

BRCA

BRITISH RADIO CAR ASSOCIATION

GT Section Handbook 2016



www.brca.org

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The Aggregation of Marginal Gains

 Advanced RC Car			
			
			
			
			
			

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How to use this section handbook

This booklet is aimed at competitors or officials for the GT classes, enabling them to have the information required at all times. However it should prove useful to all club racers too, as we hope it will give the reader more information about our national series.

The information contained herein should be read in conjunction with the Association Handbook as the General Rules contained in the handbook apply to us all, at all events, and in any circumstances take precedent over sectional rules. It is every member's responsibility to ensure they have read and understand the general rules (ask an executive official, as appropriate, for clarification if you don't).

The application of the rules works thus:

The Association General Rules apply at all events we go to, including most club racing as we are all members of the association at all times; Sectional Rules (as in this book) apply at Nationals plus other events, e.g. regionals, as sanctioned by the section committee. Sectional rules do not apply at clubs, unless the clubs wish them to and it is entirely the club's choice either way.

Changing a rule

Every rule in this booklet and the Association Handbook was proposed and voted in by one of your fellow racers – none of the committees can simply 'make up' a rule. If you don't like a rule you can easily try and have it changed (though the first thought should be to find out the rationale of why one of your fellow racers proposed it in the first place perhaps?). If you're happy a rule needs changing get somebody else to agree with you – a seconder – and then write/email to one of the following people:

Section Rule to be changed – Section Secretary, who will liaise with you to ensure it's then voted on at their section conference.

Association General Rule including the Constitution – Association Secretary, who will liaise with you to ensure it's voted upon at the Association annual general meeting.

You should endeavour to be at any meeting where a rule change you have proposed is taking place as it will be discussed, possibly amended, plus you'll almost certainly be asked to elaborate on it.

Summary

'The Rules' should be the easy bit of our sport, but they're not as we're all passionate about our sport and should want to have an input into how it's run, so make sure you have your say. The Association works because people get involved and make a difference.

If you don't like how something is being done, you should offer to do it yourself. Every Association official is a volunteer and they are doing a role because it needs doing. However, it is as much your responsibility to do that task as it is theirs – it's just that they volunteered to do it before you had the opportunity to offer to do it better.

Introduction

Hello and welcome to GT Racing.

The GT section was created in 2014 and combines three different classes: GT12, World GT10 and Formula 1.

This variety should ensure there is a class to suit all drivers. From the wonderful simplicity of a GT12 that both welcomes a beginner and rewards the skill of a more experienced racer, the greater speed and complexity of a World GT10 and the beautiful scale looks of a Formula 1.



GT classes can be raced all year round and there is likely to be an indoor club near you which



supports the classes at their weekly events. Together with our host clubs we also run professional, friendly and well organised national competitions that welcome drivers of all abilities. Our national indoor series is hugely popular and runs from January to April, so whatever the weather you can continue to enjoy racing in the warm and dry. Most of our national championship

venues provide hot and cold food and drinks, while all events provide pit tables, mains electric supply and chairs for competitors.

Entry to national events is done via the BRCA website in the 1/12th Electric Circuit area, where you will also find all updates to the detailed rules and regulations and other useful information. This is also where updates and results will be posted throughout the year. There is more information relating to this contained in this document.


Our aim is to organise the biggest and best GT National Championship in the world while giving good value for money and supporting the classes at grass roots level. We hope that you will choose to become a part of what we do and come and race with us.



The names and contact details for the committee are below; please do not hesitate to contact us directly if we can be of any assistance.

Good luck with your racing during the forthcoming season.

Darren Newton
Chairman, BRCA GT Section

Chairman Darren Newton secretary@brca.org	Secretary Alan Hubber 12csec@brca.org	Treasurer Jim Spencer treasurer@brca.org	Qualifying Officer Ian Knight 12gtqual@brca.org
			
Eligibility Officer David Gale 12gteligibility@brca.org	Safety Officer Lee Stokes 12gtsafety@brca.org	Sporting Co-ordinator Mark Christopher 12gtsporting@brca.org	PR Officer Vacant 12gtpro@brca.org
			

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GT racing – A beginner’s guide

Taking up a brand new hobby is a somewhat daunting prospect for someone of any age or background. There’s a lot to learn and take on board, often before you’ve really started out properly. RC car racing is no different, and in fact nearly always it will be of benefit to do some reading and find out the basics before committing to a purchase or making a decision.

This article assumes that you’ve already decided that RC racing is for you and that you’re considering one of our classes as the class to start off with, or maybe you’ve previously raced another class such as nitro on road or electric buggies and are coming to GT classes for the first time.

The short checklist below outlines the milestones that you’ll need to reach in order to go from ‘having an interest’ to ‘going racing’:

- ✓ Become a BRCA Member
- ✓ Find your nearest club that supports the class
- ✓ Purchase the equipment you need
- ✓ Build/prepare your car and go racing
- ✓ Take your racing to the next level

Become a BRCA member

BRCA membership is important and should be the first thing to cross off your ‘to do list’. For more information about what BRCA membership provides and why it is important, visit the BRCA website at www.brca.org. You can also use this link to join the BRCA online.

Find your nearest club

GT12, WGT10 and Formula 1 cars are designed specifically for racing, which means they aren’t suitable for driving up and down the street or in a local car park. Therefore it is strongly advisable to find out where your nearest club is that supports racing and pay them a visit.

Finding your nearest club will not only allow you to establish where you will be able to race your car, but also to start getting that thing which money can’t buy: good advice! On your first visit to the club, ask the racers there about their cars and the racing. What equipment do they use? How much does it cost and where do they buy it from? Are there any rules specific to the club that you need to be aware of? Establishing these things will lay the foundations for what comes next, give you a much better understanding of what GT class racing entails and hopefully enable you to make informed decisions on what to buy.

Purchase the equipment you need

GT12, WGT10 and Formula 1 cars all come in kit form and typically include the main chassis and suspension components along with a detailed assembly manual. There are lots to choose from and most of the major manufacturers make a competitive car. The simplistic nature of these cars

means that pretty much all of the leading brand cars could be winners in the right hands. It usually comes down to how you build, setup and drive the car rather than one chassis having an advantage over another. Choose a car that seems to be popular and has good backup for spare parts and advice.

In addition to a chassis kit you'll need a full set of electrics including radio gear. It is typically a good idea to choose a radio system which has adjustable features such as steering end points and throttle & brake curves. Whilst a little more expensive these tend to be of better quality, have a faster response and will help you get the most out of your car.

GT12 and WGT10 cars use 1S Lithium Polymer (or LiPo) batteries. These have a nominal voltage of 3.7V and range in capacity from around 4000mAh to 8000mAh. There is a list of homologated packs that are legal for use at BRCA national events on the BRCA website.

