

# **Organisation of Radio Race Car Associations of Queensland Inc.**

## **Technical Rules On Road Electric 1/10th Tourer**

Revised 01/02/12 (Reword 'and' to 'or' approval lists)

### **CLASSES**

**1/10th Tourer:** Modified, 17.5, 21.5.

**Note:** For all motor & Battery specifications, refer to Sections 2 and 3

The essence of the 1/10 Tourer class is competition between realistic models of full scale saloon/sedan cars raced in Touring Car classes worldwide.

**Note:** The Modified, 17.5 and 21.5 classes have the same technical rules excepting motor & battery rules (refer to the Battery & Motor Technical sections).

**21.5 Tourers** – If the driver/entrant has placed 1<sup>st</sup>, 2<sup>nd</sup> or 3<sup>rd</sup> in any ORRCA Qld or AARCMCC sanctioned event, regardless of class or scale, except the ORRCA Qld 21.5/Novice class, the driver/entrant is not eligible for this class.

If the driver/entrant has placed 1<sup>st</sup> in the ORRCA Qld 21.5/Novice class the driver/entrant is not eligible for this class.

### **1.0 TECHNICAL INSPECTION**

1.1 All cars must be presented to Technical Inspection for an Initial Inspection before the start of Controlled Practice. The purpose of this Initial Inspection is to determine that the car meets these Technical rules for this event.

When the car passes this Initial Inspection, the Technical Inspector will mark the chassis of the car. Marks which are made by engraving or the removal of chassis material are to be avoided. A driver may refuse to have their chassis marked by methods of removing chassis material.

Once the chassis is marked, the chassis may not be changed without the approval of the Race Director. The chassis may only be changed in the case of damage, which cannot reasonably be repaired.

Drivers must race the car initially presented to technical inspection during qualifying and finals in accordance with the rules above.

1.2 All cars must be presented for technical inspection after each race.

No car will be allowed to enter the track surface without being presented for technical inspection.

1.3 All cars must be presented for technical inspection before and at the end of each final.

1.4 All motors and batteries to be inspected as necessary during qualifying and mandatory during finals.

1.5 All cars in the finals will be impounded at the end of the finals for further technical inspection, such as motors, etc.

1.6 Only one car per driver per class is allowed. Cross entering is to be restricted between 21.5 and 17.5 or 17.5 and Modified only.

### **2.0 BATTERIES**

**Must be on the ROAR or BRCA approved lists and comply with the rules in this section.**

2.1 The maximum of number cells allowed:

Six (6) sub C Cells are allowed for all classes

Two (2) Cell Li-Po are allowed in all classes.

2.2 For the purpose of motive power, cooling fans, radio equipment and transponders only in all car classes, and must conform to the battery section rules.

A receiver battery pack must only supply power to radio receivers for its operation and the control only of additional equipment listed: speed controls, servos and transponders for their operation. No other devices will be powered from a receiver pack.

### 2.3 Lithium Polymer Battery

7.4v (2 (3.7 volt) cells only)

No modifications allowed to the case and/or the battery

Any physical distortion, denting, puncturing or damage to the hard case of the Li-Po battery will deem the Li-Po battery to be ineligible for use at ORRCA QLD events.

Overcharging is not allowed (voltage higher than 8.4v)

Must charge in Li-Po sack or other device (fire mitigation device able to withstand and contain a destructive failure without showing a flame).

Must be used with electronic speed control that has either a inbuilt cut-off or used with an external cut-off device installed (6 volts minimum).

Must be charged using a Li-Po capable charger only at a maximum rate of 1C.

2.8 Battery cells may not be charged or changed during the race.

## 3.0 Motors

**Must be on the ROAR or BRCA approved lists and comply with the rules in this section.**

3.1. Motor can, end-bell, & armature/rotor must be from the same manufacturer model.

### 3.2.0 Modified Class:

#### 3.2.1 Brushed Motor

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

#### 3.2.2 Brushless Motor

Sensor or Sensor-less allowed.

### 3.4.0 17.5 Class:

3.4.1 Any commercially available approved 17.5t brushless motor, that's on the approved lists

3.4.2 Any commercially available approved ESC on the ROAR Racing/ORRCA Qld Sportsman ESC list plus the 2 ESC's used in the 21.5 class. Speed Passion Cirtix Stock Club Race or the Hobby Wing Justock.

3.4.3 Drivers with adjustable timing speed controls will need to have their adjustment tools (lap top/box) with them to prove they are running to zero timing, penalty for running advance will be disqualification from the event with no warnings given.

### 3.5.0 21.5 Class

3.5.1 Controlled motor and ESC class.

Speed Passion SPF21V2 Ultra Sportsman motor only

Speed Passion Cirtix Stock Club Race or the Hobby Wing Justock ESC only

No modifications allowed.

