

1. CLASSES OF RACING

1.1 LMP12 MODIFIED CLASS

- 1.1.1 Motors will be in accordance with LMP12 Construction Rule 3.
- 1.1.2 Speed controllers must be set in the approved mode and must be named in the list of eligible Zero-timing Speed Controllers (see Rule 4 and Appendix 2 in LMP12 Construction Rules)

1.2 LMP12 SPEC CLASSES

- 1.2.1 Motors will be in accordance with LMP12 Construction Rule 2.
- 1.2.2 BRCA National Stock Championship will be for motors in accordance with the Electric Board "Brushless Spec. Motor lists" as updated from time to time.
- 1.2.3 Speed controllers must be set in the approved mode and must be named in the list of eligible Zero-timing Speed Controllers

1.3 LMGT3 CLASS

- 1.3.1 Motors will be 25.5 turn or greater with fixed timing.
- 1.3.2 Cars will be powered by 2s batteries as per rule 5.3.
- 1.3.3 Speed controllers must be set in the approved mode and must be named in the list of eligible Zero-timing Speed Controllers
- 1.3.4 LMGT3 may be run as a support class, but will not count towards a national championship.
- 1.3.5 Approved bodysells, tyres and price controls, and specific equipment to be used at an event are at the discretion of club or race organiser.

1.4 GT12 CLASS

- 1.4.1 Motors will be in accordance with GT12 Construction Rule 3 or 4.
- 1.4.2 BRCA National Championship will be for motors in accordance with the Electric Board "Brushless Spec. Motor (13.5) list" as updated from time to time.
- 1.4.3 Speed controllers must be set in the approved mode and must be named in the list of eligible Zero-timing Speed Controllers
- 1.4.4 Cars may be fitted with additional parts not supplied in the rolling chassis kit (see Construction Rules 6.7 and 6.7.1) including a differential in the rear axle, replacements for other parts and home-made parts.

1.5 GT12 Evo Class

- 1.5.1 Motors will be in accordance with GT12 construction rule 3 or 4.
- 1.5.2 BRCA national Championship will be for motors in accordance with the Electric Board "Brushless Spec Motor (17.5) list" as updated from time to time.
- 1.5.3 Speed controllers must be set in the approved mode and must be named in the list of eligible Zero-timing speed controllers.

1.6 GT Hypercar Class

- 1.6.1 Motors will be in accordance with GT12 construction rule 3 or 4.
- 1.6.2 BRCA national Championship will be for motors in accordance with the Electric Board "Brushless Spec Motor (17.5) list" as updated from time to time.
- 1.6.3 Speed controllers must be set in the approved mode and must be named in the list of eligible Zero-timing speed controllers.

2. GENERAL STANDARDS FOR BRCA SANCTIONED MEETINGS

- 2.1 Sanctions are only granted, on application, by the BRCA LMP12 Committee (for LMP events) and the BRCA GT Committee (for GT events). All submissions must be received for consideration by the date of the Section conference; the calendar will be published before the start of the next season. Dates are subject to 'force majeure'.
- 2.2 Nationals must be arranged by a club/ organisation unless 'force majeure' dictates otherwise.
- 2.3 Race control PA to be available to all drivers.
- 2.4 Health & Safety. BRCA General Rules – see BRCA Handbook. The main straight and any associated sweeping corners must be fenced or located so they are adjacent to the building walls.

3. ADMINISTRATION

- 3.1 Details of entry must be made available at least 28 days before the closing date of the event. Entries will be limited to a round length of no more than 90 minutes. Entries and subsequent heat allocations by class must be dealt with on a first come first served basis.
- 3.2 Entries for a meeting must only be accepted from current BRCA members and must be accompanied by their BRCA membership number. The entry fee will be set annually at the section conference and stated on the entry forms.
- 3.3 Entries are to be done via the Qualifying Officer for all events; reimbursement to the clubs will take the form of a percentage of the entry fee, paid to the club after the event.
- 3.4 Entries to be sent to the Qualifying Officer, including payment, to his satisfaction, and prepaid at least 1 week prior to the meeting. Entries cancelled at least 1 week before the event will receive a full refund. The Qualifying Officer may make exceptions to this Rule at their discretion to help drivers.
- 3.5 Late entries will only be accepted at the Qualifying Officer's discretion.
- 3.6 All BRCA Sanctioned meetings must use 1/12 section approved timing and automatic lap counting equipment.
Organisers must check acceptable venue layouts by sending a detailed A3 sized sketch to the committee, at least two weeks prior to the event.
- 3.7 In the event that 10 or more places remain available after the closing date for entries, the host club may offer a support class of their choosing, subject to the approval of the committee. All race fees collected for support class entries to go to the host club.

