

BERNHARD ECKEY

ADVANCED SOARING MADE EASY



Revised
and Extended
Third Edition

Foreword by four-time World Champion Ingo Renner
and three-time World Champion Michael Sommer

BERNARD ECKEY

**ADVANCED
SOARING
MADE EASY**

**Success is a journey -
not a destination**

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Preface to the third edition

Advanced Soaring Made Easy” was compiled to assist ambitious glider pilots and help them to get more enjoyment from their chosen sport. To the delight of everyone involved, the first two editions of the book received enthusiastic reviews in the media. This turned the book into an instant best seller and soon opened the door for positive feedback from all corners of the globe. It clearly demonstrated that an up-to-date book was long overdue and that suitable gliding literature can help to arrest the slow decline of members worldwide. For far too long pilots have given up after reaching solo status or opted to remain mere circuit pilots. In the interest of the long term survival of our beautiful sport we must all work on reversing this trend.

Previous editions have already enabled many solo pilots to make the difficult transition to a competent cross-country pilot but this third edition is an attempt to produce an all-encompassing book on gliding. Almost 100 additional pages complimented by 180 graphics and 20 tables allow aspiring pilots to get all necessary information from a single source. But this doesn't mean that performance-orientated pilots were forgotten. Chapters on competition flying, glider fine-tuning and the all-important psychological aspects assist even experienced pilots to improve their rates of success in competitions or enhance their chances at record attempts. Notwithstanding all this the goal is to put fun and enjoyment back into our sport.

Gliding is without doubt the most peaceful, most affordable and the quietest form of aviation; forever challenging, but also very satisfying and rewarding. Flying an aircraft for hours on end and at the same time travelling hundreds or even thousands of kilometres can be demanding. However, doing it without an engine is undoubtedly the ultimate challenge for modern aviators. A strong determination to succeed is a good starting point, but real progress in a complex sport like gliding requires some guiding literature.

This is where “Advanced Soaring Made Easy” can help. It paves the way for pilots with a strong desire for success and helps them to discover the fascination of our unique sport. For some pilots this fascination is silent flight, while for others it is long journeys of airborne discovery in total comfort and in an environmentally friendly manner. For a third group gliding is all about competition flying and record attempts. No matter what an individual's ambitions are, all pilots can extract useful information and gain valuable insights from this book.

A glider pilot's greatest reward is a constantly changing impression of our beautiful Mother Earth. We are among a privileged few when we become explorers on silent wings. It doesn't matter whether we are surrounded by otherwise inaccessible and snow-covered mountain peaks or whether we soar high over the world's vast deserts. A peaceful bird's eye view of nature, or a close look at the most spectacular cloud formations in the atmosphere: these are privileges that glider pilots will forever treasure and protect. Gliding is an absorbing passion difficult to express in words. Plenty of photographs in this book allow readers to experience the third dimension, often from quite unusual perspectives. The author has included many of his own pictures from memorable gliding expeditions, frequently taken in some of the most inhospitable parts of Europe, Japan, Australia and New Zealand. These were supplemented by spectacular shots from fellow pilots from other continents. They reflect the attraction of the sport in an impressive way and hopefully stimulate interest and curiosity in the newcomer. Let's hope the pictures offer motivation and encouragement and at the same time provide background knowledge to already addicted members of the gliding fraternity.

All glider pilots will benefit from the wealth of information contained in this book. Inexperienced pilots will gain valuable insights while building basic skills, avoiding setbacks and disappointments. Cross-country pilots can use the advanced theoretical knowledge in the development of superior practical skills. Competition pilots will find their knowledge challenged, resulting in insights that will greatly contribute to success.

About the Author

A 40 year love affair with aviation started for Bernard as a young boy when he visited a model aircraft field. After 15 years of building, flying and later even designing model aircraft he decided to take up gliding and obtained his German licence in 1982.

In 1983 his professional career saw him transferred “down under” to head up his employer’s Australian operations. The truly excellent gliding conditions in Australia convinced Bernard to become a private owner of a PIK 20 in 1985, and from then on gliding occupied most of his spare time.

While serving his club as a Committee member, President, Gliding Instructor and State Association delegate, he obtained his “Form 2 Inspector Rating” (1991) and his Private Pilot Licence (1992). In 1996 he became a gliding Coach and was made a GFA Level 2 coach in 2002. He was later appointed Head Coach for South Australia and the Northern Territory.



In 1996 he was able to acquire a damaged self-launching open class ASH25 two-seat sailplane. Re-building the aircraft with the help of friends increased his enthusiasm for the sport even further. Since then he has taken his pride and joy to many places in Australia and pilots from many countries have benefited from free coaching sessions.

