

TOP GEAR | PRODUCT REVIEWS

A ROUND-UP OF SOME OF THE MOST NOTEWORTHY BRITISH-BUILT GENERAL AVIATION PRODUCTS



World-class aviation products made in GB

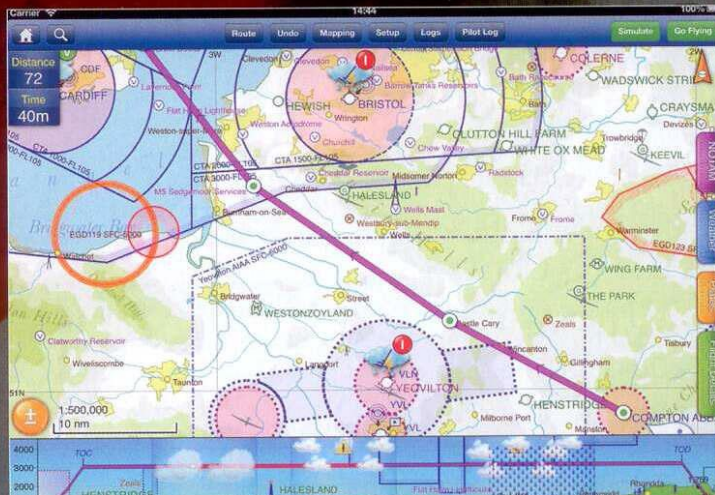
While the number of British aircraft manufacturers has declined over the years, we've seen the development of some world-class aviation products and services that are now at the forefront of their respective areas. And the neat thing? As Ed Hicks discovers, many of them have private pilots at the helm.

SkyDemon www.skydemon.aero

After Tim Dawson, founder and Chief Software Architect at SkyDemon, got his PPL in 2006, it became apparent to him that many things about planning and navigating GA flights were needlessly antiquated and frustrating. So he decided to put his skills as a software developer to use. That's when SkyDemon was born.

Initially only intended for his personal use, after showing SkyDemon to a few pilot friends in 2009, it became apparent to Tim that it was already better than some of the existing products on the market. Encouraged, he decided to polish it and launch it as a commercial product.

Fast forward a few years and SkyDemon is now available on four major platforms and has grown to become the European market leader in its field. SkyDemon was the recipient of a special commendation in the 2011 CAA General Aviation Safety Awards for services to GA flight safety, and in the run-up to London 2012, SkyDemon Light was awarded a Pre-Flight Planning Compliance Mark by NATS for providing the ability to file flight-plans free of charge during the Olympics. Tim explained, "General Aviation is a changing market and there are so many facets to the safe planning and navigation of flights that there is always something that can be improved or invented to make people's lives easier. Going forward, there is still scope for us to grow our subscriber base in Europe and beyond, and each week as we engage with our subscribers via Facebook, email and telephone we're given new feedback and ideas."



Wilksch Airmotive

www.wilksch.net

Conceived in the mid-90s by Mark Wilksch, engineer Phil Franklin and designer Martin Long, the Wilksch Airmotive (WAM) CITEC (Compression Ignition Turbo Exhaust Charged) diesel engine first flew as a two-cylinder version in 1997, followed by the prototype three-cylinder engine in 1999 in a Europa. Development and sales followed, and now 30-plus engines have been installed into more than 12 different types of airframe.

Much has changed in the intervening years, including the departure of Mark Wilksch, in 2007. Long and Franklin have continued to push forward with development and support at the company, which since 2010 has been located at Gloucestershire Airport. There's also been the addition of Mike Newton, as the new managing director.

The WAM fleet of engines has accumulated over 3,000 hours of flight time, with two notable customers, one with over 500 hours, the other with over 800 hours. With almost all of the installations fitted with the company's data-logging system, WAM has been keeping a close eye on each airframe and engine combination. In that time, the most significant discovery has been the premature erosion of the indirect injection pre-chamber tips; this has led to the development of the Generation II engine's revised combustion system.

Gen II three-cylinder engines edge closer to release as durability testing continues. While the engine layout remains unchanged, the new engine features an all-new combustion system and is a larger bore and stroke. These changes bring cleaner burn, even better specific fuel consumption and increased power output. To upgrade an existing engine, WAM is investigating options for a complete rebuild or an exchange unit.

WAM's first four-cylinder GEN II engines began running in late 2013, and so far are performing to expectations, running to 160hp with



comparable characteristics to the Gen II three-cylinder engine. The four-cylinder engine comes in at about 118kg, which for an engine planned to produce 170-190hp, gives a significantly lower installed weight than equivalent avgas engines, along with the diesel's more frugal fuel burn. Typically three-cylinder units in RV-9s will average 15-16 litres per hour.

Long says, "Keeping a low profile these past few years has enabled us to support the existing fleet of engines, whilst really working hard to develop the Gen II three- and four-cylinder units. Expect to see and hear more from us in the coming months. We're also excited about opportunities in other markets in GA, and military and UAV markets."

Andair

www.andair.co.uk

Andy Phillips' path to making fuel selectors started with the building of his Van's RV-6, G-GRIN. While he liked the way the airframe went together, he felt the kit fuel valve was not something he'd be happy with; it had no detectable detent between tank selections, and passed through the off position. So he set about making a fuel selector that was "better". The result was an elegant valve with detectable detents, and the 'off' position reached with a spring-loaded pin.

As other homebuilders learnt of Andy's fuel selector, they wanted their own. So Andy started producing them at his machining business. Before long, the valves were stocked by Aircraft Spruce and Andy has never looked back. As demand grew, the valve started to find its place in certified aircraft, Cirrus taking an Andair unit for the SR-20, after the Klapmeier brothers had experienced Andy's fuel valve during their homebuilding days. Andair now works exclusively on aviation products, the range extending from a simple Tacho Drive Cap to complex electrically-actuated positioning valves used in airships. Andy's son Owen now runs the company from its base in Havant, Hampshire, but you'll still find Andy working busily in research and development.

In recent years, Owen has been concentrating on the development of an electric fuel pump. A 'clean sheet design', the Andair unit is typically a third of the weight of a comparable automotive pump and has one third of the power consumption. Andair is also very proud of its newly-developed Duplex pump aimed at the new Rotax 912iS. The unit has two individual but 'Siamesed' pumps with a common input and output, and weighs only 450g.

In the certified arena, you'll find Andair fuel products in the entire range of Cirrus and Diamond Aircraft, in the Cessna TTX Corvalis, various



Grobs, the entire range of Tecnam aircraft, Evector and Pipistrel. Andair has also designed and certified a number of retrofit selector valves for older designs like the de Havilland Beaver and the North American Navion. Andair's latest addition to this area has been a retrofit selector valve for the Cessna 172.