4. OFFICERS OF THE MEETING

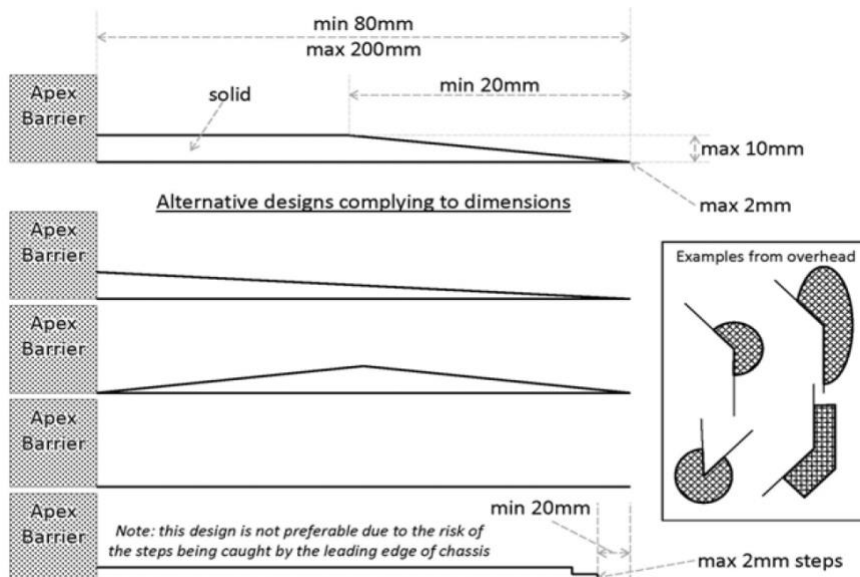
- 4.1 A sanctioned event must have the following officials provided by the organising club:
 - A. Race Director, who must be present at race control throughout the timed heats and finals.
 - B. Chief Scrutineer, who will ensure that all cars meet the requirements of the general and motor specifications.
 - C. Chief Timekeeper, who will check that timing equipment is operational and that all races have been started and finished in accordance to the rules.
 - D. A track repair and maintenance nominee, who will ensure that all necessary track repairs and general maintenance/facilities tasks are carried out in a timely and satisfactory manner.
- 4.2 The BRCA Steward has absolute authority at race meetings and for interpretations of the rules.
- 4.3 A Referee for each Heat and Final allocated by the BRCA Steward – see Rule 7.5.
- 4.4 Each official must be a separate person; no one person can fill more than one post at a meeting.

5. REFEREES

- 5.1 Provision shall be made for a Referee in all heats and finals. This will usually be a racer or racers nominated by the committee, these racer(s) will referee instead of marshalling. Failure to referee will bring the same penalty as failure to marshal.
- 5.2 The nominated racer(s) in rule 5.1 are to be announced at drivers briefing.
- 5.3 The Referee should have an unobstructed view of the entire track, and preferably a view of the drivers on the rostrum.
- 5.4 The Referee may request drivers to allow a faster car to overtake, issue warnings to drivers, and issue penalties to drivers, refer to Rule 11 and Guidelines for Referees.
- 5.5 A microphone will be provided for the Referee, to allow clear communication to the driver's rostrum.

6. TRACK SPECIFICATIONS

- The track should be positioned to minimise any unfenced (over and above the track edging) track edges accessible to the public or racers.
- 6.1 The width of track is to be measured between the tape markings or barriers whichever is the narrower.
 - 6.2 Minimum track width is 2m.
 - 6.4 Corner cutting must be discouraged by the placing of adequate corner markings and barriers.
 - 6.5 Track marking equipment must be such a shape and size to prevent the entrapment of a car or the driver's view becoming obscured. All track markings to be square shaped. All track markings must conform to the guidelines specified by the committee – see the BRCA Track Guide for details.
 - 6.6 Corners with an included angle of less than 135deg shall be marked with solid marker disks, complying with the following dimensions:
 - Outer edge distance from barrier apex - min 80mm, max 200mm
 - Maximum overall height - 10mm
 - Maximum vertical edge at any point - 2mm
 - Minimum distance between any two horizontal surfaces - 20mm. See following diagrams for examples.



- Deviations from these dimensions can be agreed by the steward of the meeting. The marker disks shall be coloured to contrast the barrier and track surface. Suggested colours: neon yellow or orange.
- 6.7 The start, 1m penalty and finish lines must be clearly marked on the track. The start line must be placed so that race officials have a clear view to identify any jump starts.
 - 6.8 Drivers must have a clear view of the full track from any position on the rostrum. The rostrum must be positioned to minimise the risk of people obstructing the drivers view. The minimum distance from the rostrum to the edge of the track is 2m. The minimum length of the rostrum must be 7.3m (24ft), between 1m (min) and 2.1m (max) high, and of a suitable width. For finals the drivers will take their positions in qualifying order to allow them their preferred position.
 - 6.9 The main straight must be on the opposite side of the track to the rostrum.
 - 6.10 No competitor should be pitting in the area designated as race control.

