

**Rules and Regulations
For 1/10 Scale
Electric On-Road RC Cars
Review 2 – July 2009**

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SPECIAL NOTE:

Prior to purchasing batteries and/or motors, members are advised to check ROAR and AARCMCC approved lists of the items you are planning to purchase, as only approved motors and batteries may be used in AARCMCC Sanctioned events.

The ROAR (USA) approved lists for motors and batteries are updated twice each calendar year (May & October). For current approved lists go to www.roarracing.org

The AARCMCC (Aust) are not formally updated as regularly as ROAR. For current Australian Technical Rules go to www.aarcmcc.org.

The AARCMCC rules generally follow changes to ROAR rules.

1. CLASSES & GENERAL SPECIFICATIONS

Details in Brief

1.1 540 Novice

General: No age limit

New inexperienced members must compete in 1 full race series of Novice class before being eligible for 540 Tourer (Subject to race director and STMCC committee discretion)

New experienced members may compete in 540 Tourer or Pro Tourer (Subject to race director and STMCC committee discretion)

Chassis: 1/10th scale four wheel drive only with independent suspension to all four wheels

Motor: Only Johnson or Mabuchi 540 Silver Can motors allowed (as per Motor specifications – 5 & 5.1)

Battery: Any 6 cell Sub C Nimh or Nicd battery pack (as per battery specifications- 6.1) **or**
2 cell LiPo battery pack (as per battery specifications – 6.2)

Body: Any commercially available 190mm car body (2 or 4 door)

Tyres: 1/10th scale Foam or rubber tyres allowed. Max width – 26mm. Foam or rubber moulded inserts may be fitted.

1.2 540 Classes (540 Tourer & Pro Tourer)

General: Members must compete in 1 full race series of 540 Tourer class before being eligible for Pro Tourer class.

Chassis: 1/10th scale four wheel drive only with independent suspension to all four wheels

Motor: Only Johnson or Mabuchi 540 Silver Can motors allowed (as per Motor specifications – 5 & 5.1)

Battery: Any 6 cell Sub C Nimh or Nicd battery pack (as per battery specifications- 6.1) **or**
2 cell LiPo battery pack (as per battery specifications – 6.2)

Body: Any commercially available 190mm car body (2 or 4 door)

Tyres: 1/10th scale Foam or rubber tyres allowed. Max width – 26mm. Foam or rubber moulded inserts may be fitted.

1.3 Stock (27T/17.5 Brushless)

Chassis: 1/10th scale four wheel drive only with independent suspension to all four wheels

Motor: Brushed and Brushless motors allowed (as per Motor specifications- 5 & 5.2)

Battery: Any 6 cell Sub C Nimh or Nicd battery pack (as per battery specifications- 6.1) **or**
2 cell LiPo battery pack (as per battery specifications – 6.2)

Body: Any commercially available 190mm 4-Door sedan body

Tyres: 1/10th scale Foam or rubber tyres allowed. Max width – 26mm. Foam or rubber moulded inserts may be fitted.

1.4 Super Stock (19T/10.5 Brushless)

Chassis: 1/10th scale four wheel drive only with independent suspension to all four wheels

Motor: Brushed or Brushless motors allowed (as per Motor specifications 5 & 5.3)

Battery: Any 6 cell Sub C Nimh or Nicd battery pack (as per battery specifications- 6.1) **or**
2 cell LiPo battery pack (as per battery specifications – 6.2)

Body: Any commercially available 190mm 4-Door sedan body

Tyres: 1/10th scale Foam or rubber tyres allowed. Max width – 26mm. Foam or rubber moulded inserts may be fitted.

1.5 Modified

Chassis: 1/10th scale four wheel drive only with independent suspension to all four wheels

Motor: Any Brushed or Brushless motors allowed (as per Motor specifications- 5 & 5.4)

Battery: Any 6 cell Sub C Nimh or Nicd battery pack (as per battery specifications- 6.1) **or**
2 cell LiPo battery pack (as per battery specifications – 6.2)

Body: Any commercially available 190mm 4-Door sedan body

Tyres: 1/10th scale Foam or rubber tyres allowed. Max width – 26mm. Foam or rubber moulded inserts may be fitted.

