

SECTION 3: Electric On Road, Technical Rules

On Road Electric

3.0

CLASSES

- | | |
|---|---------------------------------|
| 1. 1/10 th PRO 10 | GTP |
| 2. 1/10 th PRO 10 | ATC |
| 3. 1/10 th ISTC | (spec 27 turn 24 degree motors) |
| 4. 1/10 th ISTC | Modified Brushed Motors |
| 5. 1/10 th Brushless Touring | Brushless Motor Rules |
| 6. 1/10 th F1 | 19 Turn Spec Class |
| 7. 1/12 th Scale | Modified |

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 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. 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 chassis of the car will be marked by the Technical Inspector. Marks, which are made by engraving, and/or removal of chassis material, are to be avoided. A driver may refuse to have their chassis marked by methods, which include 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 he or she passed technical inspection with during qualifying and finals in accordance with the rules above.

- 3.1.6 Maximum of number of six (6) sub C cells is allowed for motive power and cooling fans only in all car classes, and must conform to the battery section rules in ELECTRIC MOTORS AND BATTERIES. Receiver battery packs must only power receivers, electronic speed controls, steering and/or throttle servos. 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 be a reasonable, realistic, facsimile of the full-size car on which it is based, 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 Tyre cleaners or traction additives must be approved by the Organiser.
- 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 outside diameter may be exposed on the outside of the wheel (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 in rule 2.3.3 it is not allowed for use in AARCMCC 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)

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.

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.

- 3.3.4 Radio control receivers carried in the car may only have two devices (normally the steering servo and speed controller) connected, plus 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.
- 3.3.5 Motor cooling fans must be connected to the main battery pack that supplies power for the cars motor. Fans are not to be wired into the receiver power supply.
- 3.3.6 Any competitor found in contravention of the spirit or fact of rule 2.3 will be disqualified from event.
- 3.3.7 Cells may not be charged or changed during the race.
- 3.3.8 Reverse is not allowed - forward control only

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

- 3.4.1 Wings may be moulded in to the body-shell as part of the continuous material used for the body-shell, or may be attached separately.
- 3.4.2 No part of the chassis, wheels, tyres, suspension or mechanical/electrical equipment may be visible outside the body-shell when viewed in any plane.
- 3.4.3 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, roll-over mast (if allowed) and lap recording equipment.
No other openings in the body-shell are allowed.

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- 3.4.4 Cars must be driven by two wheels only. Four wheel drive and front wheel drive are not allowed.
- 3.4.5 Independent front suspension is allowed with a maximum travel of 15 mm measured at the outside edge of the wheel.
- 3.4.6 All cars must have a solid or tubular rear axle. Differentials are allowed. Independent rear suspension is not allowed.
- 3.4.7 Rollover antenna are not allowed.
- 3.4.8 All cars must carry identifying numbers in three places and be visible from the front and both sides.
- 3.4.9 No car shall be constructed so as to be dangerous to persons or to cause damage to other competitors cars.
- 3.4.10 A front bumper may be fitted. It must be made from a resilient material such as rubber or plastic or foam and fitted in such a way as to minimise injury or damage on impact. It will have a minimum thickness of 2.5 mm, the edges must be rounded and it must be a separate item bolted or screwed to the chassis. No part of the bumper will extend outside the body-shell when viewed from any direction.
- 3.4.11 When racing on a track surface which can be damaged (e.g. carpet), a minimum ground clearance of 4 mm must be maintained at all times. Before and after each heat, race or final, cars must pass over a 4 mm 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 head/race/final time disallowed. The organiser will state in the entry form if this rule applies to their track surface

3.5.0 DIMENSIONS

3.5.1 Body-shell dimensions in millimetres

1/10th Track

	Max	Min
Overall width	250	230
Overall length	560	500
Clearance around openings	10	-
Clearance around wheel arches (except shaped wheel arches)	15	-

Wings

(1) Wing moulded in original shell with side dams or spoilers provided in the original kit and complying with body-shell size dimensions. This type of wing must not extend more than 13mm beyond moulded body.

(2) Separate wing: minimum 6.5mm gap from body if shell sweeps down from axle line.

Wing Width 250mm Max

Wing Chord 55mm Max

Wing Endplates or side dams 25mm high above body-shell x 100mm deep not protruding beyond rear of body-shell.

3.5.3 Chassis and Wheel/Tyre Dimensions in millimetres

	Max	Min
Overall Length	560	-
Width	250	-
Wheelbase	280	228
Wheel Diameter	51	40
Wheel Width	51	19
Tire Width	51	19
Weight - 1225 Grams (including lap counting equipment)		

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3.6.0 1/10th PRO 10 ATC Technical Rules

- 3.6.1 All appropriate rules from Section 2 apply to this class.
- 3.6.2 Specifically this class requires a 19 Turn commercially available electric motor. (refer to the Battery & Motor Technical section).
- 3.6.3 Bodies used must be Australian Touring car Holden Commodore or Ford Falcon.
- 3.6.4 Bodies must not be cut lower than the original front and rear bumper bar line at the lowest point.
- 3.6.5 The aim of this class is to provide realistic looking touring car bodies. Specifically low cut bodies will not be allowed.

3.7.0 1/10th ISTC Technical Rules

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

- 3.7.1 The essence of the ISTC class is competition between realistic models of saloon/sedan cars raced in Touring Car Series for Class Two FIA Touring Cars. Not withstanding this definition , all cars must use a four door body-shell.
- 3.7.2 All details of front and rear lights , air intakes and windows must be clearly contrasted from surrounding paintwork.

