

# WELCOME

Congratulations on deciding to enter the world of radio control aircraft! I hope that you will garner many years of enjoyment and satisfaction from the hobby. Having started flying model airplanes over 20 years ago, I can honestly say that with modern advances in control systems, batteries, and quality laser cut kits, that this is the most exciting time I have experienced in radio controlled flight.

Along with those advances in technology comes an exciting influx of new modelers. While this is fantastic for the hobby, it has proven to be a challenge for many new pilots as the traditional methodology for learning to safely and proficiently operate their models is often circumvented. Traditionally, modelers learned to fly and were mentored by more experienced club members. With radio-controlled flight (particularly parkflyers and electric models) often being a solitary hobby, some modelers have been very much on their own learning to fly. While many different resources have sprung up to support those modelers, I felt there was a need for an in-depth flight training manual to help the average pilot achieve success in this hobby. This book offers that path to success.

While portions of this book are focused on electric flight, my goal is also to provide many useful techniques for the glow/gas powered pilots amongst us. In fact, every single technique and procedure I teach can be transparently applied to electric, glow, or gas powered flight. I'm confident that the techniques I offer will improve the skill level of all pilots; regardless of the type of model they fly.

## A LITTLE ABOUT ME

I was born into an aviation family. Both my father and his father before him were pilots. My father is an airline pilot for a major airline here in the United States, and my Grandfather owned and flew his own aircraft in his youth. For as long as I can remember, airplanes have been a big part of my life. From a relatively young age, I expressed an interest in airplanes as my father had before me. At the age of 10, my Dad and I built our first model airplane and despite several periods of inactivity (college, jobs, family), I have remained active in the hobby for the last 20+ years. During those years, I used the knowledge acquired from my experiences in model aviation and real world guidance from my family to dedicate myself to a career in full-scale aviation. I currently fly as a Boeing 737 Captain for a major airline as well as fly competitively in full-scale aerobatics with a Russian Sukhoi 26mx. Along this path, I have worked as a flight instructor, charter pilot, cargo pilot, and airline pilot. A big benefit that I had over my contemporaries was having a mentor in my father. I am convinced that having that one advantage eased the process, making success a more achievable goal. That mentoring level of knowledge and experience is what I hope to be able to offer to the reader of this book, easing the path that you take becoming a competent and safe pilot of your model aircraft.

In the modeling world, my main interest has gravitated towards aerobatics and precision flight. In my early years, I focused on sailplanes because they were something I could fly at the local park (much like the current parkflyers). I found the skills I acquired from years of sailplane flight and competition have transferred well to other aspects of R/C modeling. In recent years, I have worked as a test pilot for several model manufacturers. Additionally, I am a contributor for a major model magazine, writing reviews of new models as they come to market. Over all those years, I have built (and crashed) more models than I can count. While some experiences were extremely frustrating, I learned a lesson from each of them. Each and every lesson I learned is presented in this book in an attempt to mitigate problems for you before they happen. I find that a successful flight is a fun flight, and fun is the goal here.

## **HOW TO USE THIS BOOK**

Keep it by your workbench. Keep it handy when you go fly. I hope that you'll find some useful material in each and every section, regardless of the skills you've already mastered.

Now, a little bit about the functionality of this book. The goal here is to improve both your knowledge base and skill level in operating your model. Often the learning process is a painful, frustrating, and expensive path that is fraught with broken models. I hope to minimize that occurrence by offering a tried and true guide to success in this hobby. It closely resembles an instructional course that would be available in full-scale flight training.

Each section is a stand-alone entity. There is no need (nor do I expect) for you to read this book cover-to-cover. It is presented in what I consider to be a logical progression from zero experience to an advanced pilot's skill level. That said, go ahead and open up to the table of contents and jump to the section that most interests you. You will be missing a lot of good information if you do that, but the author doesn't mind. Just make sure that you get back to the rest of the book when time permits.

For the beginner, I do recommend following the basic structure of the manual. Stick with me and I will get you where you need to be. Additionally, I find the safety section to be particularly important. It is recommended for pilots of all skill levels.

## **HOW THIS BOOK IS ORGANIZED**

It is divided into three major sections. Each section has several subsections related to the overall theme of that section. All of these subsections have text and graphics that will help to make you the envy of the field where you fly (ok, that is a pretty aggressive goal but I have confidence in you).

### **SECTION ONE - GETTING STARTED**

This section is dedicated to taking you from zero R/C knowledge through solo and basic aircraft maneuvering. We will cover aerodynamics, safety, preflight planning, basic, and advanced maneuvers. Your new knowledge and the skill set learned in Section One will prepare you to learn precision aerobatics in Section Two.

## **SECTION TWO - PRECISION AEROBATICS**

Section Two includes basic maneuvers such as loops and rolls through rolling circles and advanced combinations figures. The basis for these maneuvers is IMAC precision aerobatics. We will cover maneuvers such as the Cuban-8, Sharkstooth, Immelman and Split-S, as well as many other traditional aerobatic figures. Book Two culminates with possibly the most complex precision aerobatic maneuver; the rolling circle.

## **SECTION THREE - BEYOND THE STALL**

Section Three is dedicated to exploring 3-D flight. 3-D flying combines vectoring propeller thrust and extreme control deflections with high Angle of Attack (AOA) flight. In this section we will learn to fly beyond a normal AOA, maximizing your model's 3-D capabilities. We'll also analyze many maneuvers including Torque Rolls, Harriers, and Blenders. Our unique diagrams and detailed instructions will help you to master this exciting new type of flying.

## **MASTERING RADIO CONTROLLED FLIGHT**

To become your personal instructor is a goal of this book. I hate reading about the expensive problems that modelers have because they have had no formal instruction, and proceed blindly in this hobby. I highly recommend following the guidelines established in this book. By suggesting you use it in conjunction with a mentor or instructor, and a flight simulator, I hope to make it possible to eliminate the growing pains and expensive repairs that often accompany learning to be a safe and accomplished pilot.

In addition, I hope to offer a learning experience to modelers of all skill levels regardless of prior experience. After 20+ years of flying model aircraft, I find that I learn new information, a new skill, or improve on a skill that I thought I had previously mastered, every single time I fly.

May your flying days be filled with calm winds, round loops, and soft touchdowns.

-Scott Stoops