1.6 Mini Brushed & Brushless

Chassis: Tamiya M01, M02 or M03 series front wheel drive chassis only.

Battery: Any 6 cell Sub C Nimh or Nicd battery pack (as per battery specifications- 6.1) **or**
2 cell LiPo battery pack (as per battery specifications – 6.2)

Tyres: Commercially available Mini sized tyres and rims only

Body: Any commercially available body for Mini type chassis. 1/12th Scale Sports Bodies not allowed.

Other: Gearing - 16, 18 or 20 tooth pinions only to be used

Bearings allowed

Any hop ups parts designed for use on a Tamiya Mini are permitted

Motor:

Brushed Class Mini (as per Motor specifications- 5 & 5.5.1)

Tamiya black can sport tuned motor (53068) **or** Mabuchi & Johnson 540 silver can motor

Brushless Class Mini (as per Motor specifications- 5 & 5.5.2)

13T/3000Kv Hobby Wing / Ez Run Brushless Motor/ESC Combo (maximum 35amp ESC)

Can must be etched with 13T.

1.7 General Specifications

Four wheel drive only (Except Mini Class). Pan type chassis are not allowed (1/10th and 1/12th scale chassis)

Chassis must have independent suspension to all four wheels (Except Mini Class)

Each wheel must have a flexible joint (dogbone/universal/cvd) in its drive shaft (Except Mini Class)

Pneumatic tyres are not allowed.

Tyre warmers and Tyre additives are allowed

Min weight in racing trim, regardless of battery type, is **1500 grams** including lap timing equipment (**Except Mini Class**)

Min weight in racing trim, regardless of battery type, for **Mini Class is 1330 grams** including lap timing equipment

Antennas must be of a flexible non-metallic material. NB. Piano wire or fibreglass not allowed.

No vehicle shall be constructed as to be dangerous to persons or cause damage to other cars.

Automatic multi ratio gearboxes are not allowed. Only single speed drive train allowed.

Reverse may be fitted, but must not be used during racing or practice otherwise a penalty will be applied after one warning to the driver.

Foam bumpers must be fitted.

No part of the bumper may extend outside the body shell when viewed from any direction, or be lower than the chassis.

2. Appearance

No part of the chassis, including wheels and tyres may protrude outside the body shell when viewed from above.

No part of the motor or the electric's may protrude outside the body shell.

Aerodynamic shaped parts (splitters / diffusers /tunnels etc) may not be fitted to the underside the chassis.

The chassis must not be shaped to gain an aerodynamic advantage.

Bodies may not be cut above the lower door line or above the rear bumper line.

Bodies must be securely fixed to the chassis at all times during a race.

The only cut outs allowed on the body are clearance for the wheels (wheel arches), mounting drill holes and antenna drill hole.

All wheel arches must be cut out as on the original car with only minimal clearance between the wheels and the wheel arches allowed.

Windows may not be cut out or drilled

3. Wings

Only one single element wing is allowed, fitted in the same place as the wing on the original car.

Any wing that came with the original body may be used, any replacement wing must be as close in size as the original.

The base element of the wing may not be mounted above the body roof line

Front wings/splitters/spoilers must be moulded into the body shell in the same positions as the original car.

Wings/splitters/spoilers/side dams must fix rigidly to the body and or wing and may not be moved whilst the car is in motion.

4. Dimensions (Section Removed)

5. Motors - General Specifications

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.

General Motor Rules:

Ceramic magnets only (no cobalt or rare earth magnets)

Motors must be generally available through retail outlets for hobby use.

Motor can, end-bell, & armature must be from the same manufacturer.

No Hybrids (Mixing of parts from different manufacturers)

5.1 - 540 Class motors:

Novice, 540 Tourer, Pro Tourer

27 turn, Fixed Timing, Motor; Johnson or Mabuchi 540 silver can motor only allowed

Motor must be sealed and unopened

No modifications allowed.

Brushless motors NOT ALLOWED.

Tamiya black can sports tuned motors NOT ALLOWED

5.2 - Stock Motors

5.2.1 Brushed:

Any commercially available **27 turn, 24 degree fixed timing** motor allowed

Armature & can must have manufacturer's identification (eg EPIC 27)

Motors with bearings or bushings are allowed.