Over the past 20 years Bernard has retained his excellent contacts with various European glider manufacturers. He and his wife Chris became agents for a number of manufacturers during the Nineties. Today they run successful agencies not only in Australia but also New Zealand and Japan with excellent reputations and first class relationships with their customers.

With over 3500 hours soaring in his logbook, Bernard always strives to extract the maximum distance out of any gliding day. He can look back on an estimated 300 000 km of cross-country soaring with his heart set on

long distance flying. He holds all GFA distance badges, has performed 6 flights in excess of 1000 km and has set a new Australian record for a 1000 km out & return flight. In addition he has performed one flight in excess of 1100 km (FAI triangle of 1134 km).

Although he is not an ambitious competition pilot, he has competed at national sports class events and has won a number of competition days. He has also won several State Championships.

Foreword

With this book Bernhard presents to the gliding community a dictionary for the meteorological phenomena that can keep gliders aloft to fly long distances.

In recent years we have seen an increase in performance of cross-country flying that seemed impossible only a few decades ago. The improved performance and handling of gliders are only partly responsible for that surge. It is most likely that the pilots' tactical decisions and their advanced knowledge of meteorology boosted the long distance and speed records to their present level. Pilots who have developed a basic understanding of gliding theory and have an open eye for the forces of nature can explore and enjoy the almost endless possibilities of modern gliders so skillfully designed and constructed by dedicated craftsmen.

The different chapters in this book explain in detail, with clear illustrations, what glider pilots need to know to maximise their enjoyment and performance. Some lift forces are smooth or weak and



Ingo Renner

(World Champion 1976, 1983, 1985 and 1987)

others are strong and turbulent. Lift can also be isolated or lined up for long distances. Pilots who have learned to master these great forces with skill and patience can, on certain days, combine several different lift sources for exhilarating flights using all the daylight hours.

This book not only gives a complete overview of meteorological phenomena but it also explains to glider pilots how to take advantage of them. The book details the techniques of soaring in thermals, slope lift, wave, etc., and provides pilots with excellent information that they can put into practice to improve their skills and get the maximum out of the sport of gliding. Pilots who achieve the best performance are those who can recognise the different forces of nature and use them to their advantage.

Perhaps they can use an early morning wave to set off on long distance flights as I have done. I shall never forget my late glides into a sunset from a high climb in a late thermal or from a wave. In high mountains the ice breeze occurs almost every evening and one can enjoy late soaring in the centre of the valleys right up to last light. This is what makes the sport of gliding so special.

To all readers of this book I wish you excellent soaring and hope you gain as much pleasure and exhilaration from gliding as I have over the years.

I would also like to commend Bernhard Eckey on the huge amount of research he has put into writing this book and presenting it in such a useful format. The first two editions have already been well received but because this third edition looks deeper into many additional topics it will be even more encouraging and motivating to the many supporters of our fascinating sport.

Safe soaring to all

Ingo Renner

Foreword

I imagine if you are reading this foreword you share my love of flying without an engine and to use only one's knowledge of nature to explore the skies and the countryside. Your memories of special flights may include, as do mine, fast flights under high cumulus cloud streets over the flat, dusty, red outback of Australia or gliding over huge forests and lakes in Sweden and vast stretches with nowhere to land in Africa's Kalahari desert.

Then there is passing Mt Cook and looking out across the forests of the West Coast to the sea in the fantastic wave systems of New Zealand or ridge soaring the west face of the Matterhorn peak in Switzerland. Whatever landscapes you have the opportunity to fly over, the enjoyment of the landscape, as well as the satisfaction at achieving remarkable distances and speeds with only the power of nature, are the things that inspire us to keep flying.

Getting the most out of every gliding day is what drives me and gives me the most enjoyment in gliding. To be able to do this, one needs knowledge. But having said this, I believe that to fly doesn't require a special talent. Like any other sport, systematic training can allow anyone to improve their gliding skills.



Michael Sommer
(World Champion 2006, 2008 and 2010)

One of the aspects of the training is the theoretical background. Much of this is already known and many books have been written about the various aspects of gliding. The specific value I see in 'Advanced Soaring Made Easy' is that it, in simple words and in a very practical way, provides all the background for any glider pilot to improve their gliding, no matter whether they just have accomplished their first solo flight, or they are competing at a high level.