7. RACING PROCEDURES

- 7.1 Drivers must be seeded on handicap for qualifying.
- 7.2 Heats and finals shall be of the following duration plus the time to complete the last lap, to a maximum of 30 seconds;
 - LMP Classes – 8 minutes
 - GT Classes – 6 minutes
- 7.3 Competitors shall race one round of controlled practice, the length of which to be determined by the race director and/or Time keeper and a minimum of 3 heats. Practice on Saturday night is permissible, provided this is on the confirmation of entry. Drivers are to be advised of the number of rounds at Drivers briefing.
- 7.4 A driver's best single heat time result will count towards a place in the final. In the event of 2 or more competitors having the same qualifying time after the completion of the last round of qualifying the next best qualifying time posted by these competitors will be used to determine grid position. For example, competitors A and B both have a best time of 44 laps 485.76s. Competitor A's next best time is 44 laps 489.88, whereas competitor B's next best time is 44 laps 488.63. Therefore competitor B would get the higher starting position.
- 7.5 Drivers must marshal 1 Heat after their own race including practice, unless they have been designated as Referees (see 5.1). All marshals must be BRCA members and have attended the Drivers briefing (or at least been asked to) and have received Section marshal training. If a competitor is unable to marshal for any reason then they must provide a suitable substitute after seeking permission to do so from the meeting steward. Failure to marshal or provide a substitute in qualifying will result in the loss of that competitor's fastest qualifying time. Failure to marshal or provide a substitute during finals will result in disqualification from the event.
- 7.6 The Race Director or Referee are to make sure there are sufficient marshals and that they are suitably spread around the track.
- 7.7 Competitors may only drive during their race and then only from the rostrum. Any person not in the race must not interfere with the progress of any driver within a race. No driver to enter the rostrum within 10 seconds of the race start. No Driver to leave the rostrum until the race is declared over or unless instructed to do so by the Race Director or Referee.
- 7.8 Heats will start with cars in one line across the track and will use a 0.5 second (minimum) staggered start system. All cars must be started before the completion of one lap by the leading car with all cars clocks starting within 15 seconds of the first cars clock.
- 7.9 Grid: to be on the main straight and any preceding or following flat out corners. Pole position: No more than 2 meters from the first effective corner, following cars spaced 3 meters apart on the racing line. Starting positions must be clearly marked.
- 7.10 A race may not start unless in the presence of the Race Director or deputy or the appointed Race Referee.
- 7.11 At 30 seconds prior to the start, all cars must be in position behind the start line, after this time any car not at the start line must wait behind the other cars. At 10 seconds drivers will be given warning of start of race, after this point no car may be in front of the start line or a start penalty will be awarded. The race will start at the discretion of the Race Director. In the case of staggered start format, drivers will start as instructed.
- 7.12 Only the Race Director or deputy or the appointed Race Referee may call for a restart within the first lap of the leading car.
- 7.13 Only the Race Director, deputy, the appointed race Referee or BRCA steward may abandon a race. If deterioration of the track stops the progress of any car then the race must be abandoned. All abandoned qualifying heats will be re-run. If a qualifying race is stopped after one lap has been completed then time must be allowed for recharging. If a final is abandoned before 1 minute is complete then 5 minutes will be allowed to recharge and the final will be re-run. If a final is stopped after 1 minute but with less than half of the race time elapsed then the race will be declared based on qualifying positions. If a final is abandoned with more than half of the race time elapsed then the race result will be declared on the running order at the end of the last fully completed lap by each competitor. The race time at the point of abandonment shall be determined as the elapsed time at the last completed lap by the car which is impeded.
- 7.14 Each car will be inspected to ensure that it meets the requirements of these rules for every race in which it competes.

- 7.15 Qualifying results will be posted after every round. Final results will be posted at least 10 minutes before prize ceremony.
- 7.16 The trophies or prizes will be awarded at the end of the meeting.
- 7.17 The committee recommends the use of a referee to assist drivers in all heats and finals.
- 7.18 During a race, no-one other than the Race Control officials can pass any information to a competitor, this does not include drivers requesting one another to allow overtaking – or passing on information to each other regarding cars that have stopped on the circuit.
- 7.19 It is the drivers responsibility to ensure the correct transponder is securely attached to their car and working. If the equipment should fall off, the car will not be counted. Only personal transponders will be used to record laps at BRCA sanctioned events and nationals.
- 7.20 For finals the drivers will enter and take their positions on the rostrum in qualifying order to allow them their preferred position.

8. CURTAILMENT PROCEDURES

- 8.1 In the event of at least two complete rounds of qualifying being run but the finals not being run or stopped at less than 2/3rds distance then the awards will be made from qualifying positions.
- 8.2 In the event of 'force majeure' the BRCA Steward may declassify the meeting. The decision must be made on the day. Entry fees are to be refunded if the meeting is declassified.

9. FINALS

- 9.1 Points for the open championship will be awarded as follows, 150 points for 1st place in the A final down a point per place.
- 9.1.1 Points for the GT championship will be awarded according to the structure specified in 12.1.2
- 9.2 A separate championship will be run alongside the Open for F2 and F3 drivers. Top driver in each class gets awarded the following points, down one point a place in the formula, F2 100 points, and F3 50 points.
- 9.3 A team consisting of four competitors is entered at the beginning of the season (no changes or substitutions will be allowed. The best three competitor's scores count at each event. 1 point will be scored for winning a final regardless of which final. 2 points will be awarded for second place and so on. The number of scores to count for the championship will be the same as rule 12.1.1. The team with highest placed driver would determine the winner in the event of a tie. Any team unable to field a full team at an individual meeting will score 100 points. The lowest team score per event is deemed the winner. Event scores are accumulated with best four counting towards the season championship. (The lowest score wins). Entry fee per team is £10 at the start of the season. Monies raised will fund end of season Trophies.
- 9.4 Separate qualifying and handicap tables for each championship will be kept.
- 9.5 A permanent trophy is to be presented to TQ in each class, the top three drivers in the A final, the top-3 drivers in F2 and the winner of each lower final. Drivers may collect more than one trophy at a single meeting. Other trophies are at the discretion of the organisers.

10. SECTION CONFERENCE

- 10.1 The 1/12 section conference to be held within 8 weeks of the last National of the season. Committee availability and clashes with other classes of racing (BRCA Sanctioned events only) must be taken into consideration when deciding a date, it will be the target of the committee to hold the conference within 4 weeks of the last national. The Committee are to investigate possible alternatives for the date, time and venue of the EGM.

11. PENALTIES

- 11.1 Jump-starts during qualifying - Crossing the loop out of sequence may result in a 5 second penalty. Jump-starts in a final will result in a fixed 5 second penalty at the end of the race, or a stop/go penalty.
- 11.2 Failure to marshal or provide a substitute in qualifying: loss of fastest qualifying time. Failure to marshal or provide a substitute during finals: disqualification from the event. Failure to marshal competently- loss of previous time or final result.
- 11.3 Corner cutting: - if a competitor cuts a corner deliberately or as a result of an accident then they must wait for the referee to instruct them to continue or wait for a marshal to return their car to the point at which it originally left the track. Failure to do so will result in a 1 lap penalty being applied at the end of the race.