Formula 1 cars use either 1S or 2S Lithium Polymer (or LiPo) batteries. These have a nominal voltage of either 3.7V or 7.4V and range in capacity from around 4000mAh to 8000mAh. There is a list of homologated packs that are legal for use at BRCA national events on the BRCA website.

All GT class cars use brushless motors and compatible speed controllers. For GT12 and Formula 1 these must have what's known as a 'blinky' function. This refers to a flashing LED that will be visible when the speed controller is switched on and ready for use and indicates that the speed controller is not equipped with any complex dynamic timing advance (also known as boost or turbo). WGT10 allows the use of more sophisticated settings to increase the speed.

Be sure that the speed controller you purchase is suitable for use with the LiPo batteries you plan to use; many of the entry level speedos are not. If in doubt, ask someone for assistance in choosing. With motors you will need a stock motor with the appropriate number of turns for the class. These are widely used at both club and national level. Remember; the lower the number of turns the more powerful the motor. As with batteries, homologation lists of approved equipment can be found on the BRCA website.

You'll also need a servo to power the steering on your car. There are several to choose from and they are of varying prices and quality. Make sure that the servo you purchase is compatible with your chassis.

What good is a car if it's got no wheels? GT12 & WGT10 cars use foam tyres while Formula 1 use rubber tyres. In WGT10 and Formula 1 there is a control tyre removing the need to have a box full of different tyres to make sure you have the right tyre for track conditions, details of these are given later in this handbook. If you're unsure of what brand and which compounds to buy, ask for help.

There are a range of body shells available for the cars, all of which are styled on full sized racing cars. There is a wide range available from a number of manufacturers.

Finally, you'll need equipment to charge your batteries and a set of tools to use when working on your car. As with the other items above, seek advice online or at your local shop or club regarding what to buy.

Build your car and go racing

The most important thing here is to TAKE YOUR TIME. Racing cars are very sensitive, so try to be thorough when you build and prepare the car. Make sure all of the moving parts do so freely and try to avoid wires catching on the inside of the body shell. Time spent in properly preparing your car will pay dividends in the long term and you'll be able to get the most out of your chassis. There's a wealth of information available online and the drivers at your local club will be happy to help too; just ask them for advice on what they do.

By this time you should already have found your nearest club and have a good idea of how they operate. Take things slow and steady to begin with; concentrate on driving smoothly and consistently and the speed will build as you get more comfortable.

Take Your Racing to the Next Level

Once you've been racing at club level for a while you may find that you want to go and experience different tracks and meet new people. This is one of the great things about GT and RC car racing in general; there's a vast network of people, clubs and events to engage with, whatever your level of ability and experience.

It may seem daunting, but actually one of the best ways to learn about GT racing is to enter a national championship event. These events are open to anyone and there is sure to be someone else competing at your level. What's more, you'll have direct access to help and advice from the country's fastest and most experienced drivers. It is probable that you'll learn more in a single national weekend than during several months of club racing as in many cases you'll be able to pick up and understand the do's and don'ts from other people instead of having to figure them out for yourself. There is more information about this year's national events in this handbook

The Journey Begins Here

All that remains is for us to wish you the best as you embark upon racing GT classes. We hope that you enjoy it and that in doing so you remember these key bits of advice:

- Take your time
- Ask for help if you're unsure
- Practice as much as you can

See you trackside soon!

How to find your local club

A database of clubs can be found on the BRCA website at:

<http://www.brca.org/clubs>

How to enter national events

Each year clubs from all over the country are invited to submit applications to host a round of our national championship. The committee strive to make every national competition the best possible series of events, providing quality tracks and facilities to give drivers value for money.

Each day in the national series is an individual standalone event meaning you can enter as little as a single days racing if you've never tried one of our competitions before.

All entry is done via the BRCA website.

- Go to <http://www.britishradiocarassociation.co.uk/gt-circuit-events>
- As you scroll down you will see a list of the available events.
- Simply click on the Enter button next to the event you wish to enter to add this to your cart.
- You can then either click checkout to go on and complete your entry or add more events to add more entries to your cart.
- You will either be required to login to the website or if you've never previously registered then complete required the registration details.
- You will then be redirected to a PayPal payment page to complete your entry.

Over the next series of pages you will find details of the events for the current season.



BRCA
BRITISH RADIO CAR ASSOCIATION

Schumacher

racing-cars.com

Supporting GT Racing with the BRCA



Calendar of Events

Date	Event	Venue
January		
09	WGT10 National Round 1 F1 National Round 1	Maritime Raceway
10	GT12 National Round 1	Maritime Raceway
February		
06	WGT10 National Round 2 F1 National Round 2	MB Models
07	GT12 National Round 2	MB Models
March		
05	WGT10 National Round 3 F1 National Round 3	Newbury
06	GT12 National Round 3	Newbury
April		
09	WGT10 National Round 4 F1 National Round 4	Swifts Raceway
10	GT12 National Round 4	Swifts Raceway
30	WGT10 National Round 5 F1 National Round 5	Teesside
May		
01	GT12 National Round 5	Teesside

MB MODELS



Shop & Race Track



Find us at

Oulton Hall Grounds
Rothwell Lane
Leeds
LS26 8HN

0113 2603330

www.rccarshop.co.uk

Maritime Raceway

Round 1

Date 09/01/16 - 10/01/16

Address

Maritime Racing
Historic Dockyard
Chatham
Kent
ME4 4TZ

Venue Facilities

Toilets Ladies & Gents

Access No disabled access

Catering Hot & cold food & drink

Track Information

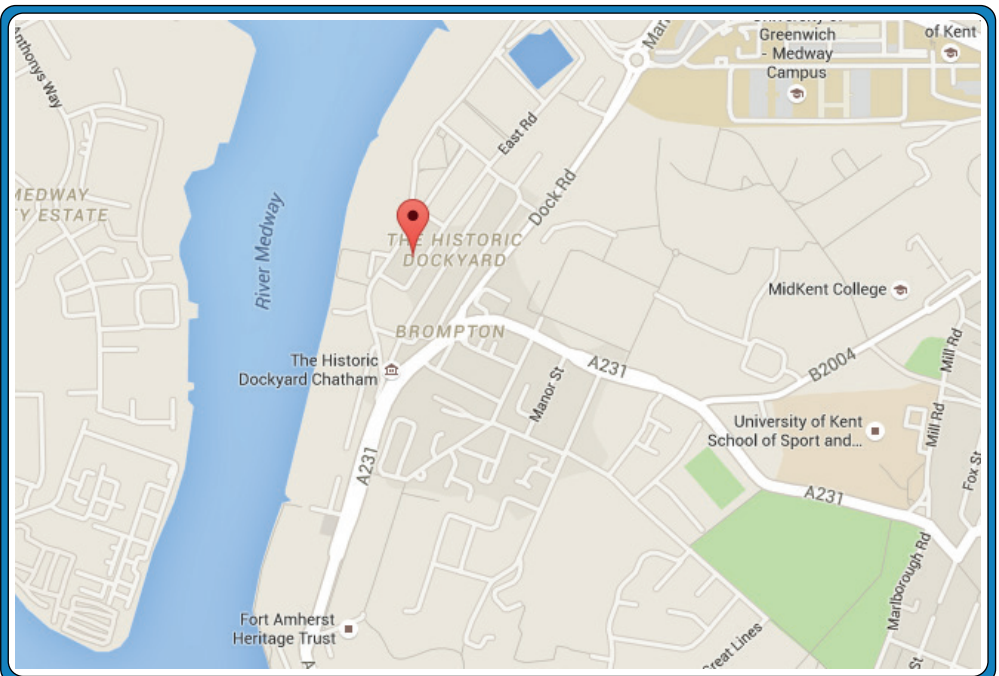
Carpet Primafelt GT

Size 34m x 14m

Markers Black square downpipe, white corners

Rostrum T.B.C.