I got to meet Bernard a few years ago in Australia. He is more than just an enthusiastic glider pilot who has accumulated a lot of skill and knowledge. I know him as someone who is dedicated to sharing his gliding knowledge with up-and-coming glider pilots - to show people what is possible in gliding. This, together with Bernard's skill in putting things in an easily understandable way, makes him an ideal author of a book such as this.

The first two editions of his book have already helped thousands of newcomers to advance their gliding career. However, this third edition expands on a wide range of topics and will be even more beneficial to the many followers of our captivating sport.

It does not matter how long we have been flying, there are always new things to learn and experience. Each day brings a unique set of conditions, opportunities and challenges.

Even after more than 20 years, gliding has lost none of its early fascination for me. I hope this is how it is for you also!

Enjoy the book!

Michael Sommer

Content at a glance

Chapter 1: Local soaring

As thermals are the main source of energy for soaring, this chapter is dedicated to the location and use of this lift. It includes vital background information, detailed assessments and proven procedures for the benefit of the reader.

Chapter 2: Gliding and weather

This chapter deals with soaring weather, especially the prediction of soaring conditions for the day ahead. By combining meteorological theory with practical examples, light is shed on this difficult subject. Other issues such as sea breezes and favourable soaring conditions for different parts of the world are covered.

Chapter 3: Flight preparation

From checking the equipment to organising a crew, this chapter contains the information needed to get ready for soaring away from the home airfield. Even checklists for various gliding activities are included.

Chapter 4: Extended local soaring

Flying beyond gliding distance of the home airfield is a milestone in every new glider pilot's career. This difficult step is made much easier with the information contained in this chapter. Hints on traditional as well as modern navigation methods are given and recommended training sequences are included. Even meteorological phenomena of interest to the early cross-country pilot are explained and solutions to common pitfalls are given.

Chapter 5: Advanced cross-country flying

Guidelines for proven flying tactics and methods for speed improvement form the centrepiece of this chapter. The most efficient methods for extracting energy in climb as well as cruise are identified and proven methods for maximising the average cross-country speed are examined. This chapter even provides advice on reducing the cockpit workload in the interests of increasing efficiency. Also, common mistakes and such subjects as optimum final glide, mountain flying, flight analysis and dolphin flying are put under the microscope.

Chapter 6: Winning the mental game

Mental aspects of gliding such as positive thinking, decision making, thinking ahead, goal setting, self motivation etc. are vital for success and are essential tools for recreational and performance-orientated glider pilots alike. For competitive reasons, it is vital to be a step ahead and have the mental edge over other pilots.

Chapter 7: Flying competitively

Competitive aspects of the sport are discussed in detail here. Valuable hints for improving the performance and competitiveness of the glider are examined and the reader is also introduced to the concept of saving time by shaving off the seconds.

Chapter 8: Let's get technical

Getting the most out of a glider is equally important for competition and recreational pilots. This chapter provides ideas for fine tuning your glider and its instruments for maximum performance. The effective use of flaps is also covered in detail.

Chapter 9: Outlandings

This chapter deals with outlandings and explains how safety can best be advanced. The author provides a long list of easy to follow suggestions and includes a list of 'Dos and Don'ts'.

Chapter 10: Safety first

This chapter is all about safety. It deals with lookout, scanning, thermalling etiquette, use of radio and proper thermal approach procedures. Issues relating to gliders with retractable engines and manoeuvrability of Open Class gliders are also incorporated.

Chapter 11: Ridge lift and Slope soaring

The use of ridge lift and related issues are the subject of Chapter 11. Flying in areas of suitable topography allows pilots to enjoy spectacular scenery in comfort and safety, provided the advice given in this chapter is adhered to.

Chapter 12: Wave lift

A good knowledge of wave lift can provide for unforgettable experiences. This chapter provides not only background information but also practical guidance. It provides even flatland pilots with the information required to enjoy the pleasures of soaring to diamond heights in the smooth airflow of mountain wave.

For a detailed table of contents please refer to pages 428 and 429.

To my family

This book is dedicated to my wife Chris and our son Ralf. Both have been very loyal supporters over the years and have given me strength to continue in my many aviation endeavours. No matter how strange the many new challenges or ideas appeared at first my family went through thick and thin with me and have done their best to make it a success.

Without their ongoing support this book would not have been written and many of my most memorable aviation challenges would not have been met.

Over more than 30 years of married life my wife has not only been a first class mentor but also a source of inspiration and help whenever it was needed most.

Thank you both – I could not have done it without you!

The use of icons

To improve reading efficiency (and to highlight sections that you should really pay attention to) I'm using symbols (or icons) in this third edition.