- 11.4 Technical inspection: - failure to meet the technical and dimensional requirements of these rules results in loss of heat/final time.
- 11.5 The Black flag will be shown only by Race Director, Referee or deputy. The car it applies to must stop and be removed from the track unless otherwise instructed. Any car that loses its body, becomes a safety hazard, is causing damage to the track and/or driving incompatible with general safety will be Black flagged.
- 11.6 Any car that is intentionally or continually running into other cars so as to slow their progress will be issued with a penalty and/or warning by the Referee, and if it continues will be Black flagged.
A car that is Black flagged is disqualified from that race until instructed to rejoin by the Race Director or Referee.
- 11.7
- 11.8 If a race is subsequently abandoned a Black flagged driver can only take part in the rerun at the Race Directors discretion.
- 11.9 Three successive warnings and/or penalties lead to disqualification from the meeting.
- 11.10 There will be a ten minute protest period between the end of qualifying and the start of the finals.
- 11.11 Any driver leaving the rostrum without direction from race control during qualifying will lose their FTD. Any driver leaving the rostrum without direction from race control during finals will lose their championship points for that round.

12. CHAMPIONSHIP MEETINGS

- 12.1.1 The LMP12 championship will consist of a maximum of 12 events over 6 weekends in the following format:
- Stock Spec, class consisting of 13.5T class. Only the 13.5T championship will be split, based on formulas (F1 and F2).
 - Modified' class.
- The number of events to count towards the championship to be half plus 1, with halves rounded down
- 12.1.2 The GT12 championship will consist of at least 3 events or a single GP-style event. The number of events to count towards the Championship is half plus one, with halves rounded down. In the case of a single GP event, the winner of the GP is the National Champion.
GT Nationals will include a Junior Championship for racers who hold a BRCA Junior Membership.
GT Nationals will include a Veteran's Championship for those who are over the age of 50 at the first GT National meeting of the season.
Prizes for Junior and Veteran Championships will be at the discretion of the GT committee. In national events, points will be awarded for both qualifying and final results, with the TQ getting 100, second 99 and so on. Finals will be in the same format, 100 for first, 99 for second and so on.
In the case of the national series being a single GP event, final positions will be awarded based on the finals results, with the best two out of three results being counted. In case of a tie, best final time will be used. In a further case of a tie, qualifying position will be used. The winning driver will be the national champion.
The Junior and Veteran championships will be counted based on Qualifying times, with the highest qualifying driver meeting the age requirements gaining 100 points for that round, and the second 99, and so on.
- 12.1.3 A Minimum of 15 drivers must complete the first round for that class to be considered a national championship.
- 12.2 In the event of a tie the competitor's best individual counting score will be taken into consideration, then next best counting score and so on. If there is still a tie then qualifying positions for counting scores will be taken into consideration. Throw away scores will not be considered.
- 12.3 All meetings to be held indoors on carpet.
- 12.4 Competitors will compete within the designated classes depending on their handicap (rating) as calculated by the Qualifying Officer. The formula breaks shall be chosen so as to produce as near as possible equal split of eligible drivers. Drivers with fewer than the required number of counting scores will be excluded until they have achieved an eligible rating. The formula breaks shall be confirmed at the section EGM. A +/- 1% buffer zone applies at the

end of the season. Within this zone, the driver can elect whether to move up or down themselves, prior to the start of the following season.

- 12.5 Single day meetings: Four rounds of qualifying will be run, time permitting.
Two day meetings: Two rounds of controlled practice will be run, time permitting. Seven rounds of qualifying will be run, time permitting. Three leg finals will be run.
- 12.6 In the case of three legged finals, the points for the best two legs are added together for overall position in each final, in the event of a tie the overall position is decided by the best counting score is used.
- 12.7 On single day meetings there will be one leg of finals.
- 12.8 Qualifying heats to contain a maximum of ten (10) cars. Drivers to be spread evenly across the qualifying heats as deemed acceptable by the Qualifying Officer or Steward of the Meeting. Competitors will be given the opportunity to run in a final. The finals must be in A, B, C... format. LMP finals will consist of ten cars with the exception of the lowest final. For GT12 the committee will decide on the number of cars in Finals based upon the calendar and available venues. This number will be fixed at all championship rounds.
- 12.9 Electric "Air Blowers" are not allowed inside the venue at 12th Circuit National Meetings.

13. INTERNATIONAL TEAMS

- 13.1 Allocation of places shall be based upon exact handicaps at the end of the previous year's national championship at the time of selection. These handicaps will be based on the current results. Drivers must have competed in enough meetings to be eligible for the Championship, see rule 12.1.1. The 1/12 committee may allocate up to 20% of the available places for EFRA/IFMAR events at their discretion to cater for reallocation

14. PROTEST PROCEDURES

- 14.1 Protests must be received by the BRCA Steward in writing with a fee of £20.00. This fee is refunded if the protest is upheld.
- 14.2 No protests will be accepted after prize giving ceremony.
- 14.3 If any protest is made against a competitor, then that protest must be held in the full knowledge of that competitor. The accused competitor will be consulted and allowed to defend his actions before a decision is reached.
The following are not Rules, but are included as notes to clarify what is intended by Rules above. They are to be used in conjunction with the Rules as the proper execution of the intent of the Rules.

GUIDELINES FOR REFEREES

Referees will be provided access to the race control computer (or monitor) for reading race positions and lap scores during the race.

At least one Referee must be present in Race Control watching each Heat and Final, and should be watching for.

