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Essential Touring Car RC Racer's Guide

Dave B Stevens

Aldritch

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Chapter 1

Introduction

Foreword – Marc Rheinard

From 1994, my father had a big hobby shop with an indoor and outdoor asphalt track. So after school I always went there to drive RC, and I really liked it!

After winning my first World Championship title in 2004, I signed a contract with Tamiya including all travel costs and a monthly salary. To be a full-time professional racer was my dream come true and all up I enjoyed driving for Tamiya for about 22 years.

This book has a massive amount of information and many tips and tricks useful for everyone trackside. Nobody knows everything, so it's always good to have the opportunity to open the book and find the information you need, whether you're a beginner or a pro.

The key for any driver to improve is track time. The more you are on the track, the more you improve your driving, learn how the car works and how to set it up. It's also good if you practice with a teammate or friend to learn to drive in a battle on the track. There is a big difference between qualifying and finals. Many people are good in qualifying, but in the finals they are not used to fighting with another driver and therefore make mistakes.

Making a mistake is always frustrating, but never give up during a run. This is the most important thing for a racer. There is always the chance that other drivers may make mistakes and you can still get a decent result. Never give up!

Marc Rheinard

- ✓ *3 x Touring Car IFMAR World Champion*
- ✓ *2 x 1/12th IFMAR World Champion*
- ✓ *3 x European Touring Car Champion*
- ✓ *8 x National Touring Car Champion*
- ✓ *7 x Reedy Race USA TC Champion*

Author's note:

Marc Rheinard is one of the world's most talented drivers. Few achieve the title of World Champion, fewer still repeat this feat. Marc has not only accomplished this in Touring Cars, but also in 1/12th Scale. Marc created the MR33 brand of racing parts and accessories and has allowed me to use these as examples throughout this book. He was not paid for his support.

Foreword – Ronald Völker

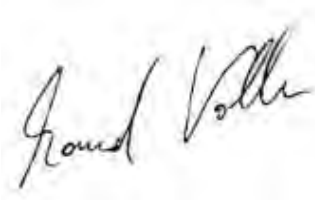
After many years with Yokomo, I am excited to take on a new challenge with Mugen Seiki as my main sponsor. I also have a great long term relationship with LRP, which will continue.

I am using my experience to assist Mugen Seiki to become strong in electric on-road. They are a small, highly motivated company with an excellent reputation in nitro on-road/off-road cars. The materials quality in their new MTC2 Touring Car is the best I've ever seen, and I have no doubt this is going to be very successful.

My focus is to help customers and teammates so we have a large number of happy people running a Mugen branded Touring Car.

When I'm helping other drivers, sometimes their cars are well balanced, but often they have issues with basic setup or tweak. This book can assist with those problems. The most important thing is to have fun, and that's harder to do with a misbehaving car.

Whether you see RC car racing as a hobby or a sport, there are endless things to learn. This book is an excellent source of information, and you can check it whenever you need answers or are looking for ideas.



Ronald Völker

- ✓ *Touring Car IFMAR World Champion*
- ✓ *9 x European Champion*
- ✓ *15 x National Champion*
- ✓ *5 x Euro Touring Series Overall Champion*
- ✓ *3 x Reedy Race USA TC Champion*

Author's note:

Ronald Völker started driving at the age of four and has been a full-time professional driver since 2009. One of the best performers in the sport, he is consistently on the top step at major races around the world. He was not paid to support this book.

Author's Preface

In 2007, my 11-year-old son, Aaron, bought an RC Touring Car on eBay. As soon as I saw it I had to have one for myself, and Aaron and I spent most weekends at the track from then on.

There is a lot of information on the web about setting up RC Touring Cars. However, it is often hard to find, incomplete, brand-specific, out of date or on a forum where the discussion lacks the context to make it truly useful.

