The in-home cockpit

Part 1: The basic desktop

Andrew Underwood story and photographs

The starting point — computer, screen, joystick and some extra software. Development will be tracked and described in subsequent editions of *Aviation News*.

I've always claimed that aviation is my passion, but flight simulation is my hobby. While my bank account balance and logbook experience limit the aircraft types and frequency of my recreational flying in the real world, I have been able to develop my fascination and knowledge of aviation in general by running several evolutions of the Microsoft Flight Simulator series on my home computer system in my spare time.

There are hundreds, if not thousands, of extra software add-ons available on the Internet to enhance the default out-of-the- box virtual flying experience. These come in the form of additional aircraft, scenery and environment packages from which I've tailored my own simulator setup to represent New Zealand's terrain and airspace with much more accuracy than the original Microsoft representation.

The majority of these software products are provided through an instantaneous online download delivery service, replacing the days of purchasing anything physical like a CD or DVD.

However, up until now I had only ever used a simple plug-and-play joystick from Dick Smith Electronics to control the manoeuvrability of my virtual aircraft on the screen — although I was aware that several simulator junkies in New Zealand had built their own full, 1:1, scale in-home cockpits, combining shells of disused airframes with authentic electronic gauge interfaces and fully functioning yoke and throttle quadrant hardware to work in unison with their PCs running the FSX program.

These projects are real labours of love, taken on by tech-savvy aviators who perhaps have lost their medicals with age or were unable to obtain an initial flying licence for one reason or another. A lot of time, effort and money go into the builds, but once operational, the in-home simulators are evidently the next best thing to taking a spin in a physical aeroplane at the local airfield.

The guys who run them reference Airways charts and documentation during their flight planning, use procedural checklists and even link up with online virtual air traffic control networks to fly published navigation routes.

One such hardcore enthusiast is Don Fordyce, who has constructed a Beechcraft Baron masterpiece in his Palmerston North garage. Using an ex-Massey University AST300 trainer as the cockpit base, Don has recreated the B58 interior down to a T, with the main panel water jet cut from aluminium and polycarbonate to the Beechcraft dimensions, and bevelled around the 18 electronic gauge faces for a realistic finish.

It then takes miles of wires, solder, countless rotary encoders, potentiometers, telephone connectors and custom switches running through a variety of interface cards to be able to correctly link these panel peripheral devices into the computer back end that runs the simulator program. Everything from poppable circuit breakers to a fully functioning RealityXP Garmin G530 GPS are found in his cockpit, including a functional manual trim wheel, fuel tank selectors and cowl flap levers, all of which are then coordinated through FSUPIC software to replicate its intended FSX purpose.

Don has also included the Saitek radio panel and multi panel products to control the light twin's autopilot function, clearly identifiable on the right-hand side of the photograph (left below).

Don Fordyce's setup is as close as it's possible to get to a real Beechcraft Baron cockpit in a garage.

Don says that various local pilots from the Manawatu area have stopped by and flown his simulator, each giving a seal of approval when compared to real-world accuracy. In my opinion, his setup certainly appears rendered to a far higher level of detail finish than the older Frasca branded simulators found at various flight schools around the country that are used for IFR training and recurrency checks.

I believed the level of technical sophistication and programming understanding required to achieve such an immersive and accurately functioning cockpit environment was well above my skillset, and I would have quite happily just stuck with using a mouse and keyboard to supplement all the on-screen levers and switches — had I had not been contacted by Saitek.

Saitek is a well-known manufacturer of flight simulation controllers, based in San Diego, and was keen to demonstrate to me the simplicity with which its hardware products can be integrated with a home computer such as my own, boosting the realism and enjoyment of flight simulator use when compared to the unintuitive controller inputs that I'm accustomed to.

I jumped at the chance, and over the next nine months I will begin piecing together an entry-level attempt of a general aviation style home cockpit setup of my own, based around my Intel Core i5 Windows 7 PC.

