

# Table of Contents

<b>Chapter 1</b>	<b>The Problem Imposed by Racing</b>	<b>1</b>
1.1	Problems . . . . .	1
1.2	Simple Measurements and Experiments . . . . .	2
1.3	Problem Answers . . . . .	2
1.4	Comments on Simple Measurements and Experiments . . . . .	5
<b>Chapter 2</b>	<b>Tire Behavior</b>	<b>7</b>
2.1	Problems . . . . .	7
2.2	Simple Measurements and Experiments . . . . .	12
2.3	Problem Answers . . . . .	13
2.4	Comments on Simple Measurements and Experiments . . . . .	28
<b>Chapter 3</b>	<b>Aerodynamic Fundamentals</b>	<b>31</b>
3.1	Problems . . . . .	31
3.2	Simple Measurements and Experiments . . . . .	33
3.3	Problem Answers . . . . .	35
3.4	Comments on Simple Measurements and Experiments . . . . .	42
<b>Chapter 4</b>	<b>Vehicle Axis Systems</b>	<b>43</b>
4.1	Problems . . . . .	43
4.2	Simple Measurements and Experiments . . . . .	44
4.3	Problem Answers . . . . .	45
4.4	Comments on Simple Measurements and Experiments . . . . .	49
<b>Chapter 5</b>	<b>Simplified Steady-State Stability and Control</b>	<b>51</b>
5.1	Problems . . . . .	51
5.2	Simple Measurements and Experiments . . . . .	54
5.3	Problem Answers . . . . .	55
5.4	Comments on Simple Measurements and Experiments . . . . .	64
<b>Chapter 6</b>	<b>Simplified Transient Stability and Control</b>	<b>67</b>
6.1	Problems . . . . .	67
6.2	Simple Measurements and Experiments . . . . .	70
6.3	Problem Answers . . . . .	71
6.4	Comments on Simple Measurements and Experiments . . . . .	84
<b>Chapter 7</b>	<b>Steady-State Pair Analysis</b>	<b>87</b>
7.1	Problems . . . . .	88

7.2	Problem Answers . . . . .	90
<b>Chapter 8</b>	<b>Force-Moment Analysis</b>	<b>99</b>
8.1	Problems . . . . .	99
8.2	Problem Answers . . . . .	103
<b>Chapter 9</b>	<b>“g-g” Diagram</b>	<b>117</b>
9.1	Problems . . . . .	117
9.2	Simple Measurements and Experiments . . . . .	120
9.3	Problem Answers . . . . .	124
9.4	Comments on Simple Measurements and Experiments . . . . .	128
<b>Chapter 10</b>	<b>Race Car Design</b>	<b>133</b>
10.1	Problems . . . . .	135
10.2	Problem Answers . . . . .	136
<b>Chapter 11</b>	<b>Testing and Development</b>	<b>143</b>
11.1	Problems . . . . .	143
11.2	Simple Measurements and Experiments . . . . .	144
11.3	Problem Answers . . . . .	144
11.4	Comments on Simple Measurements and Experiments . . . . .	146
<b>Chapter 12</b>	<b>Chassis Set-up</b>	<b>147</b>
12.1	Problems . . . . .	147
12.2	Simple Measurements and Experiments . . . . .	148
12.3	Problem Answers . . . . .	149
12.4	Comments on Simple Measurements and Experiments . . . . .	152
<b>Chapter 13</b>	<b>Historical Note on Vehicle Dynamics Development</b>	<b>153</b>
13.1	Problems . . . . .	153
13.2	Problem Answers . . . . .	155
<b>Chapter 14</b>	<b>Tire Data Treatment</b>	<b>159</b>
14.1	Problems . . . . .	159
14.2	Problem Answers . . . . .	161
<b>Chapter 15</b>	<b>Applied Aerodynamics</b>	<b>167</b>
15.1	Problems . . . . .	167
15.2	Simple Measurements and Experiments . . . . .	170
15.3	Problem Answers . . . . .	170
15.4	Comments on Simple Measurements and Experiments . . . . .	175
<b>Chapter 16</b>	<b>Ride and Roll Rates</b>	<b>177</b>
16.1	Problems . . . . .	177

16.2 Simple Measurements and Experiments . . . . .	180
16.3 Problem Answers . . . . .	181
16.4 Comments on Simple Measurements and Experiments . . . . .	184
<b>Chapter 17 Suspension Geometry</b>	<b>187</b>
17.1 Problems . . . . .	187
17.2 Simple Measurements and Experiments . . . . .	192
17.3 Problem Answers . . . . .	193
17.4 Comments on Simple Measurements and Experiments . . . . .	208
<b>Chapter 18 Wheel Loads</b>	<b>209</b>
18.1 Problems . . . . .	209
18.2 Simple Measurements and Experiments . . . . .	212
18.3 Problem Answers . . . . .	213
18.4 Comments on Simple Measurements and Experiments . . . . .	219
<b>Chapter 19 Steering Systems</b>	<b>221</b>
19.1 Problems . . . . .	221
19.2 Simple Measurements and Experiments . . . . .	221
19.3 Problem Answers . . . . .	222
19.4 Comments on Simple Measurements and Experiments . . . . .	222
<b>Chapter 20 Driving and Braking</b>	<b>223</b>
20.1 Problems . . . . .	223
20.2 Simple Measurements and Experiments . . . . .	224
20.3 Problem Answers . . . . .	225
20.4 Comments on Simple Measurements and Experiments . . . . .	227
<b>Chapter 21 Suspension Springs</b>	<b>229</b>
21.1 Simple Measurements and Experiments . . . . .	229
21.2 Comments on Simple Measurements and Experiments . . . . .	230
<b>Chapter 22 Dampers (Shock Absorbers)</b>	<b>231</b>
22.1 Problems . . . . .	231
22.2 Simple Measurements and Experiments . . . . .	232
22.3 Problem Answers . . . . .	232
22.4 Comments on Simple Measurements and Experiments . . . . .	236
<b>Chapter 23 Compliances</b>	<b>237</b>
23.1 Problems . . . . .	237
23.2 Simple Measurements and Experiments . . . . .	238
23.3 Problem Answers . . . . .	238
23.4 Comments on Simple Measurements and Experiments . . . . .	240