

LIGHT Aviation

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G-KELP (LAA 317B-15459) AEROPRAKT A22-LS FOXBAT

BUILT BY JOHN MACKNAY

JOHN'S BEEN flying for ten years or so and started by working his way through a number of club-type aircraft, before seeing the light and embracing *Permit to Fly* types. More recently, he's owned a CZAW SportCruiser.

After retiring from business and relocating to Snowdonia, John found a new passion for flying locally among the area's hills and valleys. Although he loved his SportCruiser, John felt it wasn't fully meeting his needs, and the decision to move on followed him undertaking a Mountain Flying and Beach Landing training course in Scotland. He'd also received an offer to use a neighbour's hilltop grass strip.

Therefore, a lengthy list of requirements for a new aircraft began to develop, with STOL, safety and ruggedness as the headline attributes.

Initially, John considered the likes of Citabria and Husky, but value for money and exacting customisation brought him quickly back to *Permit to Fly* types. Therefore, John building his own aeroplane was a means to an end, rather than something which was to be embarked upon for its own sake. The aircraft up for selection had to be available, and be able to be built and flown within the year.

John went on a factory tour of Europe, to examine three of the most likely contenders, only to come full circle and settle on an aircraft which was available very local to him.



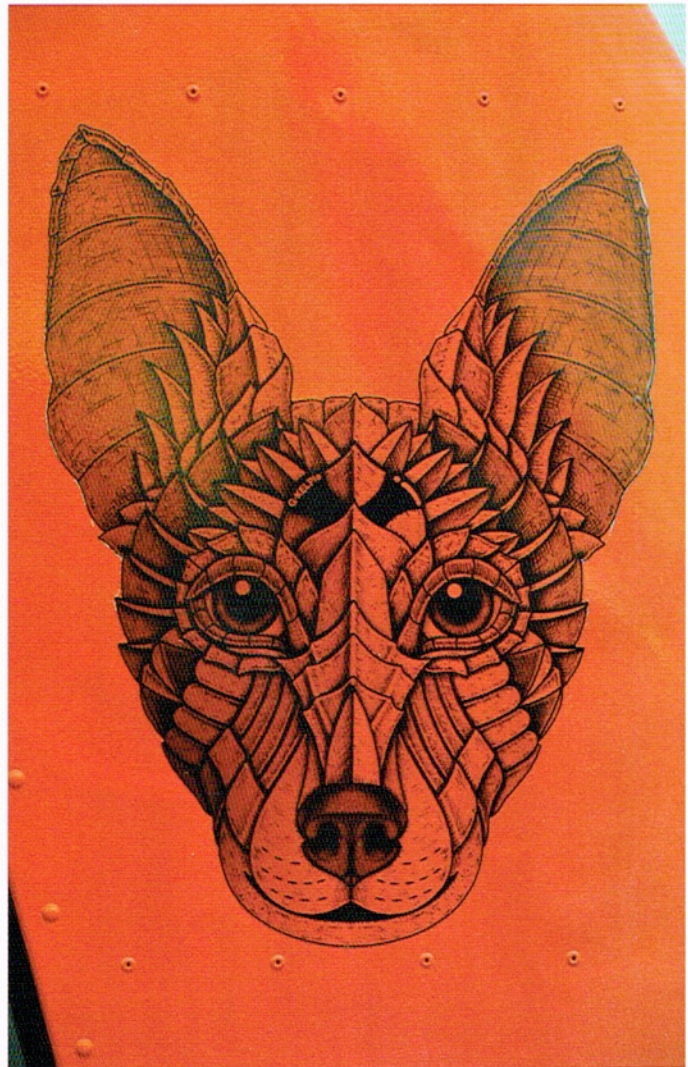
Ready and waiting for her maiden flight, which went perfectly. (Photo: John Macknay)



(Left) The large camera aperture/clear-view panel in pilot's door. (Photo: John Macknay)



(Above) The very sharp and tidy interior, with its high-end, integrated Garmin avionics. (Photo: John Macknay)



(Above) The special tail art, based on the Australian kelpie sheep-mustering dog. (Photo: John Macknay)

PROJECT NEWS

Dragon Aviation is the UK agent for the Foxbat aircraft and the A22-LS model met John's requirement perfectly. Although John had come to the conclusion that folding wings weren't necessary, the Foxbat's are easily removable, and this did better suit his needs. The icing on the cake was that Dragon were only a handful of miles away from where John lives and, being a first-time builder, this gave him reassurance as he concluded that, if stuck, he could take a troublesome part to the agent directly and resolve his difficulty.