Pits Tables, chairs and mains power available (please bring an extension)



Setup Sheet

Equipment

Motor	Shell
Timing	Battery
Pinion	Esc
Spur	Servo

Driver	
Date	Temp.
Track	
Event	
Carpet	
Surface	Bumpy <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Smooth
Grip	Low <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> High
Layout	Tight <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Open

Rear Suspension

Ride Height
Side Spring
Damper Oil
Shock Oil
Width
Notes

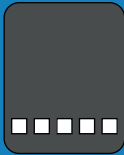
Centre Suspension

Ride Height
Centre Spring
Damper Oil
Shock Length
Droop
Notes


Front Suspension

Ride Height
Spring
Camber
Caster
Width
Notes

Rear Tyres

Make	
Compound	
Size	
Additive	
Time	
Notes	

Front Tyres

Make	
Compound	
Size	
Additive	
Time	
Notes	

Notes

MB Models

Round 2

Date 06/02/16 - 07/02/16

Address

Oulton Hall Grounds
Rothwell Lane
Oulton
Leeds
LS26 8HN

Venue Facilities

Toilets Ladies, Gents & Disabled

Access Disabled access to track & pits

Catering Hot & cold food & drink
will be available

Track Information

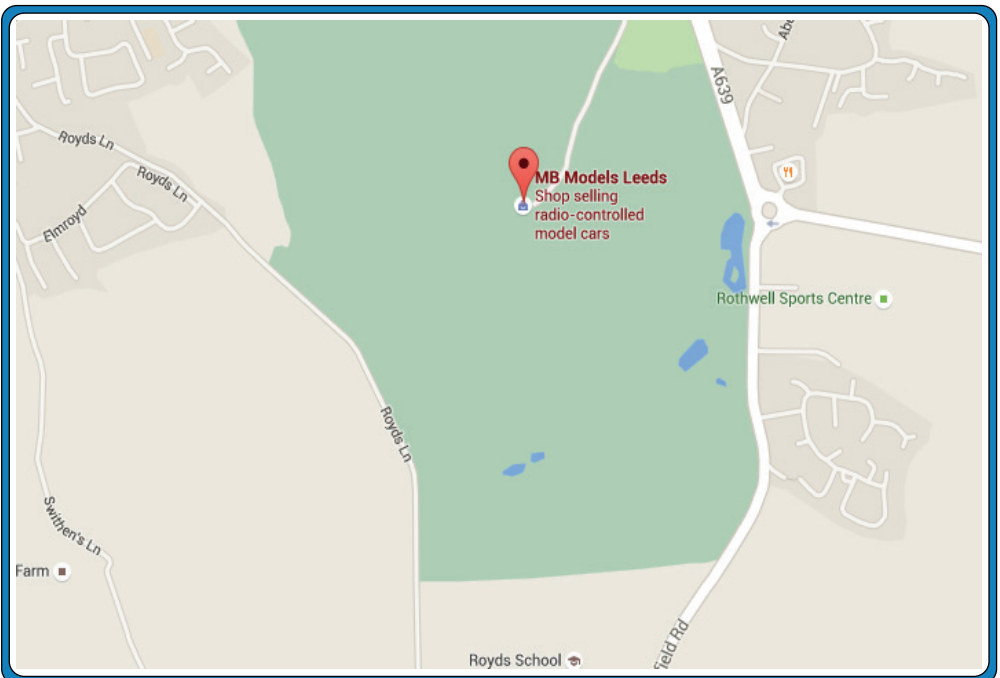
Carpet Primafelt GT or Black ETS Carpet (TBC)

Size 30m x 14m

Markers White square downpipe, white corners

Rostrum 1.0m high with steps to platform

Pits Tables, chairs and mains power available (please bring an extension)



Setup Sheet

Equipment

Motor	Shell
Timing	Battery
Pinion	Esc
Spur	Servo

Driver	
Date	Temp.
Track	
Event	
Carpet	
Surface	Bumpy <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Smooth
Grip	Low <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> High
Layout	Tight <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Open

