

Room To Manoeuvre

by Bryan Quickmire

Getting Started In Aerobatics

To most pilots the word “aerobatics” brings to mind images of an airplane arcing gracefully through the sky. Loops and rolls and spins and hammerheads follow one after another.

Sunlight glints off polished surfaces. To some this is the ultimate expression of the freedom of flight.

What's it like in the cockpit? The noise can vary from the conspicuous silence just before you enter a spin to the deafening roar of engine and slipstream while diving fiercely to trade altitude for speed. The horizon may rotate at a leisurely pace in a slow roll or in a blur in a snap roll. You may be weightless floating upside down across the top of a loop or be pushed into the seat by invisible G forces when pulling up to vertical for a hammerhead. The nice thing is that the choices are yours to make.

The aerobatic pilot feels a tremendous sense of elation and accomplishment. There are few things in aviation as satisfying as being able to manoeuvre an airplane through its entire flight envelope. Recreational aerobatics is not stunt flying done by daredevils! With a trained pilot in a suitable aircraft at an appropriate height, this is one of the safest, most enjoyable facets of aviation.

The uninitiated sometimes wonder if aerobatics is scary or if they'll get sick. This certainly doesn't have to be the case! The confidence developed during training and the knowledge of the capabilities of the aircraft combine to eliminate the fear factor. As well, the prudent pilot avoids fretting by always maintaining more than enough altitude to recover from errors. Physical adaptation is not difficult since practise times are increased gradually and there's only exposure to modest positive Gs and insignificant negative Gs.

How do you get started in aerobatics? First off, it's not just for grizzled old pros! Between fifty and a hundred hours pilot-in-command time should be enough to develop the prerequisite aircraft handling skills.

A logical first step is to take an introductory flight or two. Find a professional aerobatic instructor who understands a novice's tolerances and knows how to tell when it's time for a break. Go up and see what it's like from inside the airplane. The instructor will demonstrate the

manoeuvres then have you follow through on the controls.

Assuming you're hooked, the next step is to take a primary course. Aerobatics courses vary from school to school and are often custom-fitted to the interests and needs of the individual student. A typical ten lesson program will afford sufficient opportunity to master the essential elements of recreational aerobatics and provide the necessary foundation to safely perform them solo.

The primary course incorporates ground-based briefings on matters important to aerobatics. The budding aerobat learns how to deal with G forces and how the sensory organs respond to the new motions and attitudes. The aircraft checkout emphasizes speed, G loading, and weight and balance limitations for aerobatics. Last but not least, air regulations and safety practices are examined.

The flight exercises start with the simple and progressively increase in complexity. Most non-aerobatic pilots rarely if ever experience pitch angles greater than 15 degrees or bank angles more than 45 degrees. Also, most pilots today forget that the rudder pedals are for more than just steering and braking on the ground.

The first in-flight priorities are to learn to use elevator, aileron and rudder simultaneously, while altitude and speed are changing. Coordination exercises use steep turns, chandelles and lazy eights to accomplish these objectives. Wingovers in particular are usually quite exhilarating to the novice. The airplane soars effortlessly upward then poises at the apogee of the climb wing dipped ninety degrees, providing the soul an elevation unattainable on the ground.

The course then moves on to the basic figures upon which most manoeuvres are constructed. The loop, roll, hammerhead and precision spin, together with inverted flight, are the first taste of what most would consider to be true aerobatics. Mastering the spin to the point where you can stop it within five degrees of the desired heading is a tremendous confidence builder.

Once the student is comfortable with the basic elements it's time to start melding them into combination figures. The Split S, Immelman, Cuban Eight and Reverse Cuban Eight are all combinations of the loop and the roll. When I was a student I found the Reverse Cuban Eight to be especially enjoyable. Dive to pick up speed and pull up to a 45 degree climb. Wait a bit then do a half roll to continue the climb inverted. When the airspeed is just

about gone, start looping back down towards the earth and level flight. Very graceful, very satisfying!

Towards the end of the course the student starts doing sequences, putting figures back to back with only a short pause between each. The simplest sequences consist of a single figure, such as a loop, done repeatedly. Then the spin, loop and roll are put together. This process teaches the student to match exit and entry speeds. For example, if a spin follows a loop there's quite a wait while the excess speed dissipates. More intricate sequences teach altitude awareness and energy management, both highly important skills.

At this point you're ready to graduate to solo aerobatics. You've botched enough figures, accidentally or under the instructor's direction, to be capable of recovering from any reasonable situation without assistance. You've developed situational awareness, the ability to keep track of the position over the ground and to keep watch for traffic while doing aerobatics.

After graduation there is a tremendously rich realm to explore and discover. *You* can be flying that airplane cavorting in the sky! There's as much challenge as you wish to take on. For the really hooked there's aerobatic competitions. Contests are a great way to improve flying skills and enjoy the camaraderie of fellow enthusiasts.

Whatever your path, fly and enjoy!