Table of Contents

chapter 1

Introduction 10
1/12th Scale Foreword 11
F1 Foreword 12
Author's Preface 13
Introduction 14
How To Use This Book 14
The Cars 15
1/12 15
F1 16

chapter 2

The Process of Driving Faster 17
Introduction 18
Setup Theory 18
Setup Sheets 20
Weight Transfer – the Holy Grail 21
The Racing Line 22
Braking Point 23
Turn-in Point 23
Apex 24
Wide Corners 24
Geometric Apex 25
Late Apex 26
Early Apex 27
Overtaking on a Corner 27
The F1 Apex 28
Hairpins 29
Chicanes 29
Sweepers 30
Slipstream Overtaking 30
The Position of the Next Corner 31
Increasing Corner Speed 31
Mapping the Track 33
Perfect Practice Makes Perfect 35

Table of Contents

Driver Etiquette and Traffic ____ 36
Lapping ____ 36
Staggered Start Passing ____ 36
How to Pass ____ 36
Resolving Disputes ____ 37
After a Crash ____ 37
Hitting Someone From Behind ____ 38
Marshals ____ 38

chapter 3

Car Setup Reference ____ **39**
Ackermann ____ 41
Battery Position ____ 43
Bodies ____ 43
Bump Steer ____ 44
Camber ____ 44
Camber Gain ____ 46
Chassis Stiffness ____ 47
Caster ____ 48
Reactive Caster ____ 49
Centre of Gravity ____ 49
Damping ____ 50
Side Damping ____ 50
Damping Tubes ____ 50
Side Shock ____ 50
Centre Shock Damping ____ 51
Oil ____ 51
Piston Holes ____ 52
Rebound ____ 52
Springs ____ 53
Preload ____ 54
Shims ____ 54
Shock Length ____ 55
Differential ____ 55
Ball Diff ____ 55
Gear Diff ____ 57
Droop ____ 58
Rear Pod Droop ____ *58*

Table of Contents

Front Droop 60
ESC Settings 60
1/12th ESC Settings 60
F1 ESC Settings 61
Gearing & Rollout 61
Gearing for Final Drive Ratio or Rollout? 62
Final Drive Ratios 62
Gear Ratio Charts 63
So What FDR Should You Start With? 63
What Rollout Should You Start With? 63
Gear Mesh 64
End Bell Timing 64
Tuning Gearing for the Lowest Lap Times 65
Motor Temperature 65
Radio Settings 66
1/12th Radio Settings 66
F1 Radio Settings 67
Ride Height 68
Overview 68
Measuring Ride Height 69
Starting Ride Height 70
Front Ride Height 70
Middle Ride Height 72
Rear Ride Height 72
Roll Bars 75
Roll Centre 76
Front Roll Centre 77
Rear Roll Centre 78
Rollout 78
Shock Absorber 78
Side Links (to rear pod) 79
Springs 80
Centre Shock Spring 81
Front Springs & Lube 81
Side Springs 82
Setting Side Spring Preload (Coin Trick) 82
Steering Arm Ball-cup Location 83
Steering Linkage Angle 84
T-Bar 85
Toe 87
Track Width 89

Table of Contents

Tyres & Additives ____ 91
Rubber Tyres ____ 91
Foam Tyres ____ 91
Additive ____ 92
Tyre Warmers ____ 93
Weight ____ 94
Centre of Gravity ____ 94
Weight Balance (Side to Side) ____ 95
Moving Weight (Front to Rear) ____ 95
Adding Weight to Increase Steering or Rear Traction ____ 96
Wheelbase ____ 96
Wings ____ 97

chapter 4

Tweak ____ **98**
What is Tweak? ____ 99
Quick Checks ____ 100
Rear Pod ____ 100
Main Chassis ____ 103

chapter 5

Case Studies ____ **105**
Carpet Case Studies ____ 106
1/12th ____ 107
F1 ____ 114
Asphalt Case Studies ____ 121
1/12th ____ 122
F1 ____ 128

chapter 6

Other Body Shells ____ **132**
GT12 ____ 133

Table of Contents

LMP1 ____ 134
Group C ____ 135
Alonso & Webber Model ____ 136

appendix A

Glossary ____ **138**

appendix B

eBook ____ **141**

appendix C

Checklists ____ **142**
Quick Reference ____ 142
After Run Checks ____ 143
Change of Direction (Chicane) ____ 144
Easier to Drive – How To ____ 144
Fast Sweeper Cornering ____ 145
New Car – How to Set Up ____ 145
Re-building a Car ____ 146
Rear Traction – How to Increase ____ 147
Steering ____ 148
Too Much Steering (Oversteer) ____ 148
General Oversteer ____ 148
Oversteer at Corner Entry ____ 148
Oversteer at Mid-corner ____ 148
Oversteer at Corner Exit ____ 149
Oversteer On-power ____ 149
Not Enough Steering (Understeer) ____ 149
General Understeer ____ 149
Understeer at Corner Entry ____ 149

Table of Contents

Understeer at Mid-corner ____ 150
Understeer at Corner Exit or at High Speed ____ 150
Steering Response Changes for No Apparent Reason ____ 150
Traction Rolling ____ 151
Troubleshooting ____ 151
Car 'Hops' or 'Chatters' Across the Track ____ 151
Car Wanders on the Straight ____ 151
Tyres Picking Up Carpet Debris from Track ____ 151
Inconsistent Handling ____ 152
Lacking Acceleration or Started Oversteering ____ 152