The Foxbat has been available in the UK for nearly twenty years, as a 450kg microlight. The Foxbat SuperSport 600, or A22-LS, is the 600kg light aircraft version, which has been available for approximately the last five years.

PRE-DELIVERY PROGRESS

Desirable kit aircraft are rarely available off-the-shelf and, having ordered his kit in February 2017, John was lucky to be offered a cancellation and took delivery in May. Using the lead time wisely, and having some facilities on his smallholding, a derelict outbuilding was demolished and a 6m x 22m workshop constructed.

John was then able to begin work pre-delivery – planning the panel, ordering the avionics, considering avionics interconnections and undertaking relevant research. He found Mendelssohn's very helpful, and wherever possible he ordered readymade harnesses to cut down the build and de-bugging time. He reckons that, overnight, he probably became their best light sport customer for a while!

The aircraft was to be future-proof and look sharp, tidy and modern – John planned to build only once so it had to be right. The injected Rotax 912iS fitted the bill, as did a 'glass' panel with EMS integration. The specification included a single 10in Dynon SkyView HDX with integrated Dynon radio, transponder and auto-pilot; a ballistic recovery system; photo panels in the doors; and long-range fuel tanks.

"This build was a completely adsorbing, full-time job for a few months"

Living and flying, often alone, in a mountainous part of Wales, John considered the inclusion of the autopilot a useful extra pair of hands, rather than a technology indulgence. In addition, his local terrain isn't all that forgiving and out-landing sites aren't always readily available, so the inclusion of the BRS was added to complement the STOL capability.

Finally, the aircraft was also to be configured as a glider tug, not only to further guarantee future resale possibilities but also for a very good flying friend who'd sold his SportCruiser and purchased an all-new Silent 2 Electro glider. John thought he might welcome an occasional tow to save energy from self-launching. A Glider Tug rating has been lined up for this coming spring.

As planned, all of the above, including the BRS, has been achieved with an empty weight a little less than the very simple, early version SportCruiser which John previously owned.

Now for that out of sequence registration – seaweed? No, a kelpie is a breed of dog used in Australasia for sheep droving, and was originally a crossbreed of a collie and others. The Foxbat agent down under has had some success creating a custom, ready-to-fly version of the aircraft, for sheep droving and has called it the Foxbat Kelpie.

Apparently, the farmer drives around in the 'ute' while his offspring uses one or more aircraft to muster the livestock, communicating over the radio. Consequently, this special variant deviates from norm in having, among other things, tundra tyres, a beefed-up undercarriage, a bigger propeller, more glazing, removable doors and minimalist



(Above) The neat mud/stoneguard on the Foxbat's chunky nosewheel reduces the amount of grime accrued and also any potential stone damage to the underside of the fuselage. (Photo: John Macknay)

mudguards, to help it with those rough bush landings. John has embraced many of these modifications and refers to his aircraft as a UK Kelpie, even subtly working the name in the tail graphic.

FROM ARRIVAL TO AIRBORNE

The Foxbat kit arrived with the fuselage shell and the flying surfaces built, and looking like an aircraft. That may be a little deceptive as it still leaves the builder plenty to do, and John got stuck in full-time.

The underside of the wings and all of the control surfaces all needed covering with Ceconite, a new skill which John mastered in a few days. He admits that the covering was the thing he feared the most, yet it turned out to be far easier than imagined and actually proved to be very enjoyable.

A good deal of time was spent with the avionics and the Rotax 912iS installation – in fact, it proved a little challenging getting the Dynon kit to play nicely with the powerplant and, indeed, the 'integrated' ancillaries. By the time the first engine start came around, the Dynon already had an uptime of some 30hr. John points out that all of the information is in the manuals, even if they need reading more than once, a task his wife Cherry often helped with in the evenings once he'd succumbed to word blindness.

John initially set out to undertake the painting himself but was unhappy with the results and subsequently contracted it out to an auto-finisher. The RAF are rather active in his local area so a high conspicuity paint scheme of orange and black was chosen.