Motors and ESC to be supplied by the Driver/entrant.

## **4.0 GENERAL SPECIFICATIONS**

4.1 Tyre additives may only be used if approved by the organiser.

## **5.0 DRIVERS' AIDS**

5.1 It is the objective of this rule to ensure that sanctioned Electric Circuit Events be a test of driver skill. ORRCA QLD seeks to limit the type of driver aids to a minimum to achieve this objective. Traction control, active suspension and steering control by gyroscopes are not allowed. Sensors fitted to the car for the purpose of data management, recording or logging etc (eg. measuring suspension movement, wheel speed, motor speed, temperature, lateral forces or tyre slip) whilst the car is in motion are not allowed.

5.2 Unless an electronic or mechanical driver aid is listed below, it is not allowed for use in ORRCA QLD sanctioned Event.

5.3 The fixed single ratio transmission may not include a mechanical device/s between the drive motor output and the gearbox input for the purpose of controlling torque. (eg 'slipper' clutch/fluid clutch)

5.4 A differential may include a mechanism for apportioning torque over the axle/s (eg limited slip differential). This mechanism must only be capable of setting or adjustment manually whilst the car is stationary.

5.5 A mechanical or electronic speed controller may include a mechanical or electronic device to limit the current/voltage passed from the batteries to the drive motor (eg timed delay, current limiter, keyboard programs). Setting or programming of such a device must only be possible whilst the car is stationary. Changes to the setting or program during a race are not allowed.

5.6 Radio control receivers carried in the car may only have a maximum of Three (3) devices (normally the steering servo, speed controller and transponder) connected when powered by an optional separate battery supply for powering of the radio control equipment/devices. The use of any further channels to receive electrical signals from sensors carried in the car is prohibited.

5.7 Cooling fans must be powered from the main battery pack that supplies the motive power for the car. Fans can be wired into the receiver when not powered by a separate receiver battery and cannot be powered from a separate power supply.

5.8 Any competitor found in contravention of the spirit or fact of rule 5.1 to 5.7 will be disqualified from event.

## **6.0 Chassis and Drive Train**

6.1 Two-wheel drive to front or rear wheels or four-wheel drive is allowed.

6.2 Chassis must have independent suspension on all four wheels. Each driven wheel must have a flexible joint, eg: dog bone/s or universal joint/s in its driveshaft. Drive train and suspension design is free from restriction. Flat Pan (1/12<sup>th</sup> and 1/10<sup>th</sup> Track Style) chassis are not allowed.

6.3 The Chassis must not be shaped to gain an aerodynamic advantage. In principle the underside of the chassis must be flat and parallel to the ground along the entire length of the body-shell. Aerodynamic shaped parts (splitters/diffusers/tunnels/etc) may not be fitted to the chassis.

6.4 Wheels nuts/axles must not extend more than 2mm beyond the wheels when viewed from above.

6.5 Reverse is not allowed - forward control only

## 7.0 Dimensions

7.1 Description	Min (mm)	Max (mm)
Wheelbase .....	250	270
Width to outside edge of wheels (without body-shell)	170	190
Width (with Body-shell) .....	175	195
Length (overall with body-shell fitted)	360	460
**Roof Height, Bottom of chassis to top of roof .....	110	-
Wing Height must be below the roof.	-	-
Wing width (including endplates and supports) .....	125	190
Wing chord (including any flaps or extensions) see rule 9.11	-	40
Wing endplate (when separate) see rule 9.11 40mm X 20mm	-	-
Flap or Gurney tab extension above plane of wing .....		3
Wheel Diameter	47	52
Wheel width (including tyre bead) .....	24	26
Tyre Width	20	28
Tyre Diameter .....	47	67

\*\* Roof height must be measured with a gauge at 110 mm in height. The roof must clearly exceed the 110mm gauge, while the wing must not be higher than the roof at any point. All measurements are to be checked with the chassis and gauge supported on a level block

\*\*Roof cannot be modified in any way to gain extra height.

Body and Wing height should be checked prior to each race, in case of damage during racing.

7.2 **Weight:** ready to race including transponder, at all times during the race:

**All Classes 1425 grams.**

## 8.0 Tyres

8.1 Moulded rubber tyres only allowed. No sponge, closed-cell foam or pneumatic tyres allowed. Tyres must be black except for Technical Inspection markings.

8.2 A controlled tyre must be used; Tyres, inserts and rims are to be supplied by the drivers, unless the hosting club chooses to supply complete sets of race tyres at a cost approved by ORRCA Q Inc. The club must also ensure that two (2) complete sets of practice tyres identical to the control tyre will be readily available to each driver for purchase one day before the event starts.

