

# The Spartan Arrow

*Moth-like in appearance, the Spartan Arrow's handling qualities were poor in comparison to the de Havilland original, says David Ogilvy*

The late twenties and early thirties produced an encouraging number of light aeroplane designs and many of these followed very similar outward patterns. The original DH60 Moth of 1925 and the Avro Avian which first flew in the following year were well-known examples, with reputations that have lived on; every private pilot even today (and many a person who has never flown) has heard of the 'Moth', even though (s)he is likely to be thinking of its famous successor the Tiger Moth, which is a markedly different aeroplane. But how many people in general

aviation today have heard of either the Simmonds Spartan or the Spartan Arrow? Probably very few, but Spartans of one sort or another existed in worthwhile numbers until a year or so before the outbreak of war in 1939, when the breed virtually disappeared from the flying scene.

The original Spartan came from the brain of O E Simmonds, who previously had been a designer with Supermarine. His concept was very clever, for although outwardly, as a single-engine open cockpit biplane with two seats in tandem and with wings that had neither sweepback nor stagger, it looked

much like any other machine of the period, the type had one very specific claim to fame. Ease, speed and economy of repair were major design features and almost any damage could be rectified with the support of only a minimum spares holding. All four wings were exactly identical, so that one spare unit could be used in any position; this, of course, meant that the aerofoil was of symmetrical section. Each elevator was interchangeable and the rudder could be used as an elevator and, of course, vice versa. The undercarriage components were identical on each side, so again one spare leg and attachments could serve for all replacement purposes.

With the almost-inevitable Airdisco (ADC) Cirrus III to provide the power (only 95 horses of it), the first Simmonds Spartan, G-EBYU, flew in the summer of 1928 and competed in the King's Cup Air Race a few weeks later. Although not successful in gaining a place, this prototype flew non-stop from Croydon to Berlin in September of that year and came home again in similar manner only three days afterwards. The interchangeability of parts proved a sales success at first, but a symmetrical-section



Photo Air Portraits

*The Spartan Arrow was of conventional tandem two-seat layout standard for the period but the type's strongest feature was interchangeability of many component parts*

wing is not ideal in practice and the performance failed to sparkle; also, the Spartan earned a reputation for unfriendly habits in the spin, which undid the good that the earlier features had achieved. This led to some rethinking, but by this time nearly 50 specimens had been built at Weston near Southampton, and most of these carried out their allotted tasks successfully for several years.

By 1930 the company dropped the name of Simmonds and became Spartan Aircraft Ltd; but Mr Simmonds remained very much in charge of design and from his experiences with the earlier machine he produced the Spartan Arrow. As the symmetrical wing needed to give way to a more conventional section (the well-known high-lift Clark Y),

some of the interchangeability became lost, but on this score the company was not beaten. Separate removable wing-tips and trailing edge portions made it possible still to benefit from a measure of 'swopability' and the elevators remained identical with similar advantage, added to which the spinning problems of the original Simmonds machine disappeared.

Arrows flew with a variety of sources of power, initially with the upright Gipsy I of 100hp and later with the additional 20hp of the Gipsy II. The prototype, G-AAWY, first flew in the Spring of 1930 and again a not-very-successful rush was made to prepare a

pair of machines for the King's Cup Race to be held only about six weeks later. Production went ahead until 1933, with examples powered also by the ADC Cirrus III, the Cirrus Hermes and, as a test-bed, the 160hp Napier Javelin, which must have given a healthy climb rate. Arrows were used by the Household Brigade Flying Club, the Bristol and Wessex Aeroplane Club, the Isle of Wight Flying Club and others, but



most were privately owned; although a few ventured into World War II, mainly in storage, two were burnt-out in fires in 1940 and only G-ABWP saw aeronautical daylight again after the war.