- Bad sportsmanship by drivers - i.e., deliberately impeding the progress of others by slowing down, crashing or hitting another car, corner cutting, driving recklessly to gain an advantage and/or being unable to properly control a car such as to cause a potential safety hazard.
- Cars in a dangerous condition - i.e. body not secured to chassis, causing damage to carpet, tape or track markers, and a safety hazard to marshals.
- Jump starts.
- Corner cutting (without any deliberate intent).
- Proper execution of any penalty awarded by a referee.
- Bad driving.
- Penalties can be issued as follows by the Referee, and be within these parameters for consistency:
- Bad sportsmanship - disqualification from that Heat or Final, or disqualification from the Meeting at the Referee's discretion.
- Cars in a dangerous condition - Black Flag (see rules 10.4, 10.6)
- Jump starts - in qualifying for starting out of order - 5 sec penalty. In finals for moving after the 30 second warning, but before the start signal - 5 second penalty

- Corner cutting - 1 lap penalty. Referees may also allow a driver to wait, and then tell the driver to rejoin the race, to prevent any safety issues with other cars or marshals entering the track area.
- Improper execution of a penalty - repeat of the penalty until it is correctly carried out to the Referees satisfaction. This counts as single penalty for purposes of disqualification.
- Bad driving - stop/go penalty of up to 10 seconds, to be issued and supervised by the Referee.
- If three penalties are issued to one driver by the Referee during the Meeting (single day, single class) the driver is disqualified from that Meeting.

Referees may warn drivers as to their driving conduct without issuing a penalty, and ensure that when a penalty is awarded, it is clearly stated as a penalty. The penalty must be marked on Race Control's copy of the heat/ final results.

HANDICAP RATINGS

- Handicaps are calculated as follows, based on heat times not finals;
- a) The average of the best qualifying lap times of the top 10 drivers is taken as the norm (N)
 - b) Each competitor's best qualifying lap time (T) is then compared against the norm (N) in the following formula; $((N - T) / N) \times 100 = \% \text{ difference (D)}$
 - c) The existing handicap rating of the top 10 drivers, excluding those without a valid handicap, is then averaged to give a "Meeting Score". (M) This reflects the standard of the drivers attending.
 - d) Then each driver's D is added to the meeting's M to give their rating for that event. This figure is then included with the driver's three previous results. The lowest of the four is ignored and the remaining three are then averaged and rounded to 2 decimal places before publishing.
 - e) New drivers without a handicap will be placed in the open championship for their first meeting. After the completion of their first meeting, the qualifying officer will assess their performance based on their qualifying and drivers will be placed in a formula appropriately. Once a driver has completed 3 meetings counting towards a handicap, their formula placement will be reviewed and amended at the committee's discretion.

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.

1. 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.
- 1.2 Minimum weight for LMP12 classes is 730 grams.
- 1.3 Wheel rim diameter maximum is 38mm and minimum of 30mm.
- 1.4 The tyres must be black except for side wall detail.

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.
- 1.5 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. Additives may also be removed during the season should they be deemed unsuitable by the BRCA 12th section committee. Tyre additives used trackside to be kept in their original bottles.
- 1.6 Tyres must have a minimum width of 13mm and a maximum width of 40mm.
- 1.7 Wheel nuts and/or axles must not protrude more than 2.0 mm beyond wheels. No more than 1.5 mm of wheel outer side may be exposed (not covered with rubber) on the outer edge of wheels.
- 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 172mm, chord 51mm, 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 172mm.
- 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 or open.
- 1.13 All cars to have clearly visible identifying numbers to the Race Directors satisfaction.
- 1.14 Numbers must be at least 25mm high with minimum stroke of 4mm. They must be black numerals on a white background.
- 1.15 No portion of the chassis, wheels and tyres or any equipment may extend beyond the body, except rollover masts and four posts for the purpose of mounting the bodyshell
- 1.16 Roll-over masts/antennas may be fitted. When fitted the mast must have a safe blunt end. The minimum height of the rollover mast is 150 mm from the track surface. Rollover masts/antenna will be made from fibre-glass or carbon-fibre only, with a minimum outside diameter of 2.9 mm and a maximum outside diameter of 3.4 mm.
- 1.17 Openings in the body or cockpit floor other than ones appropriate to full size cars shall be kept to a minimum.
- 1.18 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.
- 1.19 When initially entered in a meeting the body shell must be neatly finished and complete.
- 1.20 Body and chassis must be securely joined at all times while the car is on the track.
- 1.21 Only one drive motor is allowed per car.
- 1.22 For LMP12 Classes bodyshells must meet the requirements shown in Appendix 1 to these rules. Body shells must be approved by the Committee, a list of approved bodyshells will be maintained on the BRCA website.
- 1.22.1 Minimum body shell weight to be 30 grams painted and race-ready with decals and any body strengthening.

- 1.23 The minimum ground clearance of the car, not including the spur gear, is 3mm; this will be checked before each qualifying heat and final race.
- 1.24 The rear axle must not have any articulated element and may be fitted with a differential (one solid rear axle). Only a single fixed ratio transmission is allowed. Cars may only have two driven rear wheels with the drive being to the rear axle. No independent rear suspension is allowed.

2 DEFINITION OF A SPEC MOTOR

- 2.1 Motors allowed – Spec, or Stock, class. Any motors listed in any of the Electric Board "Brushless Spec Motor" lists as updated from time to time.
- 2.2 All motors must conform to the relevant technical specifications detailed in the Electric Board Rules.

3 DEFINITION OF A MODIFIED MOTOR

- 3.1 Any approved motors from the EB Modified motor list can be used, star or Y winds only. Motors from the 10.5T, 13.5T and 17.5T lists can also be used, but only with the number of turns as homologated. The minimum number of turns allowed is 6.5T.
- 3.2 Motors must conform to the relevant technical specifications detailed in the Electric Board Rules.

