

SECTION 3: Electric On Road, Technical Rules

On Road Electric

3.0 CLASSES

1. 1/10 th ISTC	Stock, Super Stock, Modified
2. 1/12 th Scale	4 Cell NiMh/NiCd or 1 cell LiPo Modified
3. 1/10 th PRO 10 GTP	REMOVED
4. 1/10 th PRO 10 ATC	REMOVED
5. 1/10 th F1	REMOVED

Note: For all motor specifications, refer to section 4, MOTOR & BATTERY RULES

3.1 TECHNICAL INSPECTION

- 3.1.1 All cars must be presented for technical inspection at the start of the prior heat. No car will be allowed to enter the track surface without being presented for technical inspection.
- 3.1.2 All cars must be presented for technical inspection before and at the end of each final.
- 3.1.3 All motors and batteries to be inspected as necessary during qualifying and mandatory during finals.
- 3.1.4 All cars in the finals will be impounded at the end of the finals for further technical inspection, such as motors, etc.
- 3.1.5 Only one car per driver per class is allowed. Cross entering is to be restricted between Stock and Super Stock or Super Stock and Modified only.
- 3.1.6 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 the AARCMCC 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.
- 3.1.7 The maximum of number cells allowed:
Six (6) sub "C" (7.2 volts) or Two 2 LiPo (7.4 volts) cells for All ISTC classes
Four (4) sub "C" (4.8 volts) or One 1 LiPo (3.7 volts) cell for 1/12th scale
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 in ELECTRIC MOTORS AND BATTERIES.
A receiver battery pack must only supply power to radio receivers for its operation and the control only of addition equipment listed: speed controls, servos and transponders for their operation. No other devices will be powered from a receiver pack.

3.2.0 GENERAL SPECIFICATIONS

- 3.2.1 When starting the race, a body-shell must be neatly finished and complete.
The body-shell must conform to the specified body rules, with particular attention to realistic height, cockpit area, scoops, vents, wings, and aerodynamic devices.
- 3.2.2 All open-cockpit body-shells must have a realistic driver figure fitted in an appropriate position in the cockpit at all times when racing.
The driver figure must consist of at least a driver's head/helmet, shoulders and arms and should be reasonable scale size.
The driver figure must be painted in a realistic appearance, colour and garb.

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3.2.3 All closed cockpit cars 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.

3.2.4 The Organiser must approve the use of Tyre cleaners or traction additives.

3.2.5 Wheel nuts and/or axles must not protrude more than 2.0 mm beyond the wheels

3.2.6 No more than 1.5 mm of wheel rim outside diameter may be exposed past the tyre on the outside of the wheel, when viewed from the tread (ie not covered by the tyre).

3.3.0 **DRIVERS' AIDS**

3.3.1 It is the objective of this rule to ensure that sanctioned Electric Circuit Events be a test of driver skill. AARCMCC 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.

3.3.2 Unless an electronic or mechanical driver aid is listed below, it is not allowed for use in AARCMCC sanctioned Events.

3.3.3 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)

3.3.4 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.

3.3.5 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.

3.3.6 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.

3.3.7 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.

3.3.8 Any competitor found in contravention of the spirit or fact of rule 3.3 to 3.3.7 will be disqualified from event.

3.3.9 Cells may not be charged or changed during the race.

3.3.10 Reverse is not allowed - forward control only

3.4.0 **1/10th PRO 10 GTP Technical Rules**

REMOVED available in 2006 rules

3.6.0 **1/10th PRO 10 ATC Technical Rules**

REMOVED available in 2006 rules

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3.7.0 1/10th ISTC Technical Rules

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

Note: The Modified, Stock and Super Stock classes have the same technical rules, except motor rules (refer to the Battery & Motor Technical section).

Chassis and Drive Train

- 3.7.1 Two-wheel drive to front or rear wheels or four-wheel drive is allowed.
- 3.7.2 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 (1/12th and 1/10th Track Style) chassis are not allowed.
- 3.7.3 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.
- 3.7.4 Wheels nuts/axles must not extend more than 2mm beyond the wheels when viewed from above.