I wrote this book to create a comprehensive manual that racers can follow to improve their lap times, regardless of their skill level or the car they drive. I spent 30 years as a business consultant, and part of my skill set is to extract technical experience from experts in the field, pull in relevant information from multiple sources, and present it in an easy to apply "how-to" format.

About the Author

In 2019 Dave wrote *Essential 1/12th and F1 RC Racer's Guide* which sold in 27 countries.

In 2013 he set a Guinness World Record for: The longest distance covered by a battery-operated remote-controlled car. A record he held for three years.

In 2012 Dave launched www.RCformula1.com. In the early years, it was the only dedicated RC F1 website, and it is still the most read, with nearly 7 million page views as of late 2020.

Dave has written for a number of magazines, including his regular column in Racing Lines. He is a former president of the Templestowe Flat Track Racers RC club and a former board member of the Victorian On Road Tracks Executive Committee.

He also writes fantasy fiction and lives in Melbourne, Australia with his wife and sons.

Connect with Dave via: Facebook facebook.com/DaveBStevens.Author
Web www.DaveBStevens.com

Introduction

This book provides in-depth information on Touring Cars. Specifically, 1/10 scale on-road electric 4WD Touring Cars (often referred to as ISTC when using saloon/ sedan bodies).

Touring Cars are fantastic for beginners as they are relatively easy to drive.

It is very achievable to have a car which has sufficient rear-end grip and still has enough steering to turn tight corners, under almost all track conditions. This guide provides you with the information to set up your car to be easy, and fun, to drive fast.

Every weekend, you will find Touring Cars racing around club tracks throughout the world. Some drivers are racing with their friends to have fun, others are trying to win at club level or a local competition. Most countries have regional racing, nationally organised competitions, and of course, there are world championships.

The Modified Touring Car class has been an International Federation of Model Auto Racing (IFMAR) World Championship class since 1998. In the last few years, the Spec Touring Car class (13.5 motor with Non-Timing ESC) was added as an official IFMAR class. A fantastic range of Touring Car classes are raced at local clubs including VTA, GT, and others. A range of motors are also available from the sedate 25.5 turn to the super quick Modified/open motors like the 4.5 turn. No matter your level of skill, and how fast you want to go, Touring Cars have a class to suit!

Whether you are an experienced racer looking for an edge over your competition, or a complete beginner, this book was designed to provide the answers you're looking for. It provides a complete, step-by-step reference to these fantastic cars.

How To Use This Book

Appendix B – Glossary on page *215* defines core technical terms referred to in this book.

The Process of Driving Faster starting on page *19* covers setup theory, a driving tutorial, and how to apply this theory to any track.

If you are a beginner, then your next step is to check out *Appendix C – Beginner's* Guide on page *238*.

The Build on page *44* takes you step-by-step through building your car perfectly.

Initial Setup on page *69* covers how to nail the initial setup.

Body Shell Mounting on page *80* provides tips for obtaining the greatest advantage from your body shell.

You should now be ready to hit the track with a car that is fast from the first lap.

Car Setup Reference starting on page *88*, covers the A–Z of setup settings from Ackermann to Wings and everything in between. I've also labelled each setting option as Basic, Intermediate or Advanced.

Tweak starting on page *163* covers how to ensure all your tyres touch the ground with equal pressure and what happens if they don't. It also describes how to fix a car that is "tweaked".

Case Studies starting on page *172* describes actual race meetings, and how skilled drivers approached their setup, what changes they made, why, and the results.

Appendix D – Checklists on page *249* covers all the common problems and situations you might encounter. Car is spinning out? Wanders on the straight? Doesn't have enough steering? We've got you covered.

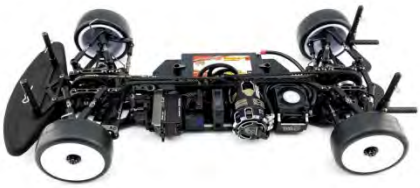
Other Body Shells on page *205* might provide you with inspiration for painting scale replica bodies for display or for classes such as VTA and GT.