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 12th Classes (see Procedural Rule 1)

5 BATTERIES ALLOWED

- 5.1 Any cells conforming to the current Electric Board battery list.
- 5.2 LMP12 cars will be powered by cell/s with a maximum nominal voltage of 3.8v.
- 5.3 LMGT3 Cars will be powered by cell/s with a maximum nominal voltage of 7.6v.

THE FOLLOWING APPENDICES ARE PART OF THE RULES ABOVE

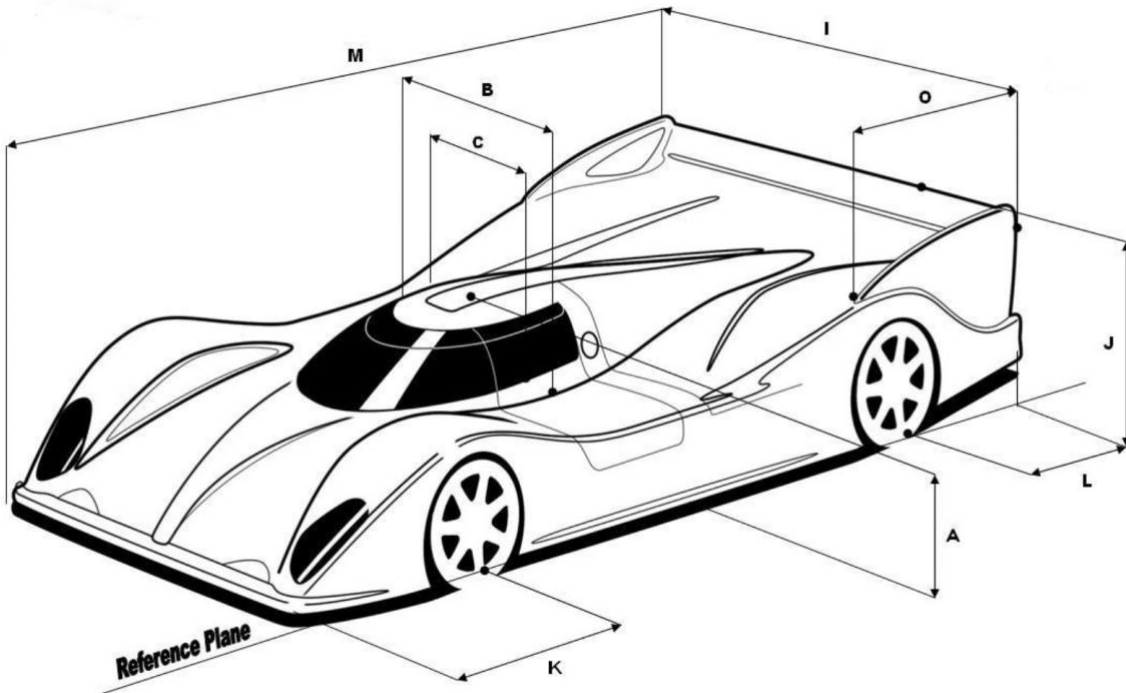
APPENDIX 1 - BODYSHELLS – (CONSTRUCTION) RULE 1.23

The following is the specification for approval of 1/12 Prototype Sports car body shells. They should be used by the Section to enable clear and consistent application of standards for future approvals,

- 1 Lower body cut line is to be used as the reference plane for all height dimensions.
- 2 Minimum cockpit height – Closed cockpit – 55mm (Excluding any air scoops / air boxes)
- 3 Minimum cockpit width – Closed cockpit – 70mm (Measured at the point it intersects with the side pod)
- 4 Minimum cockpit width - 55mm (measured at the lower window line)
- 5 Minimum Roll bar height – Open cockpit – 55mm
- 6 Maximum distance from Drivers helmet to top of roll bar – Open cockpit -11mm
- 7 Minimum cockpit width – Open cockpit – 65mm (Measured at the point it intersects with the side pod)
- 8 Minimum front wheel arch height – 46mm (Including vents) (measured at a point 15mm from edge of body)
- 9 Minimum rear wheel arch height – 50mm (measured at a point 10mm from edge of body)
- 10 Maximum overall width – 176mm
- 11 Minimum overall width – 168mm
- 12 Max wing / spoiler height – 65mm
- 13 Max front overhang (From centre of front wheel)– 70mm
- 14 Max rear overhang (from centre of rear wheel) – 70mm
- 15 Max length overall – 340mm
- 16 Minimum side pod height – 30mm
- 17 The side dam must blend fully (disappear) into the main body shape within 110mm of the rear edge of the body/side dam.
- 18 Max side dam height – 72mm
- 19 The body side forward of the side dam must have a radiused edge, no lips or upward extensions are acceptable
- 20 Bodies must be a representation of a full size LMES / ALMS / LMP / WSC prototype.
- 21 Open cockpit cars to have twin roll bars as current LMES / ALMS
- 22 Open cockpit cars must have a representative drivers helmet and cockpit opening
- 23 The name of the prototype must be used for the homologation process.
- 24 The name of the prototype does not have to be used for general sales and marketing.
- 25 Only fins or strakes that are present on the full size prototype will be allowed.
- 26 Cut-outs in the shell will be allowed only if clearly defined on the full size prototype
- 27 Once Homologated there must be no changes to the design, trim lines, detail lines or any feature of the body. All changes will require resubmission for approval and an additional revision letter added to the part number- Example 15001A - Original - 15001B for a 2nd Rev. Etc