Motor timing must be fixed at 24 deg (keyed into the end bell/can).

The Timing Key in the End-Bell must not be worn to allow rotation.

Motor Cans must have a maximum of two magnets only.

Brush and brush hood will be lay-down configuration only.

No End-bell modifications allowed.

Brush springs are open.

Brush shaping or modifying to allow timing advancement is prohibited.

Brush serrations and cavities are permitted but full face outline must remain.

5.2 - Stock Motors (Continued)

5.2.2 Brushless:

Any commercially available 17.5t brushless motor allowed
Sintered or bonded rotor allowed
Motor must not be altered or modified from original state
Sensor or Sensor-less allowed.

5.3 - Super Stock Motors

5.3.1 Brushed:

Any commercially available Brushed **19 turn, 24 degree fixed timing** motor allowed
Armature & can must be marked with manufacturer's identification (eg EPIC 19)
Motors with bearings or bushings are allowed.
Motor timing must be fixed at 24 deg (keyed into the end bell/can).
The Timing Key in the End-Bell must not be worn to allow rotation.
Motor can to have a maximum of two magnets only.
Brushes and brush hood will be lay-down configuration only.
No End-bell modifications allowed.
Brush springs are open.
Brush shaping or modifying to allow timing advancement is prohibited.
Brush serrations and cavities are permitted but full face outline must remain.

5.3.2 Brushless:

Any commercially available 10.5t or 13.5t brushless motor allowed
Sintered or bonded rotor allowed
Motor must not be altered or modified from original state
Sensor or Sensor-less allowed.

5.4- Modified Motors:

Any Brushed Motor allowed
Bearings, number of magnets, timing, springs and brushes are all open.
Any Brushless Motor allowed
Sensor or Sensor-less allowed.

5.5- Mini Class Motors:

5.5.1 Brushed:

Tomyia black can sport tuned motor (P/No 53068), **or** Mabuchi / Johnson 540 silver can motor
Motors must be sealed and unopened
No modifications allowed.

5.5.2 Brushless:

13T/3000Kv Brushless Motor/ESC Combo (EzRun/Hobbywing OEM)
Brushless ESC may be no more than 35amp
Brushless motor can must be etched by manufacturer with 13T

6. Batteries

6.1 – Sub – C NiMH & NiCd Packs

Nickel Metal Hydride or Nickel Cadmium – 6 (maximum) Sub-C size cells. The individual cell dimensions are in accordance with Production tolerances (44mm x23mm diameter with factory installed heat shrink). The cells must be rated by the manufacturer as 1.2 volts.

All batteries must be commercially available for hobby use.
Batteries may not be changed during a race.

6.2 – Li-Po Packs

Lithium Polymer Battery – 7.4v (2 cells only)

All packs must be commercially available for hobby use

Batteries may not be changed during a race.

Must be factory sealed in a fully enclosed hard case. The hard case may not be encased in "Shrink Wrap" or other protective material

No modifications allowed to the case and/or the battery

No soft cased Lipos allowed (for car battery)

Pack must have a Minimum rating of 20C

Any physical distortion, denting, puncturing or damage to the hard case will deem the Lipo battery to be ineligible for use at any STMCC event.

Overcharging is not allowed (voltage higher than 8.4v)

Competitors must use a "Lipo Sack" or other approved device (fire mitigation device able to withstand and contain a destructive failure without showing a flame) when charging/re-charging LiPo packs.

LiPo packs must be used with an electronic speed control that has an inbuilt low voltage cut-off or an external low voltage cut-off device installed in the car and connected in the proper manner (6volts minimum).

Must be charged using a Lipo capable charger only, at a maximum rate of 1C or a maximum rate as specified by the manufacturer. (1C definition: If pack is rated 4200MAh, 1C charge rate is 4.2amps)

7. Radio Equipment

Radio equipment may be inspected at any time during the event.

The only frequencies to be used are:

27 MHz 29 MHz 40 MHz 2.4 GHz

Competitors found using any other frequencies, in racing or practice may be disqualified from the event. No reversal of crystals allowed.

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.

Transmitters are not to be taken onto the track at any time.

