Restoring a Tiger Moth – 70 years on
Terry Dann

This was a personal tale, told by an aircraft owner whose love of flying vintage classics was abundantly clear. His commences with an overview of the Tiger Moth's evolution and led into the issues he faced in conducting a restoration, at time exasperating, but ultimately joyous in terms of outcome.

The de Havilland DH60 Moth (65HP ADC Cirrus engine) first flew in 1925, and was followed by the DH60G Gipsy Moth (de Havilland's 100HP Gipsy I engine). A further variant, the DH60M, received an order for 135 examples as RAF trainers, and experience with the type led to a request that access/egress to the front seat be improved. Designers moved the fuel tank (upper-wing mid-section) forward, provided a larger cockpit access panel, and installed the 130HP DH Gipsy Major engine, a benefit in this case being that the 'inverted' configuration alleviated the need for hot exhausts at cockpit level. To reconcile engine and fuel changes with lift and centre-of-gravity geometry, the wing was re-configured with combinations of stagger and sweepback that led to a distinctive wing planform. This variant, the DH82 Tiger Moth, flew in October 1931, and over 14 years around 8,600 examples were delivered. Wartime UK production was primarily at the Morris car factory at Cowley, near Oxford, where over 3,500 were built, and Scottish Aviation at Prestwick built 60 of the pilotless 'Queen Bee' target practice aircraft variant.

The presenter's aircraft was a Cowley-built example. It reached the RAF in April 1941 with RAF serial T6055 and served with several EFTS units. After 1945 it was sent to Scottish Aviation, from where it emerged in 1946 in a batch destined for the Herts and Essex Aero Club, and was given civilian registration G-AIDS. Soon after it survived a hangar fire, and later a collision with a tree, but it was repaired and remained with the club until 1960. Nurtured, but not flown, by an Essex garage owner the airframe reached the presenter in September 1981. The 'first' restoration began, and in May 1984 the aircraft took to the air at Audley End, Essex. For 25 years it was a familiar sight at vintage aircraft events throughout the UK.

By 2009 the aircraft was deemed to be due for a second restoration. It was showing various signs of aging, including a 'creaking' port wing root when people used the walkway – investigated through inspection panels without sight of a cause – that spurred a second restoration. Dismantling of the aircraft commenced in late 2009 and believing this would be

shorter than the first restoration it was expected that after 6-months the aircraft would return to the skies. It did not prove so simple.

The wings were taken to an expert team at Lavenham in Suffolk, and soon they announced bad news. Their list of issues included rodent damage to one wing spar, 60 per cent of wing fittings suffering corrosion, a compression crack in a spar (attributable to a wing-tip scrape in the aircraft's history), and the 'creaky' wing-root was due to a delaminating rib.

The speaker reminded everyone that any aircraft repair work has to render an acceptably safe result. He stressed applying perseverance, ensuring legitimacy and being sure that work done was certifiable. The team looking after the wings had the skills to do this, and the owners had to instigate and monitor plans that were undertaken thorough a company based at Duxford (DH Support) who in year 2000 had taken on design authority from the historical recipients of the original de Havilland responsibility. The audit trail had to be as comprehensive as that for modern-day aircraft, with trained staff and certified operations creating paper work that proverbially "almost equalled the aircraft mass."

Progressive stages of the wings, fuselage, tail surfaces, undercarriage, fuel system, instruments and panels, primary elements of the flight controls, and the engine and propeller, were all described and illustrated, and with a wealth of informative insight that conveyed news of a lengthening timetable. Listening to the owner's narration of balancing exasperation and determination was a tale of vintage operator folklore.

There were some chilling moments, such as when a wooden patch was uncovered in the tailplane – and fears soon quelled as it was correlated to a certifiable modification used by Scottish Aviation when they had manufactured the 'Queen Bee' variant. But then, a fin spar needed replacing and the only spar that could be sourced, after a wide-ranging search, was of dubious origin. This time, as its packing was removed, there was an in-situ inscription that thankfully revealed the original inspection stamps and record of the spruce wood plank used. Two years down … slow progress.

Eventually we saw the fabrics being applied, and a professional painter applying the registration, and the aircraft's inscription "The Sorcerer" to the engine cowling. In June 2013, 3 years and 8 months after the restoration has started, the aircraft was re-assembled in a hangar at Southend, a Permit to Fly test flight was performed, and later the aircraft was flown back to its home base, a 500-metre strip at Laindon, near Basildon, in Essex. At the Light Aircraft Association Moth rally a few weeks later G-AIDS won the coveted Personal Plane Services trophy for 'best Moth.'

In expressing his profound experience, with clear announcement of the pleasure his love of a vintage aircraft provides, the presenter won the hearts and minds of the 110-strong audience. It was a finale to the annual Branch programme to savour.

Lecture notes by Mike Hirst