3.7.5 Dimensions

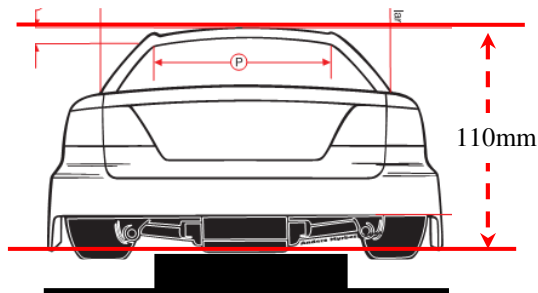
<u>Description</u>	<u>Min (mm)</u>	<u>Max (mm)</u>
Wheelbase	250	270
Width to outside edge of wheels (without body-shell)	170	190
Width (with Body-shell)	175	195
Length (overall with body-shell fitted)	360	460
**Roof Height - see below for method of measurement	110	
**Wing Height - see below for method of measurement		110
Wing width (including endplates and supports)	125	190
Wing length: leading to trailing edge measured horizontally (including any flaps or extensions) see rule 3.7.10	20	40
Wing endplate (when added) see rule 3.7.10		40 x 20
Wheel Diameter	47	52
Wheel width (including tyre bead)	24	26
Tyre Width	20	28
Tyre Diameter	47	67
* Ground clearance (at race ride height)	5	
* Ground Clearance for use on carpet or other surfaces that could be damaged to be Specified on the entry form.		

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**** Roof and wing height are to be measured with the chassis on a flat raised surface so the suspension is not supporting the car (suggested 10mm). A 110mm gauge in height is to be used for measurement from the raised surface to the roof/wing for height. The roof must exceed the 110mm gauge, while the wing must not touch the 110mm gauge at any point.**

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

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



**Roof height to be measured
from chassis base, minimum of
110mm.
Wing is not to exceed 110mm.**

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

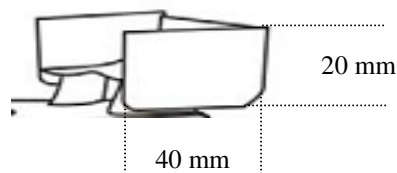
4WD -

All Classes 6 Cell/2s LiPo minimum weights: 1500 grams

Under Review for 2010 6 Cell/2s LiPo minimum weights: 1425 grams

3.7.9 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.

3.7.10 The wing must not extend higher at any point, including endplates and flap, than the height of 110 mm as measured in the above diagram. 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.



Wing to be measured as per diagram @ 40mm x 20mm

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

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

3.7.13 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.

3.8.0 Tyres

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

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- 3.8.2 A controlled tyre, insert and wheel combination must be used.
- 3.8.3 The host club determines the tyre to be used. The selected tyre, insert and rim combination and supplier must be announced not less than three (3) months prior to the event. The rim must be suitable for all types of cars. The use of pre-mounted tires should be avoided were ever possible.
- 3.8.4 The selected combination of tyre, insert, and rim must be commercially available from Australian hobby shops at the time of the announcement.
- 3.8.6 The host club has a duty to ensure that, as part of its selection process, the preferred tyre will be readily commercially available from Australian hobby shops for the duration of the period from their announcement until the meeting. The tyre combination should also be suitable for expected weather and track conditions.
- 3.8.7 All tyres used for the event should be supplied from the same manufactured batch wherever possible. Competitors will purchase tyres for competition through the host club at the race meeting. A maximum price cap of \$35.00 per set (set includes: 4 x tyres, 4 x inserts and 4 x wheels), that is payable by the entrant, will be fixed. A host club may apply to AARCMCC for special pricing above the cap if required.
The introduction of a variable price cap pending the trading of the Australian currency is being studied for introduction in 2010.
- 3.8.8 Any tyre selected for use at an annual sanctioned event cannot be used at the same event the following year. Modification to the air holes in the rims will be at the clubs discretion and intentions to be publicised prior to a sanctioned race meeting. No other modification can be made to the wheel assembly except for suspension clearance.
- 3.8.9 Tyre material must not damage the racing surface.
- 3.8.10 Any driver using any other type of tyre/insert or rim will immediately be disqualified from the event.
- 3.8.11 Tyres are restricted in use during the event:

