2008
Super Stock	Tekin	Redline 13.5 Type S P/N TT2252	19.0	July 22, 2008
Super Stock	Trinity	TRI 10210 13.5T (blue timing plate)	20.5	May 20, 2008
Super Stock/13.5 Spec	Trinity	TRI 10413 Pulse 13.5	20.2	November 18, 2008

Appendix E) Brushless Motor Rules - Technical

E.1 Sensored or sensorless motors are allowed in modified motor classes. Only sensored type motors are allowed for stock and super stock racing.

E.2 The owner shall be able to easily replace the rotor, bearings and front endbell using commonly available tools. These parts shall be available for separate purchases. Ball bearings are allowed.

E.3 If the motor is sensored:

It must use a six position JST ZH connector model number ZHR-6 or equivalent connector with 6 JST part number SZH-002T-PO.5 26-28 awg contacts or equivalent.

Wire sequence must be as follows:

Pin #1- Black wire-ground potential
Pin #2- Orange wire-phase C
Pin #3- White wire-phase B
Pin #4- Green wire-phase A
Pin #5- Blue wire-temp control, 10 k Thermistor referenced to ground potential
Pin #6- Red wire-+ 5.0 volts =/- 10%

For clarification pin #1 is on the left hand side of the above connector with the wires exiting the top of the connector and the plastic tangs that hold the contacts in the housing are facing forward. Sensored type compatible speed controls must use the six position JST header part number X-6B-ZRSMX-TK (where X denotes the style of the header) or equivalent.

The power connector for all type speed controls has to be clearly marked A, B, C on both speed control and motor.

A for phase A
B for phase B
C for phase C

E.4 "05" size dimensions.

E.4.1. Can:

Overall maximum diameter is 36.02mm measured at whatever point yields the maximum dimension, excluding solder tabs or lead wires.
Overall minimum diameter is 34.00mm measured at whatever point yields the minimum dimension, excluding solder tabs or lead wires.
Maximum length is 53.00mm measured from the mounting face of the motor to the furthest most point of the end bell, not including solder tabs, lead wires or original manufacturer's logo or name.
Minimum length is 50.00mm measured from the mounting face of the motor to the furthest most point of the end bell, not including solder tabs, lead wires or original manufacturer's logo or name.
Motor mounting holes must be on 1.00- inch (25.40mm) centers.

E.4.2. Stack/Stator:

For Modified Brushless Motors:

Stack minimum length 19.30mm, maximum 21.00mm.
Stack inside diameter minimum 12.50mm, maximum 16.00mm.
If a continuous stack is used then the laminations have to be adjacent to one another without any insertions.
The thickness of the stack plates is 0.35 +/- 0.05mm.
All laminations must be of the same material.

For Stock and Super Stock Brushless Motors:

The stator construction must be continuous laminations having the same overall shape, one after the other without anything in between.
The laminations must be of one homogeneous material without cut-outs, holes or hollow sections other than for the three slots for the round copper coil wires and the three slots for the screws used to hold the entire can together.
The overall stator length parallel to the motor shaft shall be minimum 19.3 mm and maximum 21.0 mm.
The thickness of the laminations shall be 0.35+/- 0.05mm. A ‘go-no-go’ gauge 14.500 +0.000/-0.005 mm diameter shall pass into the stator, clearing the stator plus its windings and the electrical collection ring at the end of the stator.

E.4.3 Winding:

Modified Brushless Motors:

Only three slot (phase) “Y” wound stators are permitted. No delta wound stators allowed.
Only circular (round) pure copper wire permitted. No turn limit.

Stock Motor:

Only three slot “Y” wound stators are permitted. No delta wound or slot less stators are allowed.
Only circular (round) pure copper magnet wire permitted.
The three slotted stator must be wound with 17.5 turns of 2 strands of 20 AWG or 2 strands of 0.80 mm IEC per slot.
The inductance for each slot of the stator shall be 102.00 Micro Henries minimum and 108.00 Micro Henries maximum, measured with the rotor removed from the motor.

Super Stock Motor:

Only three slot “Y” wound stators are permitted. No delta wound or slot less stators are allowed.
Only circular (round) pure copper magnet wire permitted.
The three slotted stator must be wound with 13.5 turns of 2 strands of 21 AWG or 2 strands of 0.71mm IEC and two strands of 23 AWG or 2 strands of 0.56mm IEC per slot.
The inductance for each slot of the stator shall be 57.00 Micro Henries minimum and 67.00 Micro Henries maximum, measured with the rotor removed from the motor.

E.4.4 Dimensions

Modified Motor:

Shaft diameter must be 0.125 inches (3.175mm).
Only one piece, two pole Neodymium or Ferrite magnetic rotors are permitted.
Magnet minimum length 23.00mm, maximum 27.00mm.
Magnet minimum diameter 12.00mm, maximum 15.50mm.

Stock and Super Stock Motors:

External shaft diameter must be 0.125 inches (3.175mm).
Only one piece, two pole Neodymium sintered or bonded, or Ferrite (Ceramic) magnetic rotors are permitted.
The magnet length shall be 25.0 +/- 1.00mm not including any non-magnetic balancing material.
The magnet outside diameter shall be a minimum/maximum of 12.2-12.51 mm, no tolerances, for the entire length of the magnet.
The shaft outside diameter, where the magnet is mounted, shall be 7.25 +/- 0.150mm. This dimension must be measurable without destroying the rotor.
All motors must have the original manufacturer's logo or name molded Into the end bell.
A marking or unique feature that is difficult to remove must be integrated into the Stock and Super Stock motor to signify that it is for stock or super stock competition.

E.5

All motors must have the original manufacturer's logo or name moulded into the end bell.

E.6

A minimum of two thousand (2000) brushless motors must be available at the time of approval.
A minimum of three hundred (300) brushless motors must have been sold to at least three (3) distributors or hobby shops or OEM's at the time of submittal.
The manufacturer has to provide an address of a hobby shop or the like, that any driver who wishes to obtain these motors at the time of the approval can do so.
No hybrid (mixing of parts from approved brushless motors) allowed.

E.7

The maximum retail price of a brushless motor shall be $129.00

Please note Rules E.5 and E.6 would be for the approval process and not to technical rules use by ORRCA QLD.