Saitek will progressively provide nine individual hardware devices over the course of the year, starting with the Pro Flight Yoke & Quadrant and Pro Flight Rudder Pedals products. After this, I will be bolting on four additional multi-function panel modules, each replicating the inputs of certain areas of a typical GA panel section, including master and magneto switches, radio stack, backlit annunciator panel and autopilot controls.

To top off my desktop flight deck I'll be adding several 3.5in LCD panels, each capable of displaying one of six different linked instrument readouts (ASI, AH, altimeter, VSI, compass, turn and slip) from my simulator, rather than having the information displayed graphically along the bottom of my computer screen. This will allow me to utilise the full area of my 24in monitor to display the aircraft outside field of view and bring the gauge displays in line with the yoke and other multi-function boxes.

The idea is an interactive touch and turn, motion friendly style of virtual flying that will no doubt supersede the keystrokes, clicking and scrolling inputs that I've been limited to until now.

At Saitek's request I will be keeping a journal of my progress in the form of monthly articles detailing the installation, setup and testing of each device I receive. I'm looking forward to being able to physically engage with a simulated cockpit environment for my virtual aviating, enhancing my hobby and being able to narrow the parallels between genuine rattle-and-shake piston engine aviating and flying a desk from the comfort of the spare room … watch this space!

To be continued

ARMCHAIR AVIATING

A Wooden Wonder Restored: de Havilland DH98 Mosquito

Historical Aviation Film Unit
Running time 141 minutes, DVD ($34.95) and Blu-Ray ($49.95), NTSC DVD and Blu-Ray also available for North American/Japanese market. Free shipping within New Zealand.
Available from www.aviationfilm.com and NZ Warbirds shop, Ardmore.

Reviewed by John King

Courtesy Warren Denholm

First, a confession. This reviewer is not normally a follower and watcher of aviation DVDs, being normally found with nose in magazine or book. (What's that? Fire next door? Hang on while I finish this chapter.) He sees little point in vicariously watching somebody else's version of, say, an airshow when experiencing the real thing is so much more interesting and exciting.

But this DVD, available about the time this edition of *Aviation News* hits the streets, is different. Having watched in wonder and awe as Mosquito KA114 took to the air at Ardmore in September 2012, the result of vision and hard work by a large number of people, I welcomed the opportunity of reliving some of that thrill on my TV screen.

Does this DVD capture the moment, do it justice? Indeed it does.

Whether it was a cunning ploy on the part of the New Zealand rebuilders that it needed lots of testing, or sheer generosity shown by owner Jerry Yagen, KA114 was seen in a fair number of North Island locations and took part in two airshows and displays — and most of that appears on this DVD.

First takeoff, just about every landing, displays at Ardmore and Masterton, both solo and in company with other WWII aeroplanes, air-to-air footage and a whole display sequence from inside the cockpit — anybody who doesn't get enough out of this is seriously hard to please.

A note at the beginning makes the point that this sort of aeroplane makes sound, not noise. Thanks to some clever technical stuff, the truly addicted can switch off the interviews and listen only to the song of two Rolls-Royce Merlins (at one stage as many as five, plus some deeper sonority courtesy of Mr Allison and whistling by the Mosquito's immediate successor, also de Havilland) for more than two hours.

But it's the interviews that make this a collector's item. Interviews with pilots past and present, Glyn Powell who started all this some decades ago and carried it through, Warren Denholm whose Avspecs put it all together, on time and according to a schedule stated many months earlier — there's not much about this Mosquito that isn't covered.

The interviews are not just talking heads, either. There's the occasional view of the person talking, mostly against an appropriate background of a certain wooden airframe, but the words and accompanying video footage of a particular display aspect are dovetailed in a most professional manner.

Weaknesses? It would have been nice to see the odd glimpse of the Mosquito as it progressed through the build stage, and Glyn's fuselage moulds, referred to at one stage, would also have added to the atmosphere. Seeing only the finished product doesn't quite do justice to the scale of the whole enterprise.

Minor quibbles, however. As a permanent reminder of a once-in-a-lifetime experience of seeing this magnificent aeroplane put through its impressive paces, this DVD would be hard to beat. It's definitely been worth the wait.