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Building a Savannah

Words by Peter Cheyney. Photos by Roy Street



How Was It? Test Pilot Rob Grimwood gets grilled by anxious owner after first flight

Some years ago I read that the best reason for building your own plane, as opposed to buying one ready-built, was because you enjoy making things.

That is still true today even if you are merely putting together a kit of parts rather than, as was the author of the original article, hand crafting every rib out of raw material. Though most of the pain has been removed from homebuilding much of the satisfaction remains.

So what is it like to build, or should I say assemble? Of the kits that I have been involved with the analogy of a Meccano kit is as good as any I have heard - certainly as far as the Savannah is concerned.

Having read and reread the build manual (Kindly provided by SUP) before I ordered a kit, I was impatient to open the box - after they had taken the money!

It was difficult at first to equate the collection of rather flimsy looking panels to the completed aircraft that I had spent

hours examining at various events.

At first sight the box does contain a bewildering array of parts, many of which looked remarkably alike and, it has to be said, very thin. The labelling system is however very good and of the 600 or so parts I only found 2 or 3 mistakes. As to the strength, that was to become more apparent during the build.

Building a Savannah is made easy by the quality and accuracy of its manufacture, requiring a jig (supplied) in only one part of the process.

For most people the first job after removing some of the parts from the box is to carpet the lid. The box makes an excellent work bench on which the wings and fuselage are assembled. This saves the time and expense of constructing a level work table. In my case as I only have a single garage some of the parts remained in the box until needed. Also, due to lack of space and - yes I own up, patience - I did not complete an

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inventory check at the start of the build. In the event the odd parts omitted were supplied without any fuss when I finally realised they were missing.

The great thing about building from a kit is the speed and ease that the parts go together. In the Savannah all but a few of the thousands of holes are machined at the factory, either by laser or blasted by high pressure water. The parts are trial fitted using Clecos. Colour coded, they come in silver, copper and black depending on diameter. They are clamping devices which are temporarily inserted in a rivet hole with special pliers. When released a preloaded spring holds the parts together. In this way the parts being joined may be 'dry fitted' before committing to riveting. Because the holes are positioned using CAD/CAM technology the part has to be 'square' if the holes mate up, which they do with amazing accuracy! Hence hardly any jigs or measuring up is required, just like Meccano.

Before riveting, an anti-fretting compound is applied between each mated surface. This is a water-based material which is painted on with a small brush.

Now comes the fun part. I found fitting the rivets with the supplied pneumatic gun very satisfying. In a very short time a collection of trial fitted parts are transformed into a sturdy finished component. This is achieved by removing Clecos a few at a time and replacing with a pop rivet. Better still if a helper is replacing Clecos with ready to pull rivets - dozens of rivets may

be fitted in very short order. Just as well as I believe there are over 10,000 rivets!

I followed the order of build pretty much as per the manual which starts off with very detailed information about building the wings and flying surfaces - then I think the Italian author went for a very good lunch as detail for the latter part of the build is rather more sparse! However this is not such a problem because having been 'talked through' the initial build phases construction becomes fairly intuitive. There are also some excellent 'exploded' views of component layout in the parts section which help clarify their relative location.

As mentioned earlier the first impression of individual parts of the kit is how thin the sheet alloy is. We are of course dealing with a microlight aircraft which has been designed to fit within the 450kg category. Individually many of the parts are indeed flexible, so though the material is of high quality care is required not to damage them. However when combined into a shell structure they are remarkable strong.

The Savannah is fitted with flaperons (The neutral position of the ailerons may be adjusted to increase drag and lift.) Their movement is controlled through a mixer-box. When I collected together the individual pieces to assemble this component I was more than a little dubious about the outcome. However after trial fitting with Clecos I was much happier and when riveted the transformation in strength between the individual pieces and the completed box is astonishing - an excellent example of the how the structural strength is achieved.

