The ALBATROS

Of all the world’s ex-military jet types, the Aero L-39 Albatros, that sturdy, cost-effective Czech trainer, is by far the most popular with civilian owners.

words: MARK BROADBENT
WHEN THE Aero Vodochody L-39 Albatros made its first flight on 4 November 1968, the idea of Western private pilots one day operating what would become the Warsaw Pact’s standard jet trainer would have been regarded as fanciful. But so momentous were the 1980s’ geopolitical shifts that, just 25 years later, exactly that happened. Since then the L-39 has become the jet warbird du jour, with hundreds in private ownership worldwide. But what’s made the sleek Czech machine so popular?

Aero designed the L-39 in the mid-1960s to succeed its L-29. It was typically East European — a simple, streamlined design, an efficient Ivchenko AL-25TL turbofan engine and solid construction were meant to provide reliability in rugged terrain and harsh climates. Series production of the basic L-39C advanced trainer began in 1972, followed by the L-39ZO/ZA light attack versions equipped with four under-wings weapons hardpoints, payload and engine performance improvements and a sturdier undercarriage.

Designed as a cheap, rapidly-deployable supplement for the Soviet Air Force and WarPac nations’ front-line forces, these variants were also exported to Asian and African countries. Nearly 3,000 L-39s were produced and hundreds are still used in eastern Europe, former Soviet republics and Africa, making the L-39 unusual in being a contemporary military fast jet and warbird.

The era of civilian L-39 ownership began relatively quickly after the Cold War. In the early 1990s, dozens became surplus to requirements amid organisational and economic chaos. Entrepreneurial Western private pilots’ gaze soon turned east. Dan McCue, a Delta Air Lines captain and warbird owner, told the Smithsonian’s Air & Space magazine in 2002 how he negotiated with a Moscow flying club to purchase an L-39. ‘They were flat broke’, McCue recalled. ‘There were no banking systems. You couldn’t wire money or write a cheque. The only way… was to put it in a box and hand it to them. I gambled and I won.’

McCue had his L-39 fully overhauled and new avionics installed to comply with Western standards. Working with the US Federal Aviation Administration on the process of getting a civil certification, the Albatros was moved to the USA and in December 1992 McCue became the first Western pilot to fly an L-39 in private hands. With the regulatory path cleared, the US population of L-39s bloomed during the late 1990s, aircraft being imported from Russia, Ukraine, ex-Soviet republics and eastern Europe.

By the early 2000s over 200 L-39s were on the FAA register. Many had become airshow acts, typically painted in custom or spurious military schemes to denote ‘aggressor’. Aerobatic teams were inevitably formed, firstly the Patriots in 2003 and more recently the Black Diamonds Jet Team which now operates four L-39s in a mixed display with two MiG-17s. In 2002 the Reno Air Races somewhat controversially introduced an Albatros category. Meanwhile there emerged an industry of specialist L-39 sales, maintenance, flight training and pleasure flying companies.

In the UK, prolific aircraft collector and dealer Robs Lamplough imported several L-39s to North Weald in the early 1990s. These were sold to the US, with the exception of an ex-Libyan Arab Air Force L-39ZO captured in North Africa in the Gulf Air Force by the Chad Air Force. This was purchased in 1995 by the Real Aeroplane Company’s Tony ‘Taff’ Smith. Tony told Classic Aircraft that ‘no-one gave me a hope’ of getting the aircraft onto the Civil Aviation Authority register under a Permit to Fly — it was felt the process of securing an ex-Eastern Bloc jet would be just too difficult. But with the expert assistance of a vastly-experienced ex-RAF engineer, the late John Chillingworth, Tony persuaded the CAA to award a ferry permit for the L-39 to be taken to his Brighton base for overhaul.

Having flown with test pilots and completed a technical course at Aero’s factory, Tony recruited the late Norman Lees to assist with the flight. Tony and Norman used cones at North Weald to practice short-field landings — Brighton only has a 575-yard runway. Departing from North Weald they undertook what Tony describes as a ‘sporting’ landing at Brighton, stopping in only 400 yards. Tony’s Albatros was completely overhauled at Brighton over the next year and new cockpit systems, comprising an airline-specification Rockwell Collins Pro Line avionics suite, were installed to comply with Western standards. The process of gaining a Permit to Fly was eased, Tony notes, by the fact it was relatively un-used: ‘The engine had only a couple of hundred hours from factory-new, so it was more of a tidy-up than anything else. There were some difficulties: for instance, I had to prove to the CAA the ejection seats had a good safety record.’