Qualifying

Modified = Maximum of one (1) set of four (4) wheel & tyre assemblies per two (2) qualifying heats (3 complete sets of tyres for 6 rounds of qualifying)

Stock & Super Stock = Maximum of one (1) set of four (4) wheel & tyre assemblies per three (3) qualifying heats
(2 complete sets of tyres for 6 rounds of qualifying)

“A” Finals

Modified = **Two (2) sets of tyres for the 3 “A” Final races.**

Stock & Super Stock = **One (1) sets of tyres for the 3 “A” Final races.**

“A” Finals Tyre Option: Qualifying tyres can be used in the finals at the forfeit of the use of new tyres. To run qualifying tyres in the finals, only the equivalent number of qualifying tyres can be used as allocated for the “A” finals and must be clearly remarked to indicate there use.

- 3.8.12 A driver cannot re-use any part of the tyre assembly (i.e. inserts) in the assembly of another set. All tyre assemblies must be made from new tyres/inserts/rims.
- 3.8.13 When the assembly of tyres will be required, it will be performed in front of a Technical Inspector and to be marked by the Technical Inspector immediately. This marking will take place before each stage of the event (i.e. qualifying, finals). Wheels and tyres must be marked before the car is presented to Technical Inspection for qualifying heats or finals. 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 qualifying heats and finals.

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- 3.8.14 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.
- 3.8.15 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.
- 3.8.16 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. At the completion of the event the tyres will be the property of the driver.

3.9.0 **Body-shells**

- 3.9.1 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.
GLOBAL BODY SPECIFICATIONS can be found on the IFMAR, EFRA and ROAR web sites.
- 3.9.2 All details of front and rear lights, air intakes and windows must be clearly contrasted from surrounding paintwork.
- 3.9.3 Body-shells may not be cut above the lower door line.
- 3.9.4 Body-shells may not be cut above the lower rear bumper line. (2009 maximum height of 45mm)
- 3.9.5 Body-shells must be securely fixed to the chassis at all times during a race.
- 3.9.6 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.
- 3.9.7 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.

3.10.0 **Bumpers**

- 3.10.1 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.

3.10.0 **F1 19 Turn Spec Class**

REMOVED available in 2006 rules

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3.12.0 **1/12th Scale Modified**

- 3.12.1 For the purpose of AARCMCC sanctioned events GTP, Lemans, prototypes (LMP675 and LMP900), World Sports Cars (WSC) and FIA GT Racing Classes 1 and 2 (GT1 and GT2) bodies are only allowed.
- 3.12.2 One rear wing only may be used with the body-shell. The rear wing may be either moulded into the original body-shell as part of the continuous material used for the body-shell. This is defined as the part of the body-shell, from the centre of the rear axle line extended rearwards, which sweeps upward from the horizontal OR Attached directly to the body-shell or chassis by separate supports. In this case the part of body-shell from the centre of the rear axle line extending rearwards must be horizontal, or swept downward from the horizontal. Separate wings must conform to the sizes shown in 9.1.1 Side dams to the sizes shown in 9.1.1 must be attached directly to the separate wing only. No part of the wing or side dam may be closer than 6.5mm to any part of the body-shell other than tail fins or side dams.
- 3.12.1 Additional side dams may not be fitted. Only side dams moulded into the original body-shell, or supplied with the original body-shell are allowed.
- 3.12.2 Additional fences, tabs, trims, flaps, splitters or any other item fitted separately to the body-shell, are not allowed.
- 3.12.3 The body and chassis must be securely joined at all times when the car is on the track. If a body comes loose or falls off during a race, the car must be removed from the track until the body-shell is securely re-attached.
- 3.12.4 Wheel arches must be cut out if the original full-size car ran that way.
- 3.12.5 The body-shell may not be trimmed higher than the lower body trim lines.
- 3.12.6 No part of the chassis, wheels, tyres, suspension, or mechanical/electrical equipment may be visible outside the body-shell when viewed in any plane.
- 3.12.7 Openings in the body-shell (e.g. scoops, vents) must be appropriate to the full-size car on which the body-shell is based. Additional openings in the body-shell are allowed only for the original cockpit (in open cockpit cars) wing mounts, antenna, and lap recording equipment. No other openings in the body-shell are allowed.
- 3.12.8 Rollover antenna may be fitted. If fitted, it must have a blunt end for safety reasons. The antenna must be part of the mast along its length. Maximum height from ground **350mm**.
- 3.12.9 Dimensions (Body-shell dimensions in millimetres)