The control to the flaperons is via a torque tube and push rods which come ready to bolt into position. They are very substantial and serve to boost confidence in the integrity of the design. Rudder and elevator control is via cables all of which are made up in the factory with fairleads threaded ready to rivet to bulkheads.

After spraying, which I contracted out, the wings were stored and I fitted the engine and instruments. This was very straight forward as the Jabiru engine, being air cooled has to be one of the easiest power-plants to install and the panel comes pre-cut. There is even a plan for where each instrument should be



placed. This must be followed closely if the supplied wiring harness is to fit easily. And that is what this kit is all about easy fast build times. Some people can assemble a Savannah in just a few months, though most people will take a more leisurely approach and 'savour' the process.

After fitting the engine and instruments it was time to decamp down to the hangar for final assembly.

There are certain phases in the build where a helping hand is really useful e.g. fitting the engine, wrapping the leading edge and fitting the flying surfaces to the fuselage.

I am lucky in having several friends who from time to time were more than happy to come and share the fun. I had worried about fitting the wings due to previous experience on other projects but it turned out to be a very straight forward process in this case. All that is required is to fasten each wing at the root with two bolts and fit the front spar which is supplied ready made. The wing is now in the correct position. All that remains is to fit the rear spar and drill one of the few holes that are not completed at the factory. This allows for any slight twist which may have been built into the wing. The tolerance is apparently 25mm; mine were within 3mm of each other. This is without using a jig remember!

Once the wings are on the doors may be hung. Again I found help was useful at this point with someone either side of

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the door so that the optimum fit could be maintained as the location of the hinge position is established.

One of the few jobs in the build that did require some careful cutting and trial fitting to achieve the best results was fitting the plastic tips to the tail surfaces.

Another builder had suggested that the electric trim option was well worth fitting rather than the standard bungee arrangement. (Having now flown mine I would agree 100% as they are very effective.) The actuators for these are situated inside the tips. Most builders use screws to hold the tips on to allow for easy maintenance.

The aircraft was now more or less complete and it was then a question of whittling down the last minute to-do list and getting in the all-important paperwork, not my forte! The staff at Deddington however proved helpful and understanding, finally approving the little 'Mods' I had included, though it's safer to talk about these before you include them!

So the big day of the test flight arrives, or rather it would have done if we had not had such lousy weather in 2007. Eventually, weeks later, Rob Grimwood, was able to take to the sky between some very heavy showers and pronounced that all

seemed well except for a couple of minor problems, one of which was a small fuel leak. Pressure testing in a bowl of water in the sink revealed a faulty reserve tank. This necessitated a trip up to Sandtoft, where Pete Wilson provided a replacement by removing the tank from their own demonstrator on a Sunday afternoon. Now that is what I call after-sales service!



Back down to Rugby and the tank was replaced, refilled and leak free by 8 o'clock. A satisfying day's progress.

All we needed now was a weather window to do the flight tests proper. With me acting as ballast and recorder, Rob spent best part of two hours putting the Savannah through its paces. And yes it really does

what it says on the box!

At last it was my turn. With all the tests and paperwork in order I could fly off the remainder of the 5 hours. On another of the few flyable days Pete and Steve arrived from Sandtoft in G-C***. Pete, who doesn't appear to suffer from nerves, allowed me to bounce him around while I attempted crosswind landings into a small farm strip in a strange aeroplane having not flown for 8 months! It's a testament to the strength and forgiving nature of the aircraft that I felt confident enough to go off solo before the day ended.

As yet I still have only a few short flights logged in the Savannah but as I get more 'comfortable' I am beginning to appreciate its handling and utilise more of its potential. Though I am right at the bottom of the learning curve I'm already planning camping trips to the back of beyond. When I get a set of Tundra tyres from 'Father Christmas' (Read long suffering wife Mary) any reasonable sized cabbage patch should do for a

landing strip!

Yes the best reason for building a plane is the enjoyment of seeing it grow week by week and sharing the pleasure with the many people that a build project touches, but the sheer elation of flying that box of bits on your first solo circuit takes some beating.