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Aero’s assistance in providing the necessary documentation to satisfy the CAA was important. Tony also gives great credit to John Chillingworth: ‘They [the CAA] were asking question after question after question and [John] just knew all the answers’. Satisfied, the CAA awarded the Permit. The aircraft, now appropriately registered G-OtAF and finished in Tony’s personal yellow-and-black scheme, flew from Brighton in April 1996 and, operating from RAF Church Fenton, was displayed by Tony at airshows across the UK and Europe that year.

Late in 1996 Tony received a call from EON Productions requesting to hire G-OtAF for their latest James Bond film, ‘Tomorrow Never Dies’. Tony says producer Michael G. Wilson wanted L-39s ‘because he liked the look of them’. With the Old Flying Machine Company contracted to provide the aerial sequences, G-OtAF and an Aero demonstrator L-39ZA were painted in ‘enemy’ markings and in early 1997 deployed to Tarbes in the French Pyrenees, from where they were flown by Tony and the OFMC’s Mark Hanna and Rolf Meum.

The shoot took place at nearby Courchevel high up in the mountains, an ‘altiport’ with a short (525m) runway. ‘We were flying down the valleys lower than the people skiing on the slopes’, Tony recalls. ‘We had two months of just pure fun and fantastic flying’. One sequence involved landing on Courchevel’s 11-degree runway — uphill. Mark was in the back seat flying and I was calling out the numbers’, Tony says. ‘There was only one escape route at the top of the altiport between some trees into a valley. Eventually we got it down to about 120mph and touched down a couple of times… we needed the speed to get between the trees at the end.’

Post-filming, Tony recalls how Mark Hanna ‘was absolutely desperate’ for the L-39. A deal was struck for G-OtAF to be part-exchanged for the OFMC-operated, Chris Horsley-owned Spitfire PL965. Still in its film markings the OFMC flew G-OtAF at several 1997-98 airshows in a novel airfield attack sequence involving a BMW driven by then-Bond Pierce Brosnan’s stunt double. In 1999 G-OtAF became part of the Breitling Fighters and was re-sprayed with spurious Russian Air Force markings. In the shadow of the warbirds, however, airshow bookings were slack and it was sold after the 2002 season. G-OtAF was written off after a non-fatal forced landing near Duxford in 2005.

Only three other Albatros, all L-39Cs imported from Estonia, have been operated on the UK register. G-BZVL became a write-off after a fatal runway over-run incident at Duxford in June 2002, G-OALB was based at Manston for several years before returning to Estonia in 2006, and G-BZDI was operated from Hawarden by North Wales Military Aviation Services until being sold to the USA last year.

Europe has a healthy L-39 population regardless. Dijon-based Apache Aviation has 10 L-39Cs, seven constituting the display complement of the Breitling Jet Team, slick and elegant regulars at European airshows. Two more of the company’s L-39s are also in Breitling colours. Apache Aviation initially only operated four aircraft (as the Khalifa Jet Team) in 2002, but progressive investment by Breitling since its sponsorship began in 2003 has made it the world’s largest single L-39C operator. Privately-owned Albatros also operate in the East — the Baltic Bees at Takums, Latvia and Russia’s Rusj aerobatic teams employ five and six L-39Cs respectively. Further afield there are examples in South Africa and Australia. In total it’s estimated around 300 L-39s are in private hands worldwide, 262 in the US alone.

Though the L-39 appeals because it’s simply ‘a nice-looking aircraft’, according to Breitling Jet Team leader Jacques Bothelin, its popularity is down to practicalities. It’s cheap to buy, simple, reliable, economical and performs well. The
sheer number of relatively low-houred L-39s available is a big factor — plentiful means cheap. Costing between $150,000 and $1 million depending on condition and provenance, L-39s are cheaper even than the piston fighters traditionally seen as the zenith for private pilots. Simplicity and reliability are other key selling points. ‘It’s easy to maintain — no hydraulic controls, it’s all mechanical and very reliable and robust’, ‘Taff’ Smith says. He had ‘zero reliability problems’ while operating G-OTAf, while Jacques adds that during the Breitling Jets’ last visit to the Middle East, ‘we flew 30 hours per aircraft in two weeks with no snags — we were very impressed with the reliability’.

Jacques Bothelin stresses that the L-39’s simplicity shouldn’t disguise the complexities of operating a contemporary military jet. ‘She needs quite a lot of good, detailed attention by qualified technicians’, he says. ‘We have our own dedicated team and each jet gets thoroughly checked before and after each flight as well as the standard 50 and 100-hour checks and of course their annual, which can be quite time-consuming. Also, operations with live ejection seats are to be taken seriously and have their own schedule of maintenance. It is not [like] a Cessna 172 that you just pull out of the hangar and fly! It really is a military jet.’

