BRCA GT12 Circuit Rules 2011 – 2012 with DDRCC ammendments.

Version 2.0 - 11 November 2012

This class is based on the principals of close, fair and low cost racing. This will make it both an ideal entry level class for the driver who wishes to try his or her hand at RC racing for the first time, but the rules for the class will also cater for the more competent driver who wishes to take their racing further. In the interests of keeping racing costs reasonable, price limits have been placed on certain items and there is strict guidance as to the use of additional upgrade parts and components. This should also ensure that the performance of each car is more dependent on driver ability and good setup than on budget.

The Rules outlined below may not necessarily cover every single aspect of car construction – drivers are required to follow the spirit and intention of these rules if any ambiguity is discovered.

Construction Rules

1.1 The essence of the sport of Radio-controlled car racing is competition between realistic models of racing automobiles. All cars must comply with dimensional requirements stated in these Rules.

All cars will use replica GT shells or club alternatives from the list of eligible shells given in Appendix 1

1.2 Minimum weight is 950 grams, ready to race including lap-counting transponder.

Wheels and tyres

1.3 Wheel rim diameter maximum is 40mm.

1.4 The tyres must be black except for side wall detail.

1.5 Tyre treatments are permitted at the organiser's discretion and are the user's responsibility. Organisers who ban use of specific products should state on the entry forms. Flammable and toxic substances are not recommended. DDRCC WILL allow the use of additives.

The BRCA has not yet found a substance that it can recommend for the treatment/cleaning of tyres. The BRCA draw organiser's attention to the possible hazard created by large numbers of competitors using tyre treatments in a confined space.

The BRCA recommend that the competitor adheres to the methods of usage as stated by the supplier of the treatment.

A list of legal additives will be published prior to start of each season. New additives may be added during the season, subject to approval by the BRCA 12th section committee.

1.6 Tyres must have a minimum width of 20mm and a maximum width of 26mm.

1.7 Wheel nuts and/or axles must not protrude more than 2.0mm beyond wheels. No more than 1.5mm of wheel outer side may be exposed (not covered with rubber) on the outer edge of wheels

Bodies, wings and bumpers

1.8 Bumpers may be fitted but must be designed to minimise injury that could result from being hit by a car, also to reduce the risk of damage to other cars. Rigid bumpers made from non-resilient materials such as metal are not allowed. Other sheet materials should have an edge radius not less than 1.5mm.

1.9 Only one wing is allowed on the car, maximum dimensions to be, width 165mm, chord 50mm, unless the original had more than one wing. The second wing must be to scale within 10% in size and location

1.10 Overall maximum width of the rolling chassis to be 165mm.

1.11 All cars must have transparent windscreens, unless the actual car did not have transparent windscreens.

1.12 Side and/or rear windows, if any, must be clear.

1.13 A driver figure, if fitted, must be painted in realistic colour and garb.

1.14 All cars to have clearly visible identifying numbers to the Race Directors satisfaction.

1.15 Numbers must be at least 25mm high with minimum stroke of 4mm. They must be black numerals on a white background.

1.16 No portion of the chassis, wheels and tyres or any equipment may extend beyond the body, except aerial masts and four posts for the purpose of mounting the bodyshell

1.17 Roll-over masts/antennas must not be fitted.

1.18 Openings in the body or cockpit floor other than ones appropriate to full size cars shall be kept to a minimum.

1.19 Wheel cut-outs may not be more than 10mm larger than the tyre radius. Exception- scale size and/or shape wheel well cut-outs. Wheel wells must be cut out if the original cars are cut out.

1.20 When initially entered in a meeting the body shell must be neatly finished and complete.

1.21 Body and chassis must be securely joined at all times while the car is on the track.

1.22 Body shells must be listed in Appendix 1 to these Rules to be eligible for use in BRCA GT12 Nationals.

Body shells must be approved by the Committee, a list of approved shells will be available on the BRCA website.

1.23 Only one drive motor is allowed per car.

1.24 The recommended minimum ground clearance of the car, not including the spur gear, is 3mm; minimum 1mm under the spur gear; this will be checked after each qualifying heat and final race.

1.25 Only Personal Transponders will be used to record laps. The section will have Personal Transponders available for competitors to purchase. DDRCC will also supply handout transponders where possible.