Rear Suspension

Ride Height
Side Spring
Damper Oil
Shock Oil
Width
Notes

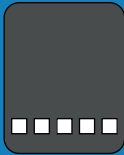
Centre Suspension

Ride Height
Centre Spring
Damper Oil
Shock Length
Droop
Notes


Front Suspension

Ride Height
Spring
Camber
Caster
Width
Notes

Rear Tyres

Make	
Compound	
Size	
Additive	
Time	
Notes	

Front Tyres

Make	
Compound	
Size	
Additive	
Time	
Notes	

Notes

Newbury RC Car Club

Round 3

Date 05/03/16 - 06/03/16

Address

Newbury College Sports Hall
Monks Lane
Newbury
Berkshire
RG14 7TD

Venue Facilities

Toilets Ladies, Gents & Disabled

Access Disabled access to track & pits

Catering Event catering TBC
Restaurants within walking
distance

Track Information

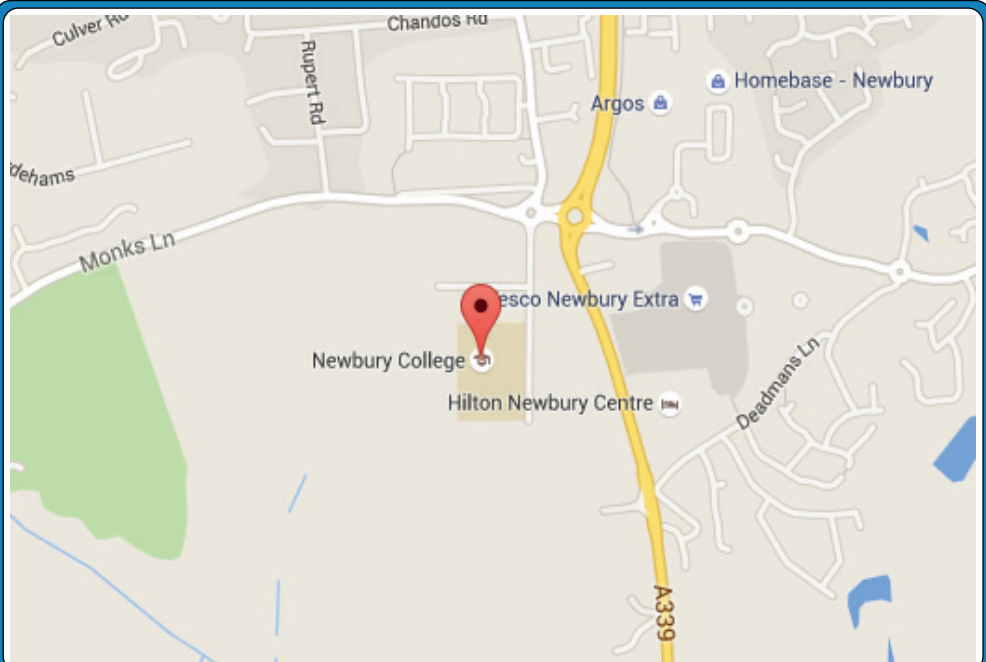
Carpet Black ETS Carpet

Size 40m x 16m

Markers White square downpipe, blue corners

Rostrum 1.0m high with steps to platform

Pits Tables, chairs and mains power available (please bring an extension)



Setup Sheet

Equipment

Motor	Shell
Timing	Battery
Pinion	Esc
Spur	Servo

Driver	
Date	Temp.
Track	
Event	
Carpet	
Surface	Bumpy <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Smooth
Grip	Low <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> High
Layout	Tight <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Open

Rear Suspension

Ride Height
Side Spring
Damper Oil
Shock Oil
Width
Notes

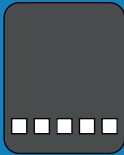
Centre Suspension

Ride Height
Centre Spring
Damper Oil
Shock Length
Droop
Notes


Front Suspension

Ride Height
Spring
Camber
Caster
Width
Notes

Rear Tyres

Make	
Compound	
Size	
Additive	
Time	
Notes	

Front Tyres

Make	
Compound	
Size	
Additive	
Time	
Notes	

Notes

Swifts Raceway

Round 4

Date 09/04/16 - 10/04/16

Address

Killamarsh Sports Centre
Stanley Street
Killamarsh
Derbyshire
S21 1EL

Venue Facilities

Toilets Ladies, Gents & Disabled

Access Disabled access to track & pits

Catering Hot and cold food and drink

Track Information

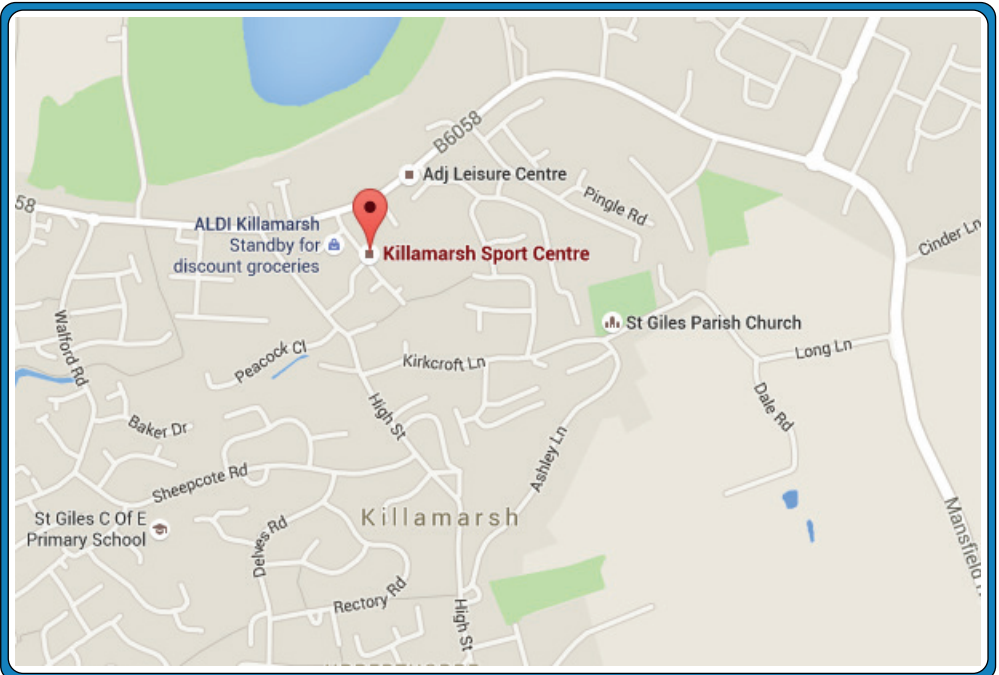
Carpet Primafelt GT

Size 30m x 14m

Markers White square downpipe, white corners

Rostrum 1.3m high with steps to platform

Pits Tables, chairs and mains power available (please bring an extension)



Setup Sheet

Equipment

Motor	Shell
Timing	Battery
Pinion	Esc
Spur	Servo

Driver	
Date	Temp.
Track	
Event	
Carpet	
Surface	Bumpy <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Smooth
Grip	Low <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> High
Layout	Tight <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Open