Chassis and Drive Train

- 3.7.3 Two wheel drive to front or rear wheels or four wheel drive is allowed.
- 3.7.4 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.
- 3.7.5 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.
- 3.7.6 Wheels nuts/axles must not extend more than 2mm beyond the wheels when viewed from above.

3.7.7 **Dimensions**

	Min (mm)	Max (mm)
Wheelbase	250	270
Width (without body-shell)	170	190
Width (with Body-shell)	175	195
Length (overall with body-shell fitted)	360	460
Height (to top of roof ready to race)	110	175
* Ground clearance (ready to race)	5	

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Wing width (including endplates and supports)	125	190
Wing chord (including any flaps or extensions)	20	40
Wing Height (ready to race) Must be lower than the roof line inc any extension.		
Wing endplate (when separate)		40 x 20
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
* Ground Clearance for use on carpet or other surfaces that could be damaged. Specified in entry form.		

- 3.7.8 **Weight:** ready to race including transponder, at all times during the race:
4WD - 1525grams minimum.
2WD – 1425grams minimum.
- 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 not overhang the rear of the body, including the bumper by more than 10mm.
- 3.7.10 The wing must not extend higher at any point, including endplates and flap, than the height of the roof line at normal ride height. (It is suggested a spirit level be used to measure this requirement). Side dams may be fitted but must be a reasonable representation of those fitted to the original car and may not be wider than 40 mm and higher than 20 and fit in a rectangle of these measurements.
- 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 below the level of the roof line and 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.
- 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.
- 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.
- 3.8.5 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

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announcement until the meeting. The tyre combination should also be suitable for expected weather conditions.

- 3.8.6 All tyres used for the event should be supplied from the same manufactured batch wherever possible. Competitors will purchase the tyres through the host club at the race meeting. Pricing will be at a fair value and tyres will be available at the event.
- 3.8.7 Any tyre selected for use at a sanctioned event can not be used at the same event the following year. If the control tyre is a pre-mount type, no modifications can be made to the tyre assembly. If the control tyre requires assembly, the only modification allowed are air holes drilled in the rims.
- 3.8.8 Tyre material must not damage the racing surface.
- 3.8.9 Any driver using any other type of tyre/insert or rim will immediately be disqualified from the event.
- 3.8.10 Tyres are restricted in use during the event:
Qualifying – Maximum of two (2) sets of four (4) tyre assemblies
Finals – One (1) extra set for those who make the A final. Qualifying tyres can be used in the finals.
- 3.8.11 A driver cannot reuse 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.
- 3.8.12 Drivers must assemble tyres in front of a Technical Inspector and have them marked by the Technical Inspector immediately. This marking will take place before each stage of the event (i.e. qualifying, finals). Wheels/tyres must be marked by the Technical Inspector before being 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 race (qualifiers and finals) will have their tyres checked by Technical Inspection.
- 3.8.13 Technical Inspection marks need to identify the following. Each tyre assembly uniquely identifies the driver, the class and the set number 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.
- 3.8.14 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 clear to the Technical Inspectors. If this is not the case then that tyre assembly can not be used.
- 3.8.15 Tyres will be issued to drivers at the beginning of each race day and all tyres must be collected by Technical Inspection at the completion of each day. Tyres must not be removed from the Pit area at any time. Failure to surrender the tyres at the end of the day or removal of the tyres from the Pit area 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 Body-shells must be a scale replica of the original car used in the relevant FIA or National class. The original car must be a four (4) door type. Replicas of two door original cars are not allowed.
- 3.9.2 Body-shells may not be cut above the lower door line nor above the rear bumper line.
- 3.9.3 Body-shells must be securely fixed to the chassis at all times during a race.
- 3.9.4 Only one cut out, maximum 10mm diameter, may be made in the body except for clearance for the wheels (wheel arches), body mounting holes and lap timing equipment.

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3.9.5 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.

3.11.0 **F1 19 Turn Spec Class**

3.11.1 Any Formula One car is allowed 4 wheels only ie: no 6 wheel Tyrrell etc.

3.11.2 Any Formula 1/Indy car body is allowed. Scale type wings must be used.

3.11.3 Chassis must not protrude from beneath the body.
(Taking into account rules 2.10.8 & 2.10.15)

3.11.4 Rollover antennas are permitted.

3.11.5 Formula 1 cars are only permitted to be 2wd.

3.11.6 Motor must use a 19 turn armature.
The motor must conform otherwise to the IFMAR modified motor rules listed in rule 1.1.1 of the ELECTRIC MOTOR AND BATTERY section.

3.11.7 Wheel centre distance: 228mm (min) to 280mm (max)

3.11.8 Overall length 510mm (max)

3.11.9 Distance from wheel centre to outer length 115mm (max)

3.11.10 Max height including wing 150mm

3.11.11 Wing width 230mm max.

3.11.12 Wing chord 75mm max.

3.11.13 Side dam height 51mm max.

3.11.14 Side dam length: 75mm (max).

3.11.15 Overall width: 250mm (max).

3.11.16 No after market chassis allowed.

3.11.17 Graphite axles are permitted.

3.11.18 Stick or side by side batteries only, saddle packs are not allowed.

3.11.19 Tyres foam only.

3.11.20 Only single speed transmissions.

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

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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. If a rollover mast and radio antenna are fitted, the antenna must be part of the mast along its length. Maximum height from ground 35mm.
- 3.12.9 Dimensions (Body-shell dimensions in millimetres)

	Max	Min
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-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.

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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, ready to run, is 900gr for six cells and 865gr for 4 cell cars including automatic timing equipment. The weight of the car must not be below the weight limit at any time during the race. Race distortion or damage must be disregarded.
- 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.
- 3.12.19 The cars may be powered by either four cell or six cell battery packs meeting the relevant rules regarding weight (as above) and battery types.