This book is available in eBook format for ease of reference at the track. The eBook is available at a discount for those who have purchased the physical book. For details refer to page *215*.

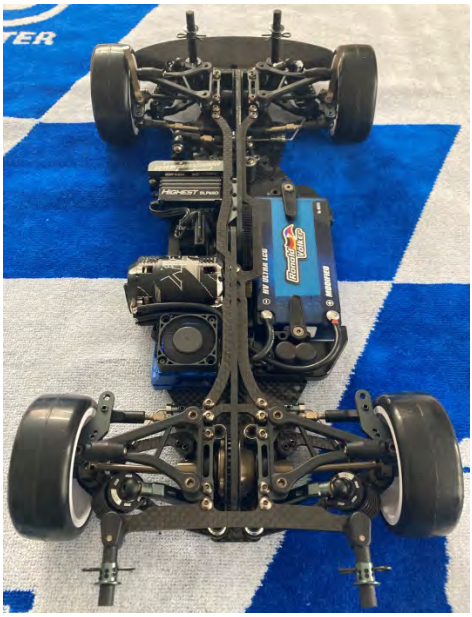
The Cars

This book covers 1/10 scale on-road electric 4WD Touring Cars with 2S lipo batteries.

Marc Rheinard's Awesomatix A800MMX



Ronald Völker's Mugen MTC2



Chapter

2

The Process of Driving Faster

Introduction

Being able to drive faster, on a given track, is a process which involves the following steps:

1. Determine a base setup for the track.
2. Map the Racing Line for the track.
3. Practice the Racing Line for the track.
4. Tune your car's setup so you can drive it as quickly as you are able, as close to the Racing Line as possible.
5. Practice the Racing Line for the track until qualifying starts.

Setup Theory

A car's handling is determined by the contact patch of the tyre on the racing surface. In a full-size production car, that area is about the same as a size 10 shoe. In an RC car, it might be the size of your fingernail or smaller.

How the tyres interact with the track determines how the car corners, accelerates and brakes. So tyre choice is the most important factor in car handling. However, at most large race meetings, a control tyre is used, meaning everyone has the same brand and compound of tyre. So the advantage goes to those who set up their car so that those tyres provide the right amount of grip at the right time.

Ignoring other factors for the moment, the easier the car is to drive, the faster you will be able to drive it. Changing the car's setup will make the car easier to drive near its performance limit. This should allow you to drive it faster.

In this book, we explain what each setting is, why it changes the behaviour of the car, how to make each change and the result you should expect.

Make small changes, one at a time and measure the result based on what you were trying to achieve (refer to Mapping the Track on page *35*). Note whether the car felt better or worse and any impact on lap times. We say small changes because adding a 0.5mm shim or changing a setting by 0.5 degree may make a noticeable difference, and if you jump to a 2mm shim or 1.5 degree change, then you may miss the sweet spot.

We recommend that you keep track of your setup changes and record which setups work best at different tracks under various conditions.

A car that "feels" faster is not necessarily turning faster lap times. Use a stopwatch or timing system to check if it really is quicker, and not just easier to drive.

For the car to respond correctly to setup changes, it must be in good working order. In other words: the car is not tweaked (page *163*), the suspension is free, dampers (page *105*) and differential (page *115*) are correctly built, no broken binding or loose parts, and the car has proper weight balance left-to-right (page *157*).

Many setup adjustments interact with other settings. For example, changing the ride height will also change the droop. These interactions are explained under the relevant headings.

Fine-tuning the setup will make the car easier to drive near its performance limit. This should allow you to drive it faster.

Start with a base setup, make changes so that the car drives the lines you want (see The Racing Line on page *24*), then stiffen the car up as much as practical while making sure it is still as easy for you to drive as possible. As you gain experience, you will be able to short cut this process.

Use our After Race Checklist on page *250* to identify problems before the next run.