Rear Suspension

Ride Height
Side Spring
Damper Oil
Shock Oil
Width
Notes

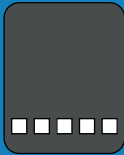
Centre Suspension

Ride Height
Centre Spring
Damper Oil
Shock Length
Droop
Notes


Front Suspension

Ride Height
Spring
Camber
Caster
Width
Notes

Rear Tyres

Make	
Compound	
Size	
Additive	
Time	
Notes	

Front Tyres

Make	
Compound	
Size	
Additive	
Time	
Notes	

Notes

Teesside

Round 5

Date 30/04/16 - 01/05/16

Address

5 Sowerby Way
Durham Lane Ind.Estate
Eaglescliffe
Stockton
TS16 0RB

Venue Facilities

Toilets Ladies & Gents

Access Disabled access to track & pits

Catering Hot & cold food & drink
available from on-site cafe

Track Information

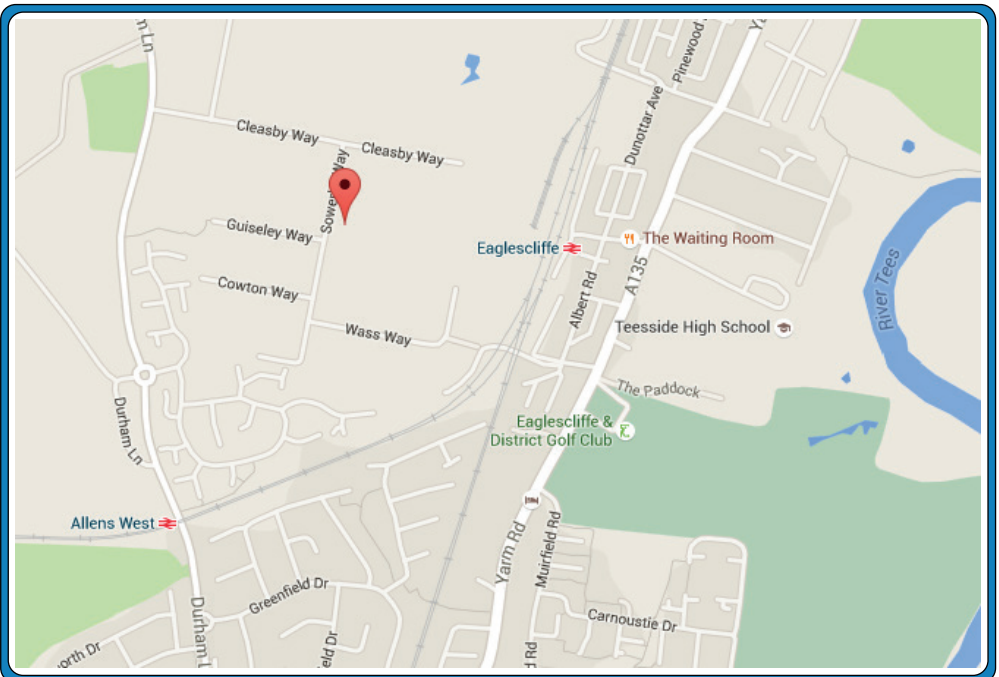
Carpet Primafelt GT

Size 22 x 18m

Markers White square downpipe, white corners

Rostrum 1.5m high with steps to platform

Pits Tables, chairs and mains power available (please bring an extension)



Setup Sheet

Equipment

Motor	Shell
Timing	Battery
Pinion	Esc
Spur	Servo

Driver	
Date	Temp.
Track	
Event	
Carpet	
Surface	Bumpy <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Smooth
Grip	Low <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> High
Layout	Tight <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Open

Rear Suspension

Ride Height
Side Spring
Damper Oil
Shock Oil
Width
Notes


Centre Suspension

Ride Height
Centre Spring
Damper Oil
Shock Length
Droop
Notes


Front Suspension

Ride Height
Spring
Camber
Caster
Width
Notes

Rear Tyres

Make	
Compound	
Size	
Additive	
Time	
Notes	

Front Tyres

Make	
Compound	
Size	
Additive	
Time	
Notes	

Notes

BRCA 1/12th Electric Circuit procedural rules

1 Classes of Racing

1.1 LMP12 Open Modified Class

1.1.1 Motors will be in accordance with LMP12 Construction Rule 3

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 (10.5) list" as updated from time to time.

1.2.3 BRCA National Stock Championship will be for motors in accordance with the Electric Board "Brushless Spec. Motor (13.5) list" as updated from time to time.

1.2.4 BRCA National Sport Championship will be for motors in accordance with the Electric Board "Brushless Spec. Motor list" as updated from time to time. The minimum wind of the motor will be 10.5 turns with no maximum wind.

1.2.5 For Spec. classes 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)

1.3 Competitors may only enter one LMP12 class on the same day.

1.4 GT12 SuperCup Class

1.4.1 Motors will be in accordance with GT12 Construction Rule 2 or 3.

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 (see Construction Rule 4 and Appendix 2 in GT12 Construction Rules)

1.4.4 Cars may be fitted with additional parts not supplied in the rolling chassis kit (see GT12 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 ProductionCup Class

1.5.1 Motors will be in accordance with GT12 Construction Rule 2 or 3.

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 in GT12 classes 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 GT12 Construction Rules)

1.5.4 Cars may be fitted with additional parts not supplied in the rolling chassis kit (see GT12 Construction Rule 6.7 and 6.7.1) including a differential in the rear axle and replacements for other parts. Parts or components that break or wear out will be replaced "like for like", or as close as possible if those parts are no longer in production.

1.6 GT12 ProductionCup and SuperCup classes will only run in separate heats if there are more than 20 entries.

1.7 WGT10 Class

1.7.1 Motors will be in accordance with WGT10 Construction Rule 3.2.

- 1.7.2 BRCA National Championship will be for motors in accordance with the Electric Board "Brushless Spec. Motor lists" (10.5, 13.5, 17.5, 21.5) as updated from time to time.
- 1.7.3 WGT10 Speed controllers are open.

1.8 F1 2S Class

- 1.8.1 Motors will be in accordance with F1 Construction Rule 2.
- 1.8.2 BRCA National Championship will be for 21.5 motors in accordance with the Electric Board "Brushless Spec. Motor lists" (10.5, 13.5, 17.5, 21.5) as updated from time to time. Intent; that a motor design which appears in any of the brushless spec motor homologation lists may be used providing it has 21.5 turns.
- 1.8.3 Batteries will be in accordance with F1 Construction Rule 3.2.
- 1.8.4 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 in F1 Construction Rules)

1.9 F1 1S Class

- 1.9.1 Motors will be in accordance with F1 Construction Rule 2.
- 1.9.2 BRCA National Championship will be for motors in accordance with the Electric Board "Brushless Spec. Motor list" (13.5) as updated from time to time.
- 1.9.3 Batteries will be in accordance with F1 Construction Rule 3.3.
- 1.9.4 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 in F1 Construction Rules)
- 1.11 F1 1S and 2S classes will only run in separate heats and championships if there are more than 20 entries.

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 nine heats on each day. 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 pre-paid at least two weeks prior to the meeting. Entries cancelled two weeks 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, accepted by the Qualifying Officer, will be subject to a levy of £5 per day
- 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.

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 driver's 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.

- 6.7 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 driver's 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 – eight minutes
GT12/WGT10/F1 Classes – six 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 three heats. Practice on the previous 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 two 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, competitor 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 one Heat after their own race, unless they have been designated as Referees (see 5.1). All marshals must be BRCA members and have attended the driver's 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. Competitors not in the race must not interfere with the progress of any driver within a race. No Driver to leave the rostrum until the race is declared over or unless instructed to do so by the Race Director.
- 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 proceeding or following flat out corners. Pole position: 10 metres from the first effective corner, following cars spaced equal distance back to next effective corner, on the racing line.
- 7.10 A race may not start unless in the presence of the Race Director or deputy or the appointed Race Referee.
- 7.11 In the event of interference being evident before the start of a race a 2 minute delay may be applied, or longer at the Race Directors discretion. All cars must remain on the track or under the Race Directors control.
- 7.12 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.
- 7.13 Only the Race Director or deputy or the appointed Race Referee may call for a restart within the first lap of the leading car.
- 7.14 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 one minute is complete then five minutes will be allowed to recharge and the final will be re-run. If a final is stopped after one 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.
- 7.15 The BRCA Steward will decide if a transmitter compound will be used during the meeting. This decision may be taken in advance, or may be implemented during the meeting if deemed necessary by the BRCA Steward. If a transmitter compound is in use:
Prior to the track being open, all transmitters must be removed from the pit area and placed in a designated transmitter compound as directed by the BRCA Steward. Except when racing, transmitters must remain within the compound until the track is declared closed for the day.
Transmitters may be removed by individual competitors at the Race Directors discretion.
- 7.16 Each car will be inspected to ensure that it meets the requirements of these rules for every race in which it competes.
- 7.17 Qualifying results will be posted after every round. Final results will be posted at least 10 minutes before prize ceremony.
- 7.18 The trophies or prizes will be awarded at the end of the meeting.
- 7.19 The committee recommends the use of a referee to assist drivers in all heats and finals.
- 7.20 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.
- 7.21 It is the driver's 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.

