



## An introduction in RC racing at Stafford Outdoor & Hednesford Indoor Raceways.

This is a very basic introduction in RC model racing from Stafford Outdoor Raceway and Hednesford Indoor Raceway. This guide tries to outline the basics of what is needed to start this fantastic hobby.

Just some very basic things first: It is a condition of racing at any BRCA affiliated club like ours that you must wear a hi-vis top whilst marshalling, outside whilst marshalling it's a great idea to wear a strong pair of gloves.

At our indoor venue you must cover the school tables with something to stop them getting dirty from oil and tyre additives. Each driver will have 2 tables each 600mmSq so you will require a covering 600mm x 1200mm, even if your car is only on one table you will still need to cover both. The best covering is a rubber sheet or some of the material they make tablecloths with. The Range and Dunelm type of shop usually sell this style of material, it needs to have a sealed surface to stop any spillages soaking through, therefore, a towel is not sufficient as any spillages could seep through.

At Stafford RCMCC we race electric on-road scale remote control model cars. The main classes we race are:

- \* Touring car (TC)
- \* GT12 (Indoor Class)
- \* Frontie (front wheel drive TC)
- \* Iconic / Classic
- \* Mardave Mini (Indoor Class).

The most popular classes we run at Stafford Outdoor Raceway are Touring Cars and Mardave Mini Class at Hednesford Indoor Raceway. If you are thinking of joining us, the best advice is to call into one of our meetings, talk to members who will I'm sure will gladly show their car(s) off and see which class best suits you and your budget.

The most versatile of all these classes is Touring car which can be used both indoors and out with a few basic and relatively easy changes, ideal if you want to race as much as possible! Touring cars are 1/10 scale 4WD scale saloon cars and the most popular class within this is 17.5t brushless motors in 'Blinky' (no boost/turbo) which is a great beginner class, but also creates some very close racing from experienced racers. These cars are generally run to BRCA class rules with a list of approved electrics including the Electronic Speed Controller (ESC), motor and batteries. New touring car chassis can cost over £500+ so it might best to try and source a used car from trusted Facebook selling pages or eBay. Most manufacturers release a new or updated car every year so picking up a previous model is a lot more cost effective, often these can be bought with electrics so are almost ready-to-run.

MTC's could also be an option, these go very well indoor and out and a new chassis can be bought for less than £100 from 3racing or Xpress and this class comes with its own set of basic rules. These also run a different set control electrics which is aimed to keep costs lower, ESC's are roughly £45 and motors are £50.

A couple examples of high tier TC's are the Schumacher M18 & Xray T4 23



Companies like 3Racing and Xpress offer cars starting much cheaper, sometimes made from cheaper materials like Graphite/GRP and plastic over more expensive Carbon Fibre and Aluminium. The 3Racing Advance S64 TC and M4 MTC, both of which retail around £100:



If you plan to give indoor carpet racing a try, our new Mardave Mini class is perfect for beginners. You can get a complete setup including everything needed to get you on the track for £199, the only other items you'll need are some basic RC tools, tyre additive and a Personal Transponder (PT) to count your laps. (PT's can cost around £50 to buy new but the club does have a limited amount of these to loan out each night if needed.)

If you want something a little more, then GT12 is a great class. These run 1s LiPo's, 13.5t motors in Blinky and are very competitive. Running on foam tyres they are sleek, low, fast and very rewarding.

There are a handful of manufacturers making GT12 kits, however the main current 2 are Schumacher Atom and the Zen RXGT12



## Mardave Mini Class

The idea of this is to run a class that won't scare the beginner and for someone who doesn't want to spend the earth on a hobby, but still wants to be competitive within a set specification rather than getting caught up in "Cheque Book Racing". Therefore, as a club we have introduced that popular class into the types of cars we run. They are easy to build and setup yet offer very close and competitive racing for the beginner and expert alike. The base car kit can start at around £100!



## Electronic Speed Controller (ESC)

The ESC is exactly what it says, it controls the speed of the motor and connects directly the battery and motor, and also to the receiver via a small plug. On a brushless motor there are 3 wires and a sensor lead, whereas brushed motors like the ones in the Hot-rod and Chassis classes only have 2 wires.

Depending on the chosen class, this then depends on the type of ESC needed. Brushed ESC's can be bought from around £20 and the Hobbywing 1060 is perfect for the job. 1s / GT12 ESC's start from around £60 with the Core Pace 60r and a more common 2s ESC for TC/MTC can be purchased from around £45, a great 2s ESC is the 'Hobbywing Justock'

These are all the lower end of the price range, the top end is circa £180 which is more customisable and upgradeable.



## Motors

Motors come in two different types, Brushed and Brushless. Both types are available in different 'turns' (speeds) and the lower the number the quicker the motor. Brushed are generally defined in rounds number like 21t (21turns), 19t, 15t where Brushless are normally start at (for onroad UK racing) 21.5, 17.5t, 13.5t down to circa 3.5t for Mod TC.

Brushed are the older style motor which are only really used now in Mardave classes like the HotRod or Stock cars, and certain Iconic/Classic classes. These operate with 2 wires, a Positive and Negative connection. Most brushed motors now used are non-serviceable/rebuildable meaning they can't be opened up and cleaned. These only have a certain lifespan because of this, but it does depend on a few variables such as gearing and car type. The upside is they are cheap compared to Brushless. A spec Brushed motor for Iconic/Classic is less than £15.