2 Definition of a Brushed motor

2.1 Motors allowed – Only the G2 2010 motor is allowed.

3 Definition of Brushless Motor

3.1 13.5 brushless - Any motor listed in any of the Electric Board Homologation List for Brushless Spec Motors (13.5) as updated from time to time.

3.2 21.5 brushless - Any motors listed in Appendix 3 to these Rules.

3.3 Mardave G2 Brushless – Must be run at 80% with 1s lipo or 65% on 4 cell.

4 Definition of a Zero-timing Speed Controller

4.1 Speed controllers may not be equipped with any form of automatic or programmable timing advance. If this feature is available on the particular speed controller it must be disabled and placed in an approved mode - i.e. the "ROAR blinking LEDs mode." Brushless Speed Controllers built without automatic or programmable timing advance will be allowed. The BRCA 12th Committee will provide a list of eligible speed controllers. Details of the requirement for the approved mode are contained in Appendix 2 – Zero-Timing Brushless Speed Controllers – and this requirement must be met for a speed controller to be eligible for racing in relevant GT12 Classes.

4.2 When using a sensorless speed controller/brushless motor combination Rule 4.1 does not apply.

4.3 Brushed Speed controllers are without restriction providing that they include an operating reverse function and are available with a recommended retail price not exceeding £65.

5 Batteries Allowed

5.1 Any cells conforming to the current Electric Board battery list. In addition, the cells shown in Appendix 4 are allowed. All cells used in any competitions MUST be hard-cased. Soft cases or no cases are not allowed.

5.2 Cars with 13.5 Brushless Motors will be powered by cell/s with a maximum nominal voltage of 3.7v

5.3 Cars with G2 Brushed motors will be powered by cell/s with a maximum nominal voltage of 4.8v

5.4 Cars with 21.5 Brushless motors will be powered by cell/s with a maximum nominal voltage of 7.4v

6 Chassis and Components

6.1 The chassis component will consist of one continuous sheet of metal or glass- or carbon-fibre-reinforced plastic (composite) that extends from a minimum 10mm ahead of the front axle line and runs continuously along the car to end 25mm minimum behind the rear axle line. The chassis may not include any features designed to allow the front and rear axle to rotate along the central axis of the car relative to each other. (Intent – that the chassis supports all the suspension components and is sufficiently rigid not to be used as a working part of the suspension system/s).

6.1.1 The material of the chassis component must be available from the manufacturer in a kit available at or below the price limit in Rule 6.7 (Intent – that the material used for the chassis must be included as the chassis in a rolling chassis kit, not solely as upgrades to a rolling chassis kit).

6.1.2 Metal materials used in the rolling chassis may only be steel or aluminium. Special metals (such as titanium) are not allowed. Brass and lead only may be used as identifiable weights to meet the weight limit and when removed do not have any effect on the car's function as a rolling chassis. (Intent – that special metals are not to be used as parts of the rolling chassis and its operation, either supplied as manufacturer's original parts, add-on parts from any manufacturer or other supplier or made independently by the driver.) Titanium may only be used on steering turnbuckles.

6.2 All suspension systems must operate independently of the chassis component.

6.2.1 Separate dampers are only allowed on the rear suspension. Dampers requiring seals to prevent the egress of oil are not allowed. (Intent – that dampers are non-sealed 'straw' or 'tube' style. Dampers with oil contained in a sealed reservoir are not permitted).

6.3 Front suspension may be independent provided that the suspension design does not have any pivot, rod or other mechanism that alters the wheel camber in roll relative to the chassis during its full travel. (Intent – that suspension systems from Touring Cars, GT10 cars, 12th cars and F1 cars featuring pivoting suspension arms are not used)

6.4 The rear axle must be a solid straight axle and for Class GT12.1 may be fitted with an integral differential.

6.5 Only a single fixed speed transmission is allowed.

6.6 Gears in the single fixed speed transmission must be 32DP or 48DP only.

6.7 Rolling chassis kits for the GT12 class may not have a recommended retail price higher than £99.95.

6.7.1 A rolling chassis kit may exclude all electrics and bodyshell, but must include one complete set of wheels and tyres suitable for use on a carpet racing surface.

