

Table of Contents

<i>Preface</i>	7
<i>Introduction</i>	9
1. A Professional Approach	11
<i>You Bought What?</i>	13
<i>Stepping Up, Stepping Down</i>	15
<i>The Bargain Almost Always Backfires</i>	16
<i>The Professional Mindset</i>	18
<i>The Single Place</i>	20
<i>The Two Place</i>	22
<i>Choice of Design</i>	26
<i>A Final Word</i>	30
2. Choosing an Ultralight	31
<i>Purchasing a New Kit</i>	32
<i>The Professional Mindset</i>	38
<i>Purchasing a Used Ultralight</i>	42
<i>Add-ons: Don't always Add</i>	44
<i>The Ballistic Parachute</i>	44
<i>Wheels, Tires, and Brakes</i>	48
<i>An Ounce of Prevention: Clear Coat</i>	50
<i>Instrumentation</i>	51
<i>Aluminum Tube Anodizing</i>	53
<i>Corrosion: It can be Insidious</i>	53
<i>Life Limited Parts: The Tricks of Time</i>	54
<i>Dope and Fabric: the Pros and Cons</i>	56
<i>The Project Aircraft</i>	57
3. Training and Instruction	59
<i>How Much Does Flight Training Cost?</i>	62
<i>Pilot Capability</i>	64
<i>Choosing an Instructor</i>	67
<i>A Note on Amateur Instructors</i>	69
<i>Ground School</i>	70
<i>The Introductory Flight: What to Expect</i>	71
<i>A Note on Instruments</i>	72
<i>Pilot Workload</i>	73
<i>The Key to Success</i>	75
4. The Flight Environment	77
<i>More on Decision Making</i>	84

<i>Ultralight Operations and Airspace</i>	88
<i>Class A Airspace</i>	89
<i>Class B Airspace</i>	90
<i>Class C Airspace</i>	91
<i>Class D Airspace</i>	92
<i>Surfaced Base Class E Airspace</i>	93
<i>Surface Based Class E Airspace Operations Waiver</i>	96
5. <i>Maintenance</i>	100
<i>Routine Maintenance</i>	106
<i>Rotax Tips</i>	109
<i>Fan Belt</i>	109
<i>Spark Plugs</i>	110
<i>Trouble Shooting</i>	113
<i>Wrong Propeller</i>	114
<i>Fuel/Oil Mixture</i>	115
<i>Auto or Aviation Fuel</i>	117
<i>Flying When the Aircraft is not Right</i>	118
<i>Oil Starvation</i>	119
<i>Storing Engines: Pickling</i>	121
<i>Battery Removal</i>	122
<i>Placing An Aircraft on Blocks</i>	122
6. <i>Special Operations</i>	123
<i>Cross-Country Flying</i>	124
<i>Ultralight Camping</i>	129
<i>Float Flying</i>	131
<i>Ski Operations</i>	137
<i>Trailer Logic</i>	140
<i>How To Trailer Your Ultralight</i>	143
<i>Trailer Done Wrong</i>	145
7. <i>Meteorology</i>	147
<i>Mechanical Turbulence</i>	149
<i>Ridge Lift</i>	150
<i>Wind</i>	152
<i>Gusty Conditions</i>	153
<i>Low-level Flight in Wind</i>	154
<i>Wind Gradient</i>	158
<i>Wind Shear</i>	158
<i>Wing Tip Vortices</i>	159
<i>Downdrafts</i>	165
<i>Rain</i>	166
<i>Thermals</i>	167
<i>Dust devils</i>	168
<i>Gust Factor</i>	169
<i>Accessing Weather Information</i>	170

8. Ultralight Aerodynamics	172
The Four Forces of Flight	173
Newton's Laws of Force and Motion	175
Bernoulli's Principal of Pressure	176
Lift	177
CL Coefficient of Lift	177
r (rho) Air Density	182
V ^a Velocity	184
S Wing Area	184
Lift in Summary	185
Drag	189
Parasitic Drag	190
Induced Drag	191
The Horizontal Component of Lift	191
Energy	195
The Mush	198
Mass	199
Adverse Yaw	200
The Downwind Turn	204
A Final Word	207
9. Frequently asked Questions:	208
10. A Typical Flight	228
Summary	239
Appendix 1	241
Ultralight Websites and Resources	241
Appendix 2	245
Parts and Accessories	245
Appendix 3	247
Ultralight Clubs & Organizations	247
Appendix 4	249
Insurance and Financing	249
Appendix 5	250
Ultralight Regulations	250
Bibliography	254