8.3 The host club determines the tyre to be used, and submits the details to ORRCA Q Inc. for approval. The selected tyre must be announced not less than three (3) months prior to the event. The selected tyre must not have been used in the previous two (2) years; this rule doesn't apply if a tyre supplier sponsors the event. ORRCA Q Inc. will decide on the controlled tyre if the club has not submitted their choice of tyre three (3) months prior to the event.

8.4 Tyre material must not damage the racing surface.

8.5 Any driver using any other type of tyre will immediately be disqualified from the event.

8.6 Tyres are restricted in use during the event:

8.7 All classes = Maximum of three (3) sets of four (4) tyre & wheel assemblies for the event. Drivers can have Two (2) sets out during qualifying, drivers can use any combination of the 2 sets. All 3 set can be used in the finals in any combination.

8.8 A driver cannot re-use any part of the tyre assembly (i.e. inserts) in the assembly of another set.

8.9 All tyre sets are to be marked by the Technical Inspector and impounded. This marking will take place before the driver starts the event.

Unmarked wheels/tyres may not be used on the car during qualifying heats and finals.

Every car will have their tyres checked by a Technical Inspection prior to entry to the track before or after qualifying heats and finals.

8.9 Technical Inspection marks need to identify the following. Each tyre/wheel assembly uniquely identifies the driver and the class for the driver. Technical Inspection is to leave its own unique mark on the tyre/wheel assembly. Technical Inspection shall be responsible for recording the number of tyres used by each driver.

8.10 It is the driver's responsibility to ensure all technical inspection marks and any manufacturer identifying marks on any part of the tyre assembly are kept intact and clearly visible for the Technical Inspectors. If this is not the case then that tyre assembly cannot be used.

8.11 Tyres will be issued to drivers at the beginning of each race day, and it is the responsibilities of the drivers to return to Technical Inspection all tyres at the completion of each day. Tyres must not be removed from the Pit or race track area at any time. Failure to surrender the tyres at the end of the day or removal of the tyres from the Pit area except for racing will result in the driver being disqualified from the event.

8.12 No more than 1.5 mm of wheel outside diameter may be exposed from the tyre on the outside of the wheel when viewed from the tread (eg: not covered by the tyre)

## **9.0 Body-shells**

9.1 2 & 4 door sedan style bodies are allowed that are currently on the IFMAR, EFRA or ROAR body listings and fit within the GLOBAL BODY SPECIFICATIONS for electric touring cars.

Sports coupe, GT style or hybrid bodies will not be allowed unless approved by IFMAR, EFRA or ROAR.

9.2 When starting the race, a body-shell must be neatly finished and complete.

The body-shell must be a reasonable, realistic and facsimile of the full-size car on which it is based, with particular attention to realistic height, scoops, vents, wings and aerodynamic devices.

9.3 All details of front and rear lights, air intakes and windows must be clearly contrasted from surrounding paintwork.

9.4 Bodies must have transparent windshields and/or side windows and/or rear windows. (eg. Internal detail to be clearly visible when on track situation) Open or opaque windshields and/or side windows and/or rear windows are not allowed.

9.5 Body-shells may not be cut above the lower door line.

9.6 Body-shells may not be cut above the lower rear bumper line. (2009 maximum height of 45mm)

9.7 Body-shells must be securely fixed to the chassis at all times during a race.

9.8 Only one cut out, maximum 10mm diameter for the radio antenna, may be made in the body except for clearance for the wheels (wheel arches), body mounting holes and lap timing equipment.

9.9 All wheel arches must be cut out as on the original car. No more than 10mm clearance between the wheels and the wheel arches is allowed.

9.10 Only one wing allowed, fitted in the same place as the wing on the original car. The rear edge of the wing may overhang the rear of the body, including the bumper by no more than 10mm.

9.11 The wing must not extend higher at any point, including endplates and flap, than the height of the roof of the car. Side dams may be fitted but must be a reasonable representation of those fitted to the original car and must fit in the 40 mm x 20 mm rectangle allowance as part of the wing.

Gurney flaps if fitted must fit within the wing dimensions.

Chord 40mm measured from front edge diagonally to rear edge at all points across the wing.

9.12 Front splitters/spoilers must be moulded into the body-shell in the same position as the original car.

9.13 One tab or gurney flap only allowed which must be fitted securely to the rear wing, and must be contained within the wing dimensions.

9.14 Wings/splitters/spoilers/tabs/gurney flaps must be fixed rigidly to the body and or wing, and may not be moved whilst the car is in motion.

9.15 Foam bumpers may be fitted. No part of the bumper may extend outside the body-shell when viewed from any direction, nor be lower than the chassis.