A maximum of two control devices may be used, i.e. two servos' or a servo and speed controller. Gyros are not allowed.

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.

Transmitters must be powered by the recommended number and type of batteries. Soft case LiPo packs are allowed to be used to power the transmitter.

No separate battery pack may be used to power the transmitter.

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.

8. Speed Controllers

Electronic and mechanical speed controllers may be used. However only forward may be used during racing.

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.

9. Driver Aids

On-board Traction control, active suspension and steering control by gyroscopes are not allowed.

Sensors fitted to the car for the purpose of measuring or recording movement of any component, temperature or RPM are not allowed

Only two channels may be used in the receiver for controlling the car. Using spare receiver slots to power auxiliary equipment (e.g. personal transponder, cooling fans) is allowed.

10. Scrutineering

It is the responsibility of each driver to ensure their car meets all specifications.

At all events cars may be checked at the completion of each heat.

Cars may be impounded at the completion of finals for further technical inspection.

Failure to pass scrutineering will result in disqualification from that particular race and warning will apply to the driver.

Cars may be inspected at any time during the racing program.

11. Marshalling

Drivers must marshal the race following theirs as directed by the Organisers.

Marshalling shall be done by drivers or a substitute who has been authorised by the Race Director.

The Race Director must be told of a substitute marshal prior to the marshal being required.

All marshals shall be at their designated point by the end of the 30 seconds to the start warning.

The start of a race may be delayed if all marshals are not in position.

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.

Only Race Officials and Marshals are allowed on the track whilst a race is in progress.

Failure to marshal will result in a warning from the race director

Failure to marshal **WILL** result in loss of points from the previous race.

Continual instances of a driver failing to marshal may result in the driver being excluded from the rest of the meeting

12. Conduct and Penalties

All participants must strictly observe the instructions of the Race Director and Officials.

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.

The consumption of alcohol or non-prescription drugs by drivers or officials during the race meet is not permitted.

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 and intentional hitting of other vehicles

Consistent or deliberate corner cutting

Driving in a manner dangerous to other vehicles, e.g. 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 or lapping cars during a race.

Abusive language or swearing and/or Abusing marshals.

Failure to marshal or failing to obey instructions of officials.

Using reverse.

A combination of 2 warnings in any race may result in the disqualification of the offending driver from that race.

A combination of 3 warnings/penalties on any day may result in the disqualification from that particular event.

The Race Director may report any person to the STMCC Committee for further investigation and penalty. Once reported, the issue will be discussed by the STMCC Committee at the next STMCC committee meeting.

STMCC reserves the right to refuse entry to any person for any event.

13. Appeals

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. Should the Race Director's decision on the matter be disputed or considered unsatisfactory the person may lodge an official protest.

14. Official Protest

An official protest must be in writing. 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 STMCC Executive Committee person. In the event of an Official Protest, the protest will be dealt with by the STMCC Executive Committee

15. General

Open toes 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.

Cars are to be driven only within the confines of the track and may not be driven in the pits.

All cars must travel in the direction of racing at all times, racing or practice.

Cars will not be permitted to race in an un-driveable or dangerous condition.

16. Lap counting

Lap counting shall be by computer system, preferably with AMB type system.

Personal Transponder must be used (Novice class excepted)

Transponders must be firmly secured by the competitors in a position that is compatible with the operation of the system.

Numbers can be used as a back up to transponders however; races will not be re-run or finishing positions changed due to loss or failure of a transponder.

Novice is the only class allowed to be manually lap counted, all other class cars must have a personal transponder fitted.

17. STMCC General Racing Regulations & Points

Events shall be of an individual nature, while Series shall be contested over a number of race days as decided by the club's committee each year.

Battery changes shall not be allowed unless stated in the individual competition rules.

Only drivers officially entered in a particular race may start in that race. Consideration will be given to a driver, requiring "track time" to test a car following repairs, to drive a car on the track during a race. If approved by the Race Director, the car must be placed at the rear of the grid prior to the start of the race. The car being tested can only start once the competing cars have completed one half (1/2) of the first lap of the race and must be removed from the track after completing a maximum of two (2) laps. At no stage can the car being tested pass or race cars officially entered in the race.