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.
- 9.2 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 Drivers will stay in their formula for the whole season.
- 9.4 New drivers without a handicap, or who have not completed four meetings counting towards a handicap, will be placed in F3. After the completion of four meetings counting towards a handicap, drivers will be placed in the formula corresponding to their handicap, where they will stay for the rest of the season.
- 9.5 Any points scored in F3 will be carried forward to F2.
- 9.6 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.
One point will be scored for winning a final regardless of which final. Two points will be awarded for second place and so on. Best four out of six to count for the championship. 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.
- 9.7 Separate qualifying and handicap tables for each championship will be kept.
- 9.8 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 F3 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 eight 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 four weeks of the last national. The Committee are to investigate possible alternatives for the date, time and venue of the EGM.
- 10.2 Separate conferences shall be held for GT and LMP, preferably on the same day at the same venue.

11 Penalties

- 11.1 Jump Starts during qualifying - Crossing the loop out of sequence may result in a five second penalty. Jump starts in a final will result in a five second 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 one 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.
- 11.7 A car that is black flagged is disqualified from that race until instructed to rejoin by the Race Director or Referee.
- 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 will lose their FTD.

12 Championship Meetings

- 12.1.1 The LMP championship will consist of a maximum of six events in the following format:
- '10.5 Spec' and '13.5 Spec' classes on Saturday
 - 'Open Modified' and 'Sports Modified' classes on Sunday.
- The number of events to count towards the championship to be half plus one, with halves rounded down.
- 12.1.2 The GT championship will consist of five events in the following format:-
- WGT10 and F1 classes on Saturday
 - GT12 class on Sunday
- Three meetings count towards the 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 1/3, 1/3, 1/3 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 themselves up or down, prior to the start of the following season.

- 12.5 Four rounds of qualifying will be run, time permitting.
- 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 Competitors will be given the opportunity to run in a final. The finals must be in A, B, C... format. All finals will consist of ten cars with the exception of the lowest final. The lowest final will require a minimum of three cars in order to be run. Four rounds of qualifying will be run, time permitting.

13 International Teams

- 13.1 Where applicable Team selection shall be based upon exact handicaps. These handicaps will be based on the current results. Drivers must have competed in enough meetings to be eligible for the Championship. 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 A protester has the right to buy any motor that is used during a sanctioned meeting (at the price limit) and resell at their discretion.
- 14.4 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 11.5, 11.7)
 - Jump starts - in qualifying for starting out of order - five sec penalty. In finals for moving after the 30 second warning, but before the start signal - five second penalty
 - Corner cutting - one lap penalty. Referees may also allow a driver to wait, and then tell the driver to re-join 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.
- e) 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 two decimal places before publishing.

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 three 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.

V1.0 - EGM rule changes added – 8-October 2012

V1.1 - Classes aligned – 9-September 2012

V2.0 - EGM rule changes added – 28-July 2013

V3.0 - EGM rule changes added – 27-May 2014

V3.1 - LMP12 Construction rules separated – 17-October 2014

V4.0 - EGM rule changes added – 2-September 2015

V4.1 - GT Section details added – 24-September 2015

BRCA GT12 construction rules (v1.7)

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 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
- 1.2 Minimum weight is 950 grams, ready to race including lap-counting transponder.
- 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.
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. Only commercially available wheels may be used. No modifications or changes to the original manufacturer's design and dimensions are allowed.
- 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. Wheelbase is to be 196mm minimum to 208mm maximum
- 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 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 or any equipment may extend beyond the body, except aerial masts, rear diffuser (if fitted and in accordance with Rule 6.1.1.1) and up to four posts for the purpose of mounting the body shell.
- 1.17 Flexible masts/tubes only may be used.
- 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. Body shells when painted will 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.
- 1.23 Only one drive motor is allowed per car.
- 1.24 The 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 at BRCA sanctioned events and Nationals. The section will have Personal Transponders available for competitors to purchase.

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 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." 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 are available with a recommended retail price not exceeding £65.
- 4.4 Reverse function must not be used in GT12-class cars at Nationals.

5 Batteries Allowed

- 5.1 Any cells conforming to the current Electric Board 1S Stick and Saddle LiPo battery list as updated from time to time. All cells 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 3.7v
- 5.3 Cars with G2 Brushed motors will be powered by cell/s with a maximum nominal voltage of 4.8v

6 Chassis and Components

- 6.1 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).
- 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. Only the chassis supplied in the kit may be used. Chassis from other kits, other manufacturers, or made to other specifications are not allowed.
- The chassis in the kit may only be modified to accept:
- A different servo type or position by drilling and countersinking holes.
 - A different body post/s type or position by drilling and countersinking holes
 - A different aerial tube type or position by drilling and countersinking holes.
 - Smoothed edges and/or sealing with filler and/or adhesives.
 - The addition of bumpers to the front and/or rear of the car, or a rear diffuser conforming to Rule 6.1.2. This is to be achieved by the drilling and countersinking holes only. To shorten the front or rear of the chassis for the purpose of fitting a diffuser/bumper is NOT permitted (intent – that the outline silhouette of the chassis component remains unchanged).
 - Battery location, orientation and restraining method may be changed (with the addition of up to 4 drilled and countersunk holes in the chassis and/or 2 slots

for tape) so long as the batteries are secure and no other construction rules are broken

Any damage to the chassis as a result of use in racing is to be ignored under this rule.

- 6.1.2 A rear diffuser may be fitted in accordance with Rule 6.1.1. The width of the diffuser must be less than the distance between the inner edges of the rear wheels. The trailing edge of the diffuser must lie below the rear axle centerline and must not protrude more than 10mm beyond the most rearward point of the body shell (excluding wings).
- 6.1.3 Metals used in the production rolling chassis and any aftermarket parts may only be brass, steel or aluminium with the exception of the GT12 SuperCup class where, solely for the use as turnbuckles, titanium will be allowed. Brass and lead may be used as weights and when added/removed must not have any structural effect on the rolling chassis.
- 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, WGT10 cars, 12th cars and F1 cars featuring pivoting suspension arms are not used)
- 6.4 The rear axle must not have any articulated element and may be fitted with a 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 must include one complete set of wheels and tires suitable for use on a carpet racing surface, but does not have to include any electrics and/or body-shell.
- 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

The following Appendices form part of the Rules above

Appendix 1 – Body Shells – (Construction) Rule 1.22

Only GT body shells are allowed.