6.8 Rolling element (ball) bearings are allowed on the front and rear axles.

6.9 Cars may only have two driven wheels with the drive to the rear axle.

End of Construction rules

7 Classes of Racing

7.1 GT12.1, using brushed or brushless motors as defined in Construction Rules 2.1, 3.1, 3.3, 4, 5.1 and 5.2. Cars may be fitted with additional parts not supplied in the rolling chassis kit (see Rule 6.7 and 6.7.1) including a differential in the rear axle, replacements for other parts and home-made parts.

7.2 GT12.2 using brushed or brushless motors as defined in Construction Rules 2.1, 3.1, 3.3, 4, 5.1 and 5.2. Cars may only be fitted with parts supplied in the rolling chassis kit (see Rule 6.7 and 6.7.1). A rear axle differential is not allowed.

7.3 GT12.1 and GT12.2 classes will only run separately if there are more than 20 entries.

Track Design and Markings

Organisers will consult the BRCA 12th Section Track Design Guide and will wherever possible set out tracks that follow those guidelines. In matters of safety, the BRCA Steward may request changes to the track layout and markings before racing starts on the day of the BRCA Sanctioned event (National) in order to comply with the Track Design Guide.

The following Appendices form part of the Rules above

Appendix 1 - Bodyshells – (Construction) Rule 1.23

Only GT body shells are allowed. Principally these are realistic representations of road-going cars including those used as the basis for cars entered in FIA GT racing competitions. All shells must be a reasonable representation of the full sized car as judged by the 12th Section Committee. The final decisions on including bodies in the approved list rests with the 12th Scale Committee. Manufacturers are recommended to contact the 12th Section GT12 Representative to confirm if any specific car is permitted. (Intent – that LMP cars and those designed specifically for racing (eg Saleem) are not allowed).

Bosyshells when painted will usually have the headlights, front grill and rear lights picked out in a detail that clearly separates them from the other body colours. (Intent – that bodies painted all one colour are discouraged, and paint schemes that reflect a reasonable representation of a full-size GT racing car are preferred.)

The following is the list of approved bodies for the GT12 class.