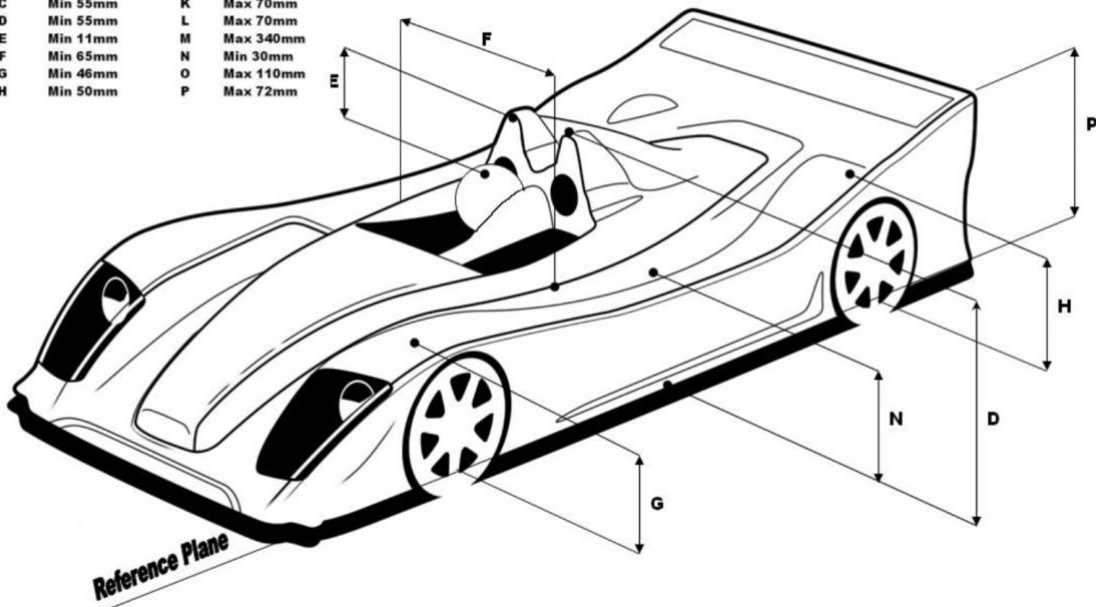
The manufacturer's part number must be clearly marked on the shell alongside the windscreen area.

Note, original Rule 26 removed. "The body must not be cut above the lower cut line"



Body Specifications 1/12th Scale On Road

A	Min 55mm	I	168 to 176mm
B	Min 70mm	J	Max 65mm
C	Min 55mm	K	Max 70mm
D	Min 55mm	L	Max 70mm
E	Min 11mm	M	Max 340mm
F	Min 65mm	N	Min 30mm
G	Min 46mm	O	Max 110mm
H	Min 50mm	P	Max 72mm



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 BRCA 1/12 Electric Circuit 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.

END OF APPENDICES

BRCA GT12 TECHNICAL RULES

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.

1 GT12 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 from the list of eligible shells given in Appendix 1
Minimum weight is 950 grams, ready to race including lap-counting transponder at all times during the race/heat/final.
- 1.2 Wheel rim diameter maximum is 40mm, and 26mm Width. Only commercially available wheels may be used. No modifications or changes to the original manufacturer's design and dimensions are allowed.
- 1.3 The tyres must be black except for side wall detail.
- 1.4 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. 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 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 the outer edge of the wheels. No more than 1.5mm of wheel outer side may be exposed (not covered with rubber) on the outer edge of wheels.
- 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 car 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 including wheel nuts and axles, not including bodyshell. Wheelbase is to be 196mm minimum to 208mm maximum. The race ready car must have a minimum unmodified roof height of 80mm with the bodyshell fitted.
- 1.11 All cars must have clear windscreens, unless the actual car did not have clear windscreens.
- 1.12 Side and/or rear windows, if any, must be clear.
- 1.13 All cars to have clearly visible identifying numbers to the Race Directors satisfaction.
- 1.14 Numbers must be at least 25mm high with minimum stroke of 4mm. They must be black numerals on a white background.
- 1.15 No portion of the chassis or any equipment may extend beyond the body, except aerial masts, rear diffuser (if fitted and in accordance with Rule 6.1.1) and up to four posts for the purpose of mounting the body shell.
- 1.16 Flexible masts/tubes only may be used.
- 1.17 Openings in the body other than ones appropriate to full size cars shall be kept to a minimum.

- 1.18 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.
- 1.19 When initially entered in a meeting the body shell must be neatly finished and complete
- 1.20 Body and chassis must be securely joined at all times while the car is on the track.
- 1.21 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. Body shells when painted must have a minimum of headlights, front grill and rear lights picked out in a realistic colour, size and shape that clearly separate them from the other body colours. Additional grills and intakes picked out in the same way are preferred. Windows will be clear, may not be cut out, and will be shaped as per the original car. Bodies must not be cut above the lower cut lines marked on the body shell. If there is a diffuser cut line, the bodyshell may be cut to this line.
- 1.22 Only one drive motor is allowed per car.
- 1.23 The minimum ground clearance of the car, not including the spur gear, is 3mm; minimum 1mm under the spur gear; this will be checked during scrutineering for each qualifying heat and final race.
- 1.24 The chassis component will consist of one continuous sheet of material 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).
- 1.25 Chassis and Front Suspension components must be commercially available
- 1.26 No modifications are allowed to the chassis, but edges may be smoothed, sanded, or sealed.
- 1.27 Chassis and Front end design may be offered in an “alloy” or “composite” version.
- 1.28 Metals used in the production rolling chassis and any aftermarket parts may only be brass, steel, aluminium or titanium. Brass, lead, and steel may be used as weights.
- 1.29 All suspension systems must operate independently of the chassis component.
- 1.30 Separate dampers are only allowed on the rear suspension. Dampers requiring seals to prevent the egress of any type of damping medium are not allowed. (Intent – that dampers are non-sealed ‘straw’ or ‘tube’ style. Dampers with any type of damping medium contained in a sealed reservoir are not permitted).
- 1.31 The front end of a GT12 car may be fitted with simple independent suspension. Over the full travel of the suspension, there must be no camber change relative to the main chassis. Intent, that suspension systems from Touring cars, GT10 cars, LMP12 cars, and F1 cars are not used. Changes to the suspension using shims/straps/spacers to adjust camber and caster are allowed.
- 1.32 In addition any camber change due to flexing of components should ensure that there is no more than 2 degrees of change relative to the chassis when subjected to a load of 2kg in the direction of the suspension travel.
- 1.33 The front end must be fitted as per the manufacturers instructions, with no modifications allowed.
- 1.34 Chassis and front end designs no longer need to be homologated provided they meet the above requirements. A list of previously approved designs will be maintained.
- 1.35 The rear axle must not have any articulated element and may be fitted with a Differential.
- 1.36 Only a single fixed speed transmission is allowed.
- 1.37 Gears in the single fixed speed transmission must be 32DP or 48DP only.
- 1.38 Rolling element (ball) bearings are allowed on the front and rear axles.
- 1.39 Cars may only have two driven wheels with the drive to the rear axle.