Brushless motors are used in pretty much every other class. These have 3 power wires (labelled A,B,C) which connect directly onto the ESC, and then a small 6-pin sensor wire. BRCA classes (TC, GT12, LMP etc) require you to use a motor from the approved motor list. This means the importers/distributors have submitted them to the BRCA where they are inspected to make sure they meet certain criteria, so for example, one 17.5t isn't a lot more powerful than the other 17.5t motors. For racing at Stafford, you'll need either a 17.5 motor for TC or 13.5 for GT12 or LMP. There's no 'best motor' as we all have our preferences, but the most popular at the moment seem to be Hobbywing G3R, Surpass V5R and Trinity X factor.

All these are capped at a maximum price of £89.99 by the BRCA, which may seem like a lot, but if looked after a Brushless motor will easily last 12 months of weekly racing, and still be competitive. Unlike Brushed, these can be rebuilt, cleaned and rotors replaced (fairly) cheaply if needed. Having the latest motor doesn't mean you'll automatically be fast, this comes with experience! There are normally plenty of great used motors for sale to get you going initially.



## Servo

The servo is basically the steering mechanism of the car. These can start from around £10 but I'd recommend spending a little more on a metal geared ones which will withstand accidents a little more, the below Savox 1251 is a great servo for starting with. Also, a great addition to the servo is a 'servo saver' which basically contains a series of stiff springs to absorb some of the impact from a crash, these are especially useful indoors where you're closer to the close limits.



## Transmitter & Receiver

These are normally packaged together and can start from as little as £40-£50 new and come in 2 different types, commonly known as 'sticks' or 'wheel'. The choice is purely personal and there's no advantage having either. Personally, I'd buy something mid-tier at least, as then you'll have a radio which, if looked after will last a long time and never need upgrading for a long time. A great example is the Futaba T4GRS (below) which can be picked up new for around £250.



Futaba T4GRS

## Batteries

Except for Hot-rod and Classic to an extent, all classes use Lithium Polymer (Li-Po) batteries.

### LiPo batteries

For our classes these are either 1s for GT12/LMP or 2s for TC/MTC/Frontie. There are loads of different manufacturers of these, but for most people it comes down to either cost, sponsorship or brand loyalty. Any BRCA legal battery will be more than up for the job. Second hand batteries are often for sale but beware of any that have 'puffed' up or are soft to squeeze. This generally means they are well used / abused and are once puffed can become dangerous.

All batteries *must* be charged in a 'LiPo sack' which is a fire/flame proof bag designed to slow the spread of fire should anything happen. Never leave a LiPo battery fully charged or discharged.





### NiMH batteries

These are used in the Mardave Hot-rod classes and can also be used in Iconic. These aren't too dissimilar to normal household C sized batteries. The batteries used in RC are 'Sub-C' sized and four are joined together to produce 4.8v



### Chargers

Like everything, chargers come in various sizes, specs and prices. A good charger to begin with is the Core UAC50 which will charge all types of batteries needed, from NiMH batteries used in HotRod, to Lipo 1s & 2s race batteries and even your transmitter battery, assuming its compatible! (Note you MUST only charge batteries on the correct battery type Lipo for Lipo, NiMH for NiMH etc, failure to do so could end in serious damage to your equipment.)



### Tools

You'll need a few basic tools for building and racing, the main ones are:

- \* 1.5mm Allen driver
- \* 2.0mm Allen driver
- \* 5.5mm nut driver
- \* 7mm nut driver
- \* Craft/Stanley knife
- \* Soldering iron
- \* Ride height gauge
- \* At our indoor venue you will also require a table cover to stop any dirt getting onto the tables

### Transponder:

This is the clever little unit that in conjunction with our timekeeping equipment, counts how many laps you have done. Eventually, it is a good idea to buy your own transponder, we usually have them for sale at the club. However, you can use one of the club's loan ones until you get your own. (All we ask is that you look after it and either leave your car keys or a refundable deposit as you must return it at the end of the event).



## BRCA race licence

Finally, you'll need membership to the British Radio Car Association / BRCA. It is the UK's governing body for radio-controlled model car racing. This membership is needed after 3 trial races, which then insures against injury should anything happen. Membership costs £20 per year and includes:

- \* A list of affiliated clubs showing where you can race your car (Obviously Stafford & Hednesford Raceways first though!) 🤪
- \* 3rd party liability insurance to enable you to race safely at BRCA sanctioned events and meetings
- \* Help, advice & support to ensure that you are never on your own
- \* Eligibility to race at BRCA sanctioned Regional and National events.

## Stafford and Hednesford Raceways: Club Membership:

This is not something you have to join. However, by joining you can benefit from reduced race fees, these fees are £10.50 for non-members and £9.00 for members, there is also a junior race fee of £5.00, you can score points in our club leagues, and help support your club and in return this supports your sport. The club Membership fees for 2023 are:

### Membership Senior:

Hednesford Indoor Raceway £20.00

Stafford Outdoor Raceway £20.00

Full Member (Both Venues) £30.00

### Membership Junior:

Hednesford Indoor Raceway £15.00

Stafford Outdoor Raceway £15.00

Full Member (Both Venues) £20.00

We appreciate all this can be an absolute minefield, but we're here to help steer you in the right direction which ever class you choose. Our members have decades (even centuries!) of experience between them in every class so feel free to ask any question regardless of how it may sound as someone will be able to help!

Each class will have its own set of rules such as the motors, batteries or tyres that can be used. Therefore, our final advice would be to call into a meeting, have a chat with people, look at all the cars and once you've decided, ask around for used cars and parts – there's always someone selling something, and if not, they'll know someone who is!!

We hope this guide has helped you understand the basics of RC racing, and which ever class you choose, have FUN!

## Stafford RCMCC.

