

A DAY IN THE CLASSROOM

LAA Inspectors on a mission at Lambert Aircraft Engineering. By Brian Hope



The Association's Inspectorate consists of the small team at HQ, where Ken Craigie and Malcolm McBride ably supported by Fiona and Adele, and the all-important band of 375 inspectors scattered around the UK, willing and able to help you keep your aircraft in tip-top condition.

For several generations, aeroplanes remained quite simple pieces of mechanical machinery, almost agricultural, though with considerably more finesse of course. But today, technology moves on at an alarming pace; it's chips with everything and who could have even imagined, only a decade ago, some of the complex avionics that now grace the panels of the latest kit aircraft. Or the increasing range of constant-speed props, ballistic chutes and ECU-controlled engines.

Just like the motorcar, modern aircraft – and kit built aircraft lead the way when it comes to new technology – are going increasingly high tech, yet we expect our inspectors to understand these systems and keep us on the straight and narrow.

Fortunately the head of our Inspectorate, Ken Craigie, has for many years had a policy of arranging training days for inspectors in the field to help keep them abreast of new systems and technologies. Companies marketing products to our industry are well versed in

The visiting LAA inspectors at Lambert Aircraft's M108 seminar. Filip Lambert and Ken Craigie by the nosewheel.

passing on the necessary information on how to install and maintain their equipment, and many of our inspectors are keen to expand their knowledge.

Purely by chance I was able to join an inspector visit recently when somebody had to drop out late in the day, and I just happened to be in the right place at the right time. And my luck was well and truly in because we were going to visit Lambert Aircraft, manufacturers of the Mission 108, at Wevelgem in Belgium.

I've known Filip Lambert for number of years. He has been a keen advocate of our Association since his days as a student at Cranfield, where he won a RAeS design

competition and ultimately went on to build his Mission 212, a composite four-seater. That aircraft was designed around a diesel engine, the Zoche, which unfortunately has yet to see production and though it flew well enough on a Lycoming O-320, its further development awaits a suitable engine. The American V4 DeltaHawk looks a likely candidate, so we may yet see some advancement on the M212.

Our visit though was to give inspectors more insight into the M108, Filip's two-seat side by side VLA-type machine, the first example of which is now flying in the UK with Steve Kember in Kent. Readers may recall Steve's series of articles about building the aircraft in week-long sessions at the Lambert factory. The second UK bound example was at the factory virtually finished, and four other aircraft are on order.

CONVENTIONAL AIRFRAME

Steve is very much an advocate of modernity, moderated by a grounded approach to what is realistic in an affordable recreational aircraft. The 108 is very conventional in terms of its airframe. It has a tig-welded steel tube fuselage and an alloy tube spars wing with CNC cut plywood ribs and very nice composite leading edges and control gap rear edges.

In many ways it is one of the modern iterations of the Kitfox genre, which

“Today, technology moves on at an alarming pace. It's chips with everything”



The first tailwheel variant of the M108. Hopefully we will see it at the LAA Rally.



Inspectors enjoy a look around the factory to see how the M108 is built.

INSPECTORS' SEMINAR

remains popular with buyers across the globe.

It is principally in the engine choice – the fuel injected Rotax 912iS – the avionics and, importantly, the documentation, where Lambert Aircraft has moved kitplane technology forward.

We – Ken Craigie, me and CEO Steve Slater – arrived at Filip's and his brother Steve's very impressive facility at Kortrijk-Wevelgem airfield bright and early on Friday morning, having taxied Ken's Qashqai expertly onto the grass parking area. There we met 17 LAA inspectors who had also made their way across the oggin to take part in what was a busy day of discussion.

Filip introduced the company, which he and his brother have been running for ten years, and apart from the 108, they are also avionics experts who install anything from a radio to a complete ultra-modern IFR fit. Indeed, the company intend putting the M108 through the LAA Night/IFR programme and already have a full IFR panel designed for implementation in the aircraft should customers specify it.

We then discussed the 108 in great detail. Practically all of the aircraft is built in-house, so it is possible to ensure close attention to quality control. As I say, it is pretty conventional and it is the engine and avionics, and to some extent the ballistic chute, that bring the complexity.

I have to admit that, having trained as a mechanical engineer and owned a Permit aircraft for 30 years, I have a reasonable grasp of mechanical issues but electronics I struggle with. The wiring of a modern kitplane with ECUs, EFIS and high-end avionics is, I am sure, something that many builders leave to the

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‘experts’. I know from experience that there are those that do not though, which is fine if you know what you are doing. However, there can't be many of you that haven't been confronted with a wiring problem in an aircraft and there isn't even a basic wiring diagram to help you and, quite likely, the wiring isn't colour coded or labelled.

This is where the Lambert truly is different. By encouraging builders to use their Builder-Assist programme – ie, visiting the factory to build their aircraft – they can ensure that each machine is built to their exacting standards. The LAA inspector can then log into the Lambert website and download every piece of data about an individual aircraft he could possibly want. Build and Maintenance Manuals, which options it has, wiring diagrams, outsourced parts maintenance data, exploded parts diagrams that go down to the last nut,

bolt and washer, design drawings, Service Bulletins... and so the list goes on. He can even find which iteration of software was loaded to the avionics and the engine ECU. Nothing, absolutely zero, is left to chance.

I think it fair to say that all the inspectors were very pleasantly surprised at the level of detail. It does, to a large extent, reflect the types of systems employed in the certified world. To have it available for a kitplane was something of a revelation.

As I say, the level of electronic complexity these days has left my meagre skills behind, but I was delighted to hear the level of discussion going on between Filip and the inspectors, many of whom clearly have more than a passing grasp of this modern kit. I guess we have to accept that this is where we are headed, it is what the majority of today's buyers appear to expect of a modern aircraft.

Just like your car, today's aeroplanes need plugging into a computer, which will then tell you exactly how healthy it is feeling and whether it needs a software fix. It is reassuring to know that we have inspectors out there who understand the technology and can keep these high tech machines in good order, and reload or update the software when necessary.

Filip and Steve looked after us very well, providing a buffet lunch and tour of what is an excellent, modern factory/hangar. At the end of the seminar we moved up the road to the Flying Club and enjoyed a superb BBQ, again courtesy of the Lambert family. It rounded off the day perfectly. Thank you to Lambert Aircraft Engineering for its hospitality and a most interesting day. ■



An M108 wing awaits the return of its builder to finally fettle and cover it in fabric.