	Max	Min
Minimum Weight - NiCd/NiMh 4.8 volt		850
Minimum Weight - LiPo 3.7 volt		750
Overall width	172	155
Overall length	380	320
Clearance around openings	10	-
Clearance around wheel arches (except shaped wheel arches)	10	-
Rear Wing (separate)		
Width	172	-
Chord	52	-
Side dams - Length	55	-
Width	20	-

- 3.12.10 Bumpers are not required. If fitted, bumpers must be constructed so as to minimise injury that may result from being hit by the car. Wire bumpers shall be made of wire not less than 2.5mm or more than 4mm in diameter. Bumpers made from sheet type material shall be not less than 2.5mm thick or more than 6.5mm thick, with all exposed edges smooth and well rounded. Rigid blade-like bumpers made of hard, non-

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resilient material such as metal, brittle plastic, plywood, masonite, etc., will not be allowed. All cars may run a rear bumper, which must be behind the rear tyres. Bumpers may extend 6.5mm beyond the sides of the body, or to 172mm, whichever is less.

- 3.12.11 Tyres must be black except sidewall detailing. Wheels and tyres must be of such a material they cannot damage the surface of the track. Tyre treatments will be at the discretion of the organizers, including health risk and track damage considerations.
- 3.12.12 Tyres; Min width is 13mm. Max width is 38mm.
Any tyre diameter will be allowed. The tyre width is measured at the widest part of the tread or sidewall. The diameter must be maintained over at least the minimum width of the tyre. The tyre sizes apply at the start of the race.
- 3.12.13 Wheel nuts and/or axles must not protrude beyond the wheels. No more than 1.5mm of wheel outside diameter must be exposed (not covered with rubber) on the outer side of wheels.
- 3.12.14 Wheel rim diameter is 29mm Min. and 38mm Max. (This includes all non-rubber parts of the wheel and tyre.)
- 3.12.15 All cars must comply too the dimensional requirements.
- 3.12.16 Cars are not permitted to race with a reverse facility.
- 3.12.17 **The minimum weight limit including personal transponder only if fitted;**
4 cell cars 850 grams
1 Cell LiPo 750 grams
The weight of the car must not be below the weight limit at any time during the race.
- 3.12.18 When racing on a track surface, which can be damaged, (e.g. carpet) a minimum ground clearance of 3mm must be maintained at all times. Before and after each heat, race or final, cars must pass over a 3mm block without any part of the chassis or body touching the block. Cars failing this test prior to their race will not be allowed on the track. Cars failing this test after their race will have their heat/race/final time disallowed. The organiser will state on the entry form if this rule applies to their track surface.

NOTES: January 2010

12th scale class rules to be reviewed again in January 2010 for finalisation of "LiPo" power only. This will depend on the availability of "LiPo" batteries for "T" bar design cars.

ISTC class weight change to be put to vote for approval by affiliated clubs.