2 CONSTRUCTION RULES GT12 Evo and GT-Hypercar

- 2.1 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.
- 2.2 Minimum weight for GT12 Evo class is 800 grams. Minimum Weight for GT-Hypercar class is 800 grams.
- 2.3 Wheel rim diameter maximum is 38mm and minimum of 30mm.
- 2.4 The tyres will conform to a controlled specification and must be approved by the GT Circuit committee. A list of approved tyres will be detailed in an approved tyre list that is maintained on the BRCA website.
- 2.5 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.
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. Additives may also be removed during the season should they be deemed unsuitable by the BRCA 12th section committee. Tyre additives used trackside to be kept in their original bottles.
- 2.6 Tyres must have a minimum width of 20mm and a maximum width of 40mm.
- 2.7 Wheel nuts and/or axles must not protrude more than 2.0 mm beyond wheels. No more than 1.5 mm of wheel outer side may be exposed (not covered with rubber) on the outer edge of wheels
- 2.8 Bumpers must be fitted and 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. The bumper must have a minimum of 12mm of deformable material extending past any rigid mounting area.
- 2.9 Only one wing is allowed on the car, maximum dimensions to be, width 172mm, chord 50mm, unless the original had more than one wing. The second wing must be to scale within 10% in size and location.
- 2.10 Overall maximum width of the rolling chassis to be 172mm. The race ready car must have an unmodified roof height of 80mm with the bodyshell fitted.
- 2.11 All cars must have transparent windscreens, unless the actual car did not have transparent windscreens.
- 2.12 Side and/or rear windows, if any, must be clear.
- 2.13 All cars to have clearly visible identifying numbers to the Race Directors satisfaction.
- 2.14 Numbers must be at least 25mm high with minimum stroke of 4mm. They must be black numerals on a white background.
- 2.15 No portion of the chassis, wheels and tyres or any equipment may extend beyond the body, except rollover masts and four posts for the purpose of mounting the bodyshell
- 2.16 Roll-over masts/antennas may be fitted. When fitted the mast must have a safe blunt end. The minimum height of the rollover mast is 150 mm from the track surface. Rollover masts/antenna will be made from fibre-glass or carbon-fibre only, with a minimum outside diameter of 2.9 mm and a maximum outside diameter of 3.4 mm.
- 2.17 Openings in the body other than ones appropriate to full size cars shall be kept to a minimum.
- 2.18 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.
- 2.19 When initially entered in a meeting the body shell must be neatly finished and complete.
- 2.20 Body shells must be listed in Appendix 1 to these Rules to be eligible for use in BRCA GT Circuit Nationals. Body shells must be approved by the Committee, a list of approved shells will be available on the BRCA website. Body shells when painted are preferred to have a minimum of headlights, front grill and rear lights picked out in a realistic colour, size and shape that clearly separate them from the other body colours. Additional grills and intakes

- picked out in the same way are preferred. Windows will be clear, may not be cut out, and will be shaped as per the original car. Bodies must not be cut above the lower cut lines marked on the body shell. If there is a diffuser cut line, the bodyshell may be cut to this line. A list of approved bodyshells will be maintained on the BRCA website.
- 2.20.1 Minimum body shell weight to be 42 grams painted and race-ready with decals and any body strengthening.
 - 2.21 Only one drive motor is allowed per car.
 - 2.22 The minimum ground clearance of the car, not including the spur gear, is 3mm; this will be checked before each qualifying heat and final race.
 - 2.23 The rear axle must not have any articulated element and may be fitted with a differential (one solid rear axle). Only a single fixed ratio transmission is allowed. Cars may only have two driven rear wheels with the drive being to the rear axle. No independent rear suspension 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 17.5 brushless - Any motor listed in any of the Electric Board Homologation List for Brushless Spec Motors (17.5) as updated from time to time.

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." Only Speed controllers from the BRCA Approved Blinky ESC's list may be used.
- 4.2 Reverse function must not be used in GT12- class cars at Nationals.

5 BATTERIES ALLOWED

- 5.1 Any Batteries conforming to the current Electric Board 1S Stick and Saddle LiPo battery list as updated from time to time. All Batteries used in any competitions MUST be hard-cased. Soft cases or no cases are not allowed.
- 5.2 Cars with 13.5T or 17.5T Brushless Motors will be powered by cell/s with a maximum nominal voltage of 3.8V.