It’s perhaps little surprise, therefore, that so many specialist L-39 maintenance companies have emerged, particularly in the US. This complexity also means that, in Western Europe at least, the process of registering L-39s can be arduous. Tony Smith says the dearth of L-39s on the British register in recent years reflects these difficulties: ‘Even though there are thousands of [them] every L-39 that you want on a Permit to Fly is treated from scratch as a prototype. It’s so restrictive [that] people won’t do it.’

Jacques explained that the Breitling Jet Team’s L-39Cs operate on the Estonian register ‘because we bought them before Estonia was in the European Aviation Safety Agency system and we had the paperwork to operate them from the Estonian CAA. It was the easiest solution at the time’. He added that Apache Aviation is currently in the process of transferring the aircraft to the French register. The very fact, however, that L-39s operate on Western registers at all reflects the comprehensive documentation and assistance provided to Albatros operators by Aero. The level of support from the design authority is an important factor for regulators.

Another of the L-39’s strengths is its economy. The aircraft’s simplicity and reliability mean maintenance costs are reasonably inexpensive for a jet and spares are readily available. Fuel economy is good, too. Its internal tanks permit three hours flying time extending to over three hours with wingtip drop tanks. Average fuel consumption per hour is 700 litres. This makes it more economical than, for example, the Jet Provost, which uses 800 litres per hour. The comparison with higher-performance classic jets is even starker — the L-39’s hourly fuel burn is only two-thirds less than the Hunter T7’s 2,400 litres per hour.

Even with this relative economy the Breitling Jet Team’s fuel costs are hardly cheap. Jacques notes that without Breitling’s sponsorship the team couldn’t afford to operate in the way it does. ‘A private owner can say, ‘OK, I’ll fly 20 hours per year instead of 25,’ [but] our mission necessitates flying hours’, he observes. However he added: ‘The L-39 is the most economical aircraft we can use for our purpose. We are very strict with the routes we fly and we never fly without cause. Because the team has been together for 10 years we also do not need a long training programme, which helps us to be relatively economical on fuel per year.’

What is the L-39 like from a handling and performance point of view? ‘It’s straightforward, very forgiving and difficult to make a bad landing’, Tony Smith says. ‘It does tell you what’s what, it’s got a lot of feeling and the speeds aren’t excessively high’. That said, the L-39’s maximum speed is around 400kt at 16,000ft (though typical low-level performance is around 250kt) and its rate of climb is around 4,100ft per minute. Being this straightforward is clearly a big reason for its appeal — it is high performance, but not excessively so. ‘It’s just a nice, sensible aeroplane [for]... people who haven’t got high hours on jets’, Tony observes.

Aerobatics can be flown relatively comfortably in the Albatros, too, some US display pilots and teams even performing tailslides in the type.

It isn’t flawless. Jacques says it’s ‘not a good high-altitude runner’, saying that even with drop tanks to extend the standard 400nm range in ‘clean’ configuration, the L-39 can only manage 600-650nm legs at a cruising altitude of 25,000ft, meaning it tends to run into weather systems. This is a particular disadvantage for the Breitling Jets who undertake transcontinental flights to display venues. Another difficulty for L-39 display teams is the absence of power-assisted controls, which makes the Albatros heavy in formation flying, especially above 250kt, and therefore difficult for pilots on the outer edges of formations. ‘During a display at high speed you have to put in a lot of muscle’, Jacques says. ‘It does limit the formation change possibilities, but we try and get the best possible performance that we can’. Tony adds the L-39 is also ‘not very good in crosswinds — you have a castoring nosewheel and a very high fin’.

Overall, however, the L-39 is a solid performer. Combined with its affordability, ease of maintenance, reliability and fuel economy, it simply offers a good all-round package. An intriguing statistic is that there are now six times the number of L-39s flying in private ownership worldwide than there are Hunters. This isn’t to compare the two types — rather, it’s an observation as to how the L-39 satisfies the pragmatism among private pilots. Owning and flying something like the Hunter, or similar higher-performance fast jets, is clearly still the ultimate for many but the L-39’s selling points provide a compromise.

Jacques Bothelin sums this up: ‘I have a dream to operate the F-5, which is quite affordable on the market, but the maintenance and fuel are not affordable and I don’t see how we could get the correct paperwork to operate that type of aircraft’. The L-39’s mix of solid performance, simplicity, reliability and ease of use together with good documentation and fuel economy, by contrast, makes jet warbird flying achievable and cost-effective. With dozens of L-39s still available, and the supply likely to increase as in-service examples are retired, it seems the L-39 will remain the jet warbird of choice.