Mardave Lotus GT1

Mardave GT2

Mardave / Kamtec Ascari GT3

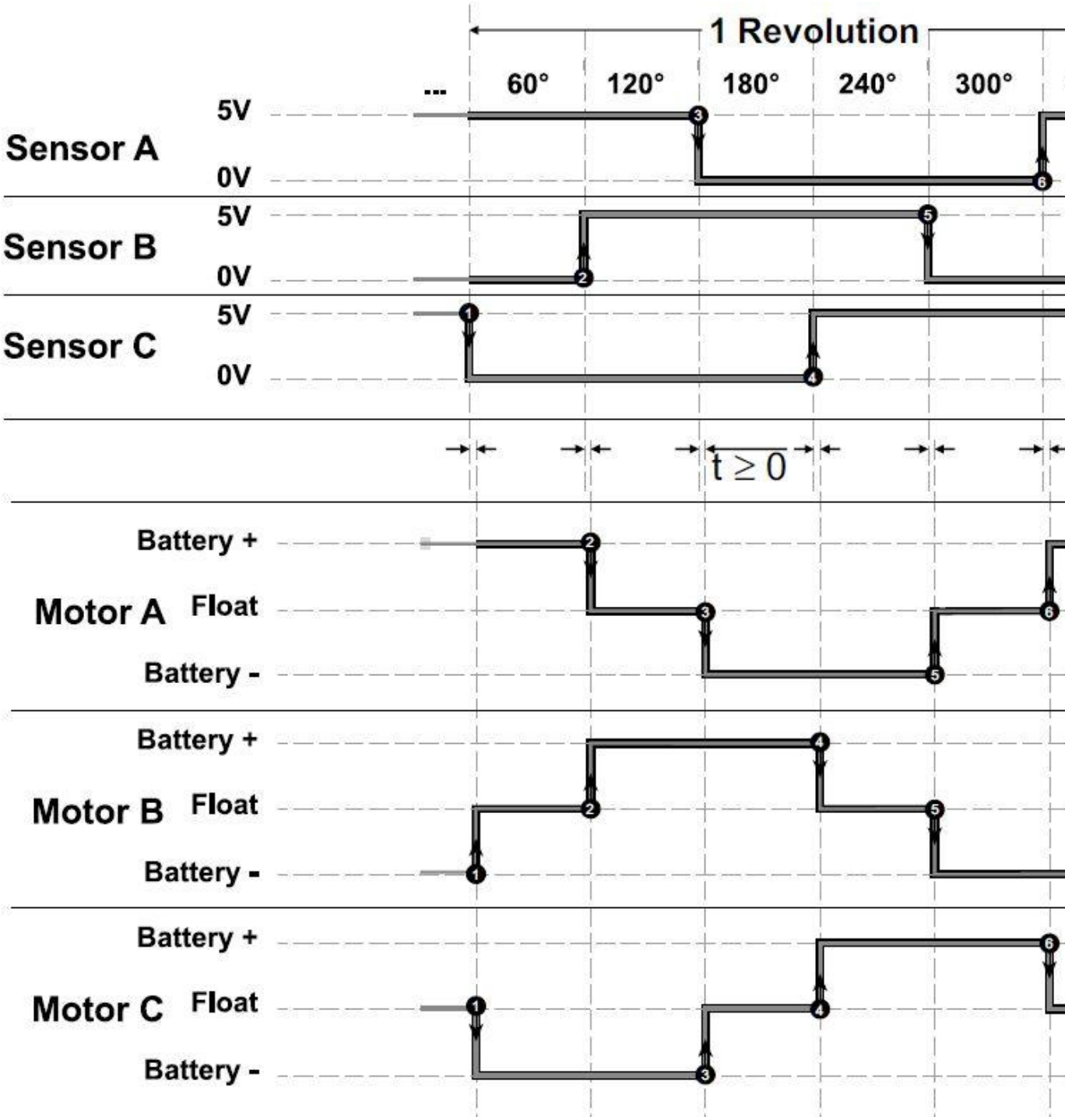
Mardave Porsche

Any lexan shell available via DDRCC.

Appendix 2 – 'Zero timing' brushless speed controllers – (Construction) Rule 4

'Zero timing' brushless speed controllers

A speed controller that has a 'zero timing profile', that does not alter the fixed position pre-set mechanical timing of the motor in any way and disables any advanced motor control; functions (ie. Boost, Cheat mode, Turbo etc.). This profile is known as ' Boost 0'.



The commutation sequence is limited to "6-step" type and commutation of the Speed control must follow the motors hall sensor signals 1:1. Therefore no change of timing (either advance or retard) is allowed at any RPM. When the "Boost 0" profile is activated, it will be identified by a blinking LED or LEDs while the ESC is armed and in neutral position.

The Section reserves the right to retain a speed controller and motor after the conclusion of a meeting to measure its performance against the above criteria in a controlled environment. The equipment, or identical new replacements, will be returned to the competitor within 5 working days. Sanctions may be taken against a competitor and/or manufacturer if a controller is found to be non-compliant.

Appendix Three – 21.5 motors allowed – (Construction) Rule 3.2

21.5t motors which have locked or fixed mechanical timing (ideally from the EB list) are suggested. For example:

HobbyWing / Xerun “Stock” 2.15t (part number 90040150/1)

SpeedPassion Ultra Sportsman V2 21.5t (Part Number SPF21V2)

SpeedPassion Ultra Sportsman V3 21.5t (Part Number SP00008)

Novak SS Pro 21.5t (Part Number 3421)

Losi Xcelron 21.5t (Part Number LOSB9409)

The Corally Pro Red motor is specifically excluded. If a model is chosen that does have a degree of mechanically adjustable timing it is up to the driver to prove that the timing is set to zero degrees.

(Intent – that the 21.5 motors are not used with mechanical timing advanced as this will give a performance advantage over the 13.5/1S combinations. It is intended that use of 2S cells simplifies installation, not gives a performance advantage.)

Appendix Four – Additional cells allowed – (Construction) Rule 5.1

Micro off-road cells may include but are not limited to –

Intellect 1800/30C (Part Number CC2S1800)

MaxTraxx 2000 (O-MXX120)

Orion ORI14147

Venom VEN15023

SPC 2500/30C

ProTek **PTK-LPH-1600-2S40**

DuraTrax DTCX 1600 etc.

“Shorty” Cells may include but are not limited to

Ipower RLP4400R7-2S

Nosram SCH-NR99941

Reedy AS306

End of Appendices