At the time of submission for homologation, the full sized car upon which the body shell is based must have been raced in an FIA GT championship within the previous 3 years.

All shells must be a reasonable representation of the full sized car as judged by the GT Section Committee.

The final decision on including bodies in the approved list rests with the GT Section Committee.

Manufacturers are recommended to contact the 1/12 Section GT12 Representative to confirm if any specific car is permitted. (Intent – that LMP cars, and those designed specifically for racing (eg Saleen) are not allowed).

As part of the homologation process, the manufacturer's part number must be clearly marked in the lower corner of the windscreen area.

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

Kamtec

Kamtec Lotus GT1 (Kamtec part no. GT01)

Kamtec Ascari GT3 (Kamtec part no. GT02)

Kamtec Aston Martin (Kamtec part no. GT03)

Kamtec Type F (Kamtec part no. GT04)

Mardave

Mardave Lotus GT1 (Mardave part no. V140)

Mardave Ascari GT3 (Mardave part no. V151)

Mardave Aston Martin (Mardave part no. V160)

Mardave GT2 (Mardave part no. V131)

Mardave Porsche (Mardave part no. V113)

Mardave Ginetta (Mardave part no. V161)

Penguin Custom BodysHELLS

Lambo GT12 (part number PEN01)

Protoform

Protoform PF-M12 (Protoform part no. #1613-30)

Screwz4RC

Audi R8 (part number G903)

Appendix 3 – ‘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.

Appendix 3 – Club Advice (2s LiPo / 21.5 motors)

It has been recognised that the lower voltages of 1s LiPo cells can provide complications when installing and running certain combinations of electronics. To help alleviate this problem, a combination of a 2s LiPo battery pack and a 21.5t motor can provide speed and power very similar to a 1s LiPo/13.5t combination and can be appropriate for club racing. NOTE – this combination is not permitted at BRCA National events.

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 Xcelorin 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 its standard, factory setting.

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

Appendix 4 – Additional cells allowed for use with 21.5 motors

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

V1.0 - Amended from EGM 2014 - 21 May 2014

V1.1 - Shell List Updated - 21 May 2014

V1.2 - Incorrect Blinky Diagram Removed - 22 May 2014

V1.3 - Audi Shell Added - 01 June 2014

V1.4 - Lambo GT12 bodysell added - 23rd January 2015

V1.5 - Updates from 2015 EGM - 1 Sept 2015

V1.6 - Changed appendix 1 to GT Section committee - 22 Sept 2015

V1.7 - Re-formatted as construction rules only - 24 Sept 2015

BRCA WGT10 construction rules (V5.2)

1 Construction Rules

- 1.1 Front suspension is free, but must be designed so it is capable of fitment to a 12th scale car. Suspension systems from touring cars are not allowed.
- 1.2 Rear axle must be a solid straight axle with integral differential.
- 1.3 Maximum width 200mm.
- 1.4 Wheelbase must be within 250mm to 263mm, axle centre to axle centre.
- 1.5 Minimum weight (ready to run with body, including lap counting equipment) is 930g
- 1.6 Minimum Ride Height 3mm (recommended minimum on carpet only)
- 1.7 Roll-over antennas are not allowed.
- 1.8 Rear wheel drive only is allowed, with direct drive from the motor to the rear axle.
- 1.9 Tyres must have coloured line within the foam. The remaining area must be black except for sidewall detail
- 1.10 Wheel rim diameter is a maximum of 50mm
- 1.11 Wheel width is a maximum of 51.25mm.
- 1.12 Only tyres on the BRCA Approved list may be used. (See Appendix 3)
- 1.13 Tyre additives from the 1/12 Section approved list are allowed.

2 BodysHELLS

- 2.1 All shells must be a realistic representation of a full size car (past or present)
- 2.2 All shells must have separate rear wings which are clearly defined (no wedge type shells)
- 2.3 All shells must not be modified, so no additional rear wing posts etc.
- 2.4 All shells to be cut on the pre-defined cut lines.
- 2.5 A recommended WGT10 Body List will be maintained by the BRCA.
- 2.6 Only bodies on the recommended WGT10 Body List may be used in BRCA-organised competitions. (See Appendix 2)

3 Definition of a Spec motor

- 3.1 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.
- 3.2 Motors must conform to the relevant technical specifications detailed in the Electric Board Rules.

4. Speed Controllers Allowed

- 4.1 Speed controller use is open with no limits

5 Batteries Allowed

- 5.1 Any cells conforming to the current Electric Board battery list.
- 5.2 Cars will be powered by cell/s with a maximum nominal voltage of 3.7v

End of Construction Rules

Appendix 1 - Alternate Classes

Due to the varying nature of tracks and facilities, individual clubs may want to run with alternate classes. These classes have previously been used in WGT10, and may be more suitable:

- GT1: For 10.5T motors powered by 1S Lipo/Life with speed controller operating in 'blinky' mode as per BRCA 12th circuit approved list. Weight limit 930g
- GT2: For 10.5T motors powered by 1S Lipo/Life. Boosted ESC. Weight limit 930g
- GT3: For 17.5T motors powered by 2S Lipo/Life. Weight limit 1150g.

Note: The GT2 class was the original class and will be raced at BRCA events for the 2015/2016 season.

Appendix 2 - BRCA WGT10 Approved Bodysell list

- HPI Porsche 911 GT3 p/n 7418
- HPI Toyota Supra p/n 7424
- HPI Lotus Elise p/n 7433
- HPI Porsche 911 Turbo p/n 7435
- HPI Saleen S7R p/n 7469
- HPI Dodge Viper GTS-R p/n 7473
- HPI Lotus Elise '00 7476
- HPI Lamborghini Murcielago p/n 7477
- HPI Nissan Silvia p/n 7479
- HPI Honda NSX p/n 7483
- HPI Nissan 350Z Nismo GT p/n 7485
- HPI Toyota Supra GT p/n 7486
- HPI Mazda RX8 p/n 7488
- HPI Lamborghini Gallardo p/n 7489
- HPI Ford GT p/n 7495
- HPI 2003 Dodge Viper GTS-R painted Red p/n 7727
- HPI Chevrolet Corvette C6 p/n 17503
- HPI Ford Mustang GT-R p/n 17504
- HPI Nissan 350Z Greddy Twin Turbo p/n 17518
- HPI Porsche 911 Turbo (977) p/n 17527
- HPI Nissan Silvia S15 p/n 17530
- HPI Toyota Supra Aero p/n 17539
- HPI Porsche 911 GT3 RS p/n 17541
- HPI Ford GT painted body (white) p/n 102505
- HPI Nissan 350Z Hankook p/n 103886
- Kyosho PureTen DBR9 (no part number available)
- Kyosho PureTen Ferrari 430 (no part number available)
- Protoform Corvette C6-R p/n PL1481
- Protoform Chevrolet Corvette C6-R p/n PL1499
- Protoform Sophia p/n PL1502
- Protoform Gianna p/n PL1534
- Black Art GT86 p/n BA007

- Mon-Tech M10
- Team Muso LM-P Type 1
- Rivall LMP1 Le Mans Prototype version 2014
- Corally MIX Porsche 962CK6 p/n MX78224
- Colt Porsche 911GT1 p/n M1136
- Colt Mercedes CLK GTR p/n M1130

Appendix 3 - BRCA WGT10 Control tyre list

All control tyres must be approved by the BRCA section, and have an identifying blue/purple ring. Nominally 38/37 shore "lilac" grade rubber.