G-ABWP was registered on 18th May 1932 and completed in July; it was bought four years later by Richard Shuttleworth at Old Warden. This Arrow spent all the war years in storage and eventually emerged, for static display only, for the famous Fifty Years of Flying Exhibition at Hendon in July 1951. This was the display of displays for people with a love of vintage aviation, for many machines that had not been seen in public for years re-appeared for the occasion. 'BWP' retired behind the scenes again afterwards, but in 1953 I met it for the first

and only time. Doug Bianchi of Personal Plane Services, then based at White Waltham, acquired it for £100 from the Shuttleworth Collection on behalf of a client and I had the pleasant task of ferrying it for him. It had been assembled again by the Old Warden engineers and this was my first-ever visit to the Collection; in more recent times I have wished that 'BWP' could have remained where it should belong, among hangarsful of fellow early-birds, but its long-term owner, Raymond Blain, looked after it impeccably for many years. This was not the case, though, when I stepped aboard; a lot later I learned that it had been bolted together for the one flight and had not even been air-tested after probably 14 years in bits. Despite that, as you will read, the subsequent flight revealed no significant failings.

This Arrow, with constructor's number 78,

was powered by the upright Cirrus Hermes II of 105hp, but unlike this unit when installed in a Moth, which had the cylinder-heads, rockers and valve stems exposed, the Spartan machine had a fully cowled engine. Entry was made easy by the provision of unusually generous doors on the right, while the other side was effectively barred as a means of access by the high position of the long exhaust pipe, which ran along near the cockpit within easy hand-scorching reach; this was a feature common to the upright-engined biplanes of the time, such as the Moth and the Avian. An unusual facility for the sporting owner was a large luggage locker on the entry side that extended almost the full length of the rear fuselage to accommodate golf clubs.

Different Arrows varied not only in power, but in a number of fundamental features. They came off the line in a mixed bag with ailerons on upper and lower wings or on the lower set only; 'BWP' was one of the latter. The tail-skid was fixed to the fuselage sternpost and, therefore, of no help when taxiing, but the undercarriage offered a softer and more forgiving ride than that provided by the earliest Moths.

Take-off was unspectacular; with a high-lift wing section and an empty

weight theoretically 20lbs more than that of the Hermes-powered Moth, the Arrow unstuck at virtually no readable IAS, but at an indicated 60mph would clock about 600f/p/m with one light occupant and no luggage. In this attitude the forward view was typical of a machine with an upright engine - poor - and the ailerons were reluctant to produce energetic results, but naturally both these sins diminished on a settled cruise, even though this occurred at barely 80mph IAS. A very short burst at full throttle (limited out of respect for the engine's age) produced 98 indicated, but I have no

position error corrections and the text book figures, variously quoted as 103, 104 and 106, cannot be too far wrong. The stall - a very innocuous and rather indecisive affair - occurred at 38 mph IAS, which allowing for corrections makes sense of the book figure of 41. It seems

safe to assume that the ASI was under reading by 3-5mph throughout the range.

Memory fades over many years and one flight, with only one take-off and one landing, is insufficient to assess any machine comprehensively. I intended to carry out a few circuits at the destination end, but an intermittently-cutting magneto prevented that, so I can only comment on one approach. 55 IAS seemed right; the ailerons were unresponsive and the forward view was expectedly lacking, but the big elevators proved effective in the round-out.

The Spartan Arrow's main features centred on practical rather than flying virtues. The interchangeability of parts, the roomy cockpit and the large locker with space for a full set of sporting kit were more redeeming than the type's pure handling qualities, which were definitely a poor second to those of the original Moth range. (But on a calm day a DH60 could make almost any light aeroplane - ancient or modern - seem a bit coarse). Nothing on the Arrow happened very crisply and a pilot with sporting intentions would find it rather short of fighting spirit, but it was a pleasant, docile, handsome mount and certainly worth saving for the young generation to see. It cannot claim to have been a world winner in any field but it cannot be called a bad aeroplane, so I am glad to say that G-ABWP exists.

Although at the present time it

has no permit, it is likely to fly again in due course. We look forward to seeing this sole survivor in action before too long. ■



**Below left: the prototype Simmonds Spartan was built in 1928, the last year in which the old G-E (E for England) registration was used**

**Below: a later production Simmonds Spartan. With the change from G-E to G-A, the requirement for a 'G' on the vertical tail was removed**

**Above: G-ABWP the subject of this report reveals the luggage hatch which is long enough to accommodate a set of golf clubs**



Photos via Philip Jarrett