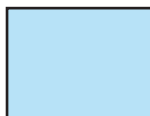
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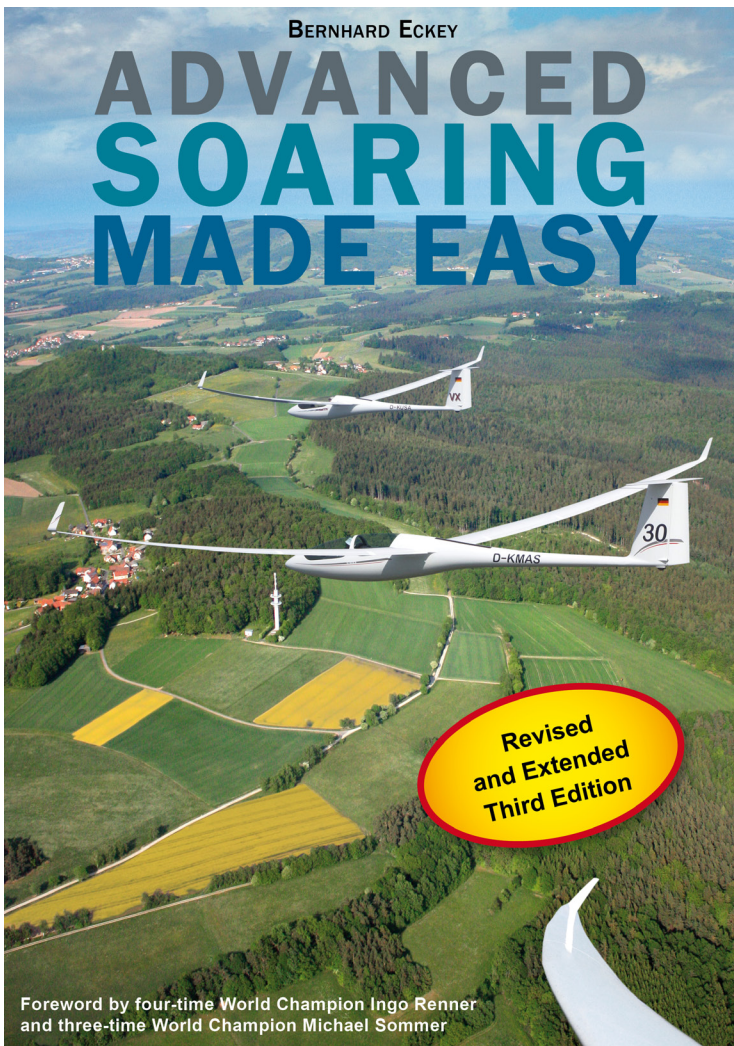
Text with a blue background points to some of the author's personal experiences. These stories have been included to underline comments or recommendations made in this book.



Advanced Soaring Made Easy (Third Edition)

The first all encompassing book on gliding

“Advanced Soaring Made Easy” has quickly become the world’s leading book on gliding and almost instantly turned into a best seller. For the first time Bernard Eckey has compiled a book that comprehensively covers all gliding topics and deals with them in greater detail than ever before. It provides crucial gliding knowledge on 432 full cover pages, with 180 graphics and 20 tables. The book is clearly written and presented in a very attractive format. It is a ‘must read’ for pilots striving for success and enduring gliding pleasure.



German-born Bernard Eckey is an ASH 25 owner, a gliding instructor, and a level 2 Coach now living in Australia. With almost 4000 hours of safe flying to his credit he has already entered 6 flights in excess of 1000 km and one 1134 km FAI triangle in his logbook. After his appointment as head coach for South Australia he even set a remarkable 1000 km speed record without carrying any water ballast. His truly all-encompassing book allows ambitious glider pilots to get all the necessary information from a single source and make the difficult transition to a competent cross-country pilot with ease. This doesn't mean that performance-orientated pilots have been neglected! On the contrary, chapters on competition flying, glider fine-tuning and the all-important psychological aspects assist even experienced pilots to improve their success in competitions or enhance their chances at record attempts.

This new third edition paves the way for success and assists pilots to discover the true fascination of our unique sport. No matter what an individual's ambitions are, all glider pilots will benefit from a wealth of information. Inexperienced pilots will gain valuable insights while building basic skills, avoiding setbacks and disappointments. Cross-country pilots can use the advanced theoretical knowledge in the development of superior practical skills. Competition pilots will find their knowledge challenged, resulting in insights that will greatly contribute to success.

The book makes an ideal present. The price is only EURO 49.90 (plus postage).

It is available from: eckey@internode.on.net

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