Note: Embedded ring can look a different colour when additive is on, hence blue/purple description.

CRC: 2302 rear, 2300 front – blue/purple ring embedded in foam

BSR: Part numbers not stated – blue/purple ring embedded in foam

Jaco: 2100 front, 2110 rears. All black wheel with blue/purple ring embedded in foam.

Contact: JW38FA front, JW38RA rear. All white wheel with blue/purple ring embedded in foam.

RC4Less: R38WGT-F 1/10th Front, R37WGT-R 1/10th Rear with blue/purple ring embedded in foam.

End of Appendices

V4.2 - Changes from the 2011 AGM – 2 December 2011

V4.3 - Addition of tyre list – 25 January 2012

V4.4 - Addition of Jaco tyres on white wheels – 3 May 2012

V4.5 - Changes from 2014 AGM – 12 November 2014

V4.6 - Additional tyres and bodyshells – 14 December 2014

V4.7 - Changes from 2015 EGM – 15 September 2015

V4.8 - Any brushless spec motor from the EB homologation lists is allowed – 22 September 2015

V4.9 - Re-format into construction rules only – 24 September 2015

V5.0 - Correct an error in GT2 class – 30 September 2015

V5.1 - Include 4 new bodyshells – 30 September 2015

V5.2 - Correct weight limit in alternate classes – 12 October 2015

BRCA F1 construction rules (v1.1)

1 Construction Rules

- 1.1 Formula 1 cars from any year that are a realistic representation of an original FIA Formula 1 car may be raced in this class.
- 1.2 Cars will be painted and detailed to resemble a Formula 1 car. Drivers may have to show that the paint scheme, layout and detailing have appeared on a full-size Formula 1 car if requested. Random colour schemes with no detailing are discouraged.
- 1.3 Cars will use commercially available chassis that are available with a Formula 1 bodyshell. Chassis based on other classes (WGT10 or 12th Scale) are not allowed. The aim of this class is to provide for commercially available F1 kits and RTR cars.
- 1.4 All cars must conform to appearance, radio, general, battery and motor rules both here and in the BRCA General Rules and comply with the 'spirit' of 1/10th scale Formula 1 cars. All decisions of the BRCA Committee organising a race concerning appearance and 'spirit' are final.
- 1.5 Any commercially available F1 car kit is allowed providing it complies with the dimension rules and has rear axle hex wheel fitment.
- 1.6 Wheelbase max 285mm, width max 190mm
- 1.7 Minimum weight:
 - 2S 21.5 Class 1050g including timing equipment
 - 1S 13.5 Class 950g including timing equipment
- 1.8 Maximum wheel width 40mm
- 1.9 F1 car wings must be to scale and be commercially available; otherwise they are free - i.e. you can mix different kit wings. Turning vanes, third wings, diffusers, etc. are free but must be to scale.
- 1.10 Grill and air vents may be cut to the original size and position only.
- 1.11 Chassis modifications are allowed, providing the car still meets general requirements.
- 1.12 Rear wheel drive only is allowed.
- 1.13 Front independent suspension is allowed. Suspension pick up points must be mounted inside the body.
- 1.14 All radio, electronics & lap counting equipment (excluding aerial) must be housed inside the bodyshell.
- 1.15 No part of the chassis may protrude outside the bodyshell when viewed from above. All horizontal parts of the chassis must be inside the body
- 1.16 Tyres must be black except for sidewall detail.
- 1.17 Only the BRCA Approved wheel and tyre combination may be used. See section 7.0
- 1.18 Only hex-fitting rear wheels are allowed. Wheels using bolt fittings (such as 12th / WGT10 wheels) or narrow wheels designed for Touring Cars are not allowed. Only wheels designed and sold for F1 cars are allowed.
- 1.19 Tyre additives from the 1/12 Section approved list are allowed.

2 Definition of a Spec Motor

- 2.1 Motors allowed – any motors listed in any of the Electric Board "Brushless Spec Motor" lists as updated from time to time.

- 2.2 Motors must conform to the relevant technical specifications detailed in the Electric Board Rules.
- 2.3 2S 21.5T class may use a 21.5T brushless motor of the same design approved on any BRCA EB 'Spec' list.

3 Batteries Allowed

- 3.1 Any cells conforming to the current Electric Board battery list.
- 3.2 2S Class cars will be powered by cell/s with a maximum nominal voltage of 7.2v
- 3.3 1S Class cars will be powered by cell/s with a maximum nominal voltage of 3.7v

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 3 – Zero-Timing Brushless Speed Controllers – and this requirement must be met for a speed controller to be eligible for racing in relevant 1/12 Section classes (see Procedural Rule 1)

End of Construction rules

The following Appendices form part of the Rules above

Appendix 1 - Alternate Classes

Due to the varying nature of tracks and facilities, individual clubs may want to run with alternate classes. These classes have previously been used in F1, and may be more suitable.

- Modern (Rubber): based on the new generation of narrow F1 cars with a restrictive width chassis and rubber tyre. (To take part in this class you would need something like a Tamiya F104 or HPI F10, etc.)
- Retro (Foam): based on the late 70's and 80's wide F1 or Indy cars with large tyres, allowing the unlimited choice of Foam tyres on the 205mm wide cars. (To take part in this class you would need something like a Tamiya F103 or the 3-Racing F109, etc.)

Appendix 2 - BRCA F1 Control Tyre

BRCA F1 control Tyres

- GFX10-S2 on XF-104 Carbon Aluminium Wheel
- GFX20-S2 on XF-104 Carbon Aluminium Wheel

Tyres will be marked and checked by officials before the meetings commence, if any tyres are deemed to have been tampered with in their construction, they will be held for inspection.

Tyre side wall details may be applied and only tyre additive from the BRCA 1/12 section list will be permitted. No other modifications are permitted.

These are available to buy in the UK currently from: DMS racing, Elite RC, Demon, Swifts, MB Models. They can also be purchased from GRP in Italy (3 Day UK Service)

Appendix 3 – ‘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

V1.0 - Re-formatted as construction rules only - 24 September 2015

V1.1 - Rule 2.3 re-instated - 18th November 2015



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