All Events and Series shall use the following scoring system unless otherwise stated in the individual competition rules.

General Scoring System

1st Place 15 points

2nd Place 12 points

3rd Place 9 points

4th Place 7 points

and one less point for each place down to 1 point for 10th place.

All races in a Series shall count to finding a series winner.

Points shall only be awarded to models that leave their grid and complete ten full laps under their own power. Novice drivers have to complete one full lap under their own power.

Only current financial members may be awarded points; however some individual events may be opened to non-members by the committee.

Inexperienced new members must compete in 540 Novice for 1 full race series, and compete in a minimum of 20 races, before being eligible to compete in other 540 classes.

Experienced new members may compete in all classes, except 540 Novice, at the race director's discretion.

18. Race Formats

SPRINT SERIES

There shall be four heats on each day for each class.

Heats shall be of 5 minutes duration. After the time limit has expired the drivers continue to race until they finish the lap they are on.

Battery changes are not allowed.

ENDURANCE EVENT

The endurance event shall consist of three heats. The first two are 5 minutes each with the third being 15 minutes.

All drivers must finish the lap they are on after the set time has expired

This event shall be contested for in class heats.

The results shall be decided by the total of points gained from the two short heats and double the points gained from the long heats.

During the long heat drivers must make at least one main car battery change.

19. CERTIFICATES & TROPHIES

All winners and place getters of Official Series who have completed at least 10 races in that series shall be awarded a medallion.

Other certificate winners may be:

Encouragement Award

Awarded by the committee following nominations from members of the club

Spitting the Dummy' Award

Awarded by the committee to the best 'spit' following nominations from members of the club

Best First Year Driver Award

Awarded by the committee, to a first year driver, following nominations from members of the club

Race Directors Award

Awarded by the committee following advice from the race director

Perpetual Shields and trophies may be awarded to the:

Best and Fairest

At the end of the year, members vote on a 3, 2, 1 secret ballot, with the winner being the member who gets the most votes. Judged by members on who they believe has been the best driver and member, and the fairest driver and member.

Club Champion

The Club Champion Shield and Trophy is awarded to the member that has performed the overall best during the clubs financial year in all official events and series. The executive shall select the winner after looking at all the results and using any method that the committee may devise.

Clubman

The Clubman Shield and Trophy is awarded to a member who has given that something extra for the club above and beyond any duties they may have on the committee or on race days. The winner is decided by the executive using any method that the committee may devise.

Most Improved

The Most Improved Shield and Trophy is awarded to the member who has shown the most improvement in all aspects of the club such as preparation, racing, marshalling, desk work, etc. The winner is decided by the executive using any method that the committee may devise.

Service Awards

5 years continuous membership and service

20. Race Director

The Race Director is under the direct authority of the relevant STMCC Executive Committee and is responsible for running the Event.

The Race Director is responsible for ensuring all tasks in conducting a race meeting are done correctly. These tasks include, but are not limited to:

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

Race Director may appoint appropriately skilled members to carry out any of the tasks

The Race Director may make urgent decisions for safety or unforeseen situations.

Should any decision made by the Race Director be disputed or considered unsatisfactory an Official Protest may be lodged.

21. Drivers Meeting

A Drivers Meeting must be held each day prior to the commencement of racing.

Drivers should be introduced to Race Director and other Officials.

Any local rules should be explained or pointed out to the Competitors.

The race program should be explained by the Race Director and any questions shall be answered at this Meeting.

22. Cancelling an Event & Wet Weather

Should there be a small number of competitors attend a normal race meeting in the STMCC Race Calendar, the members present will decide if there are enough competitors in each class to conduct the race meeting. The decision will be made by a vote. The Executive Committee members present will make the decision if the vote is tied. Should the race meeting be cancelled, each member present will receive 30 points in each of the classes they were entered in.

The Race Director may interrupt racing due to rain or if there is water on the track.

If rain interrupts racing or qualifying the program can restart, from the last completed race, after a suitable delay.

At least 2 rounds must be completed for an event to be decided if cancelled due to rain. When the race director has suspended racing they may ask the members present to decide, by majority decision, when to cancel an event. In the event of a tie the executive members present shall have the final say.