Ray Everitt of Dragon Aviation, the UK Foxbat agent, carried out the first flight on 3 November and said the aircraft flew 'feet and hands off', straight out of the box. After a couple more flights, John joined Ray as observer, the duo completing the test schedule. However, since that time however, and with the coincidence of LA publishing Francis Donaldson's invaluable articles on the Rotax 9 series, John has called in Simon Worthington of Ecclestone Aviation to assess the engine parameters, notably fuel pressure.

The findings made by John and Simon have been passed to LAA Engineering's Malcolm McBride and it became clear that only a Rotax (Bosch) filter and no other type, including the supplied Aeroprakt unit, will suffice, given the very high fuel flow rates common to the 912iS. Additionally, the debatable location of the Pressure Sensor before the filter, as recommended by Rotax, is made more questionable without a very low flow resistance filter.

John concluded that other filters are likely to foul quickly, or simply be bypassed. In turn, that fouls the regulator filter further down the line. That may lead to high indicated fuel pressure, if the filter is restricted, but gives no indication of the actual line pressure at the injectors if the regulator isn't perfectly clean.

One other issue arose: as of yet, there are no defined LAA procedures to test the autopilot and autotrim John fitted as part of the Dynon HDX installation. Accordingly, the autopilot has been temporarily disabled and John will be flying G-KELP to Turweston to assist Andy Draper with this task, for the benefit of himself and future builders.

Apart from the autopilot flight-testing, all of the fuel pressure, filter, sensor location and regulator considerations have been passed to Malcolm McBride for reference or promulgation, as required. John has confirmed that he's happy to be contacted via the LAA if any member feels that they might be able to informally help with regard to the 912iS.

A TEAM EFFORT

John comments that this build was a completely absorbing, full time job for a few months and although he used his trusted commercial experience with Parkinson's Law (work expands so as to fill the time available for its completion), he admits that he probably underestimated the refined details of many tasks and the project ran a little beyond the time targets, albeit that they were primarily put back due to fuel pressure and autopilot issues.

He's quick to acknowledge the team effort, as everything was made all the easier due to the help he received from the LAA, Mendelsohn's, Dynon, Ecclestone and Bodycraft, with special mention for the limitless time, support and encouragement given by family and friends.

Although he's currently undertaking his Night/IFR rating and revalidating an IMC this winter, John has his 2018 season mapped out, including many photographic sorties planned for his local area. In May, he and Cherry are attending the Valdez Fly-In, Alaska, and then going on to Ultima Thule Lodge with Alaskan bush-flying legend, Paul Claus.

Asked if he'd ever build again, with just a little hesitation, John mentions his now empty workshop and talks of an ultimate STOL build, to maybe to take to Valdez one day. He concludes by saying, "Never say never therefore," and, "We have to pursue these dreams, as they may actually become a reality one day." ■

NEW PROJECTS

If your aircraft has been featured in the *New Projects* list, please let *Project News* know of your progress by emailing projectnews@laa-archive.org.uk

- **Bristell NG5 (LAA 385-15512) 08/11/2017**
Name & address held by LAA Engineering
- **Van's RV-7A (LAA 323-15513) 15/11/2017**
Name & address held by LAA Engineering
- **Replica Plans SE5A (LAA 020-15514) 24/11/2017**
Name & address held by LAA Engineering
- **Rutan Defiant (LAA 407-15515) 27/11/2017**
Name & address held by LAA Engineering

CLEARED TO FLY

If your aircraft has featured recently in the magazine and has subsequently completed its maiden flight, *Project News* would like to hear from you via projectnews@laa-archive.org.uk

- **G-DREI Replica Fokker DR1 (LAA 238-14848) 30/11/2017**
Mr Peter Brueggemann, Acorn Lodge, Macks Loke, Reepham Road, Briston, Melton Constable, Norfolk NR24 2JL



(Above) The Fokker's part-completed airframe, pictured at Felthorpe in April 2014. (Photo: Graham Reeve)

- **G-AGOS RS4 Desford Trainer (s/n 3) 24/11/2017**
Name & address held by LAA Engineering



(Above) The Desford Trainer undergoing engine trials at Spanhoe back in August 2017. (Photo: Mick Bajcar)

- **G-HAAR Eurofox 912(S) (LAA 376-15469) 30/11/2017**
Name & address held by LAA Engineering