

# VICKERS VENOM

This little-known interceptor showed great potential, but was let down by an unreliable engine...

**O**n March 1935, the Air Ministry issued specification E5/34 calling for a single-seat fighter fitted with six or eight machine guns and 300 rounds of ammunition per gun to give a 15sec duration of fire, a retractable undercarriage, an enclosed cockpit and an oxygen supply for the pilot. The performance was to be greater than 275 m.p.h. at 15,000ft with a service ceiling above 33,000ft plus an endurance of 90min. Vickers, Gloster and Bristol made submissions, with contracts being awarded by the Air Ministry to Gloster and Bristol for single prototypes.

Vickers, however, decided to produce their own design as a private venture. The engine selected was the Bristol Aquila AE-3S, rated at 600 b.h.p. at 3,450 rpm, and fitted with a three blade, two pitch VP 8.75ft diameter propeller. The Venom was based on the Type 151, the Jockey. Development of the Jockey had been halted after the prototype crashed during spinning trials in 1932.

## OPTIMISTIC BEGINNING

The Type 151 had a Raf 34 wing section, eliminating internal and external bracing, thereby reducing maintenance. For the Jockey II, as Vickers called the private venture fighter, he simply brought the Jockey I design up-to-date using the same wing profile, rear fuselage and tailplane - but fitting the Aquila engine, a retractable undercarriage and enclosed cockpit. Thus the design time was reduced considerably, and the time between the initial order and the aircraft's maiden flight was only 14 1/2 months.

The calculated performance, quoting a top speed of 320 mph, caused the Air Ministry to show great interest and based on this favourable attitude, Vickers sought to obtain, on loan from Bristols, a complete engine, NACA cowl and exhaust ring. Bristols readily agreed, the total value being £2,750 for the engine and £250 for the cowl and exhaust ring.

The Jockey II had many advanced features over the Jockey I. It had 90 degrees deflection trailing edge flaps - unique on a monoplane of that era, the Raf 34 wing section had an aspect ratio of 7.3:1, a retractable undercarriage was operated by a worm-drive actuated by 0.8 hp. electric motors and an enclosed cockpit. A 12v. accumulator and generator system provided power for engine starting, gun heating, identification and retractable landing

lamps, undercarriage warning horn, reflector gun-sight illumination, TR9 wireless and flap and undercarriage retraction.

The aircraft was of all-metal construction; the wings were covered with a Duralumin stressed skin fixed by countersunk rivets, with easy access to the wing services. The control surfaces were covered with doped fabric and the fuselage was a metal monocoque covered with Duralumin stressed skin.

The undercarriage retracted inwards and upwards into wells in the fuselage, with wheel flaps on the Vickers oleo-pneumatic shock-absorbers that covered the wheel wells when the units were in the retracted position. The cockpit was restricted, and access to it was by a sideways-hinged cover, opening to starboard. Large transparent Perspex observation panels were positioned behind the pilot's head and in the fuselage below the main canopy.

The E5/34 interceptor, now named Venom and lettered PV0-10, was flown for the first time by Mutt Summers on June 17, 1936 at Brooklands after all initial tests had been completed.

The first flight was curtailed after one circuit, due to a incorrectly set propeller pitch, but the second flight produced much better results.

Summers reported that larger elevators would be an advantage for landing, that the aircraft was nose heavy and that the tailplane incidence should be altered to counteract this. He also commented: "...All-round manoeuvrability of this machine, plus the fact that the pilot is sitting practically on the centre of gravity, to my mind makes this machine the ideal fighter, as in quick manoeuvres the absence of g on the body is very noticeable."

Jeffrey Quill then took over responsibility for test flying the Venom.

## ENGINE PROBLEMS

On his second flight, Quill had his first experience of the Aquila engine fading out - he had put the aircraft into a shallow dive at 3,100 rpm when it occurred. Two further level runs at 3,100 rpm resulted in the same response. This phenomenon dogged the prototype Venom's development. On January 7 1937, Quill was flying the Venom and recording fuel flows with a special flowmeter fitted, when he experienced a total engine seizure, resulting in the stripping of the planet-type reduction gear. Quill managed to carry out a successful deadstick landing

at Gosport. This incident on top of the previous troubles experienced, caused the engine to be regarded with a certain distrust thereafter. The aircraft was dismantled and taken back to Brooklands by lorry where it was suspended from the roof of the erecting shop to await a decision on its future. The Air Ministry, however, still showed interest in the Venom, because on February 27, they notified Vickers that they could have the Bristol Aquila AE-3S No. 14 on loan for three months at £6 per hour. The rating quoted by Bristols in June was 600 b.h.p. at 3,325 rpm at 14,000ft using 100 octane fuel. The Venom was first flown with this engine on June 23, after a gap of six months with no flying. This time there was no fade-out. It appeared for the second year at the SBAC show at Hatfield on June 27/28 and Mutt Summers gave a polished display.

Quill flew the Venom again on February 3, 1938 from Brooklands to Eastleigh. Just on take-off, with the undercarriage still retracting and 150yd from the banking, the engine cut out. He had barely sufficient height to clear the banking and managed to fly on to Eastleigh, but on February 7 he stated that he was considerably worried about the behaviour of the Aquila and that a thorough investigation should be made on the cutting-out problem. By this time, Bristols were no longer producing the Aquila, so the company decided to return the engine and cut their losses. Some investigations were made into alternative engines, but none were found suitable.

There is no record of further tests carried out on the Venom at Eastleigh and it faded from view - a very promising design killed by an unreliable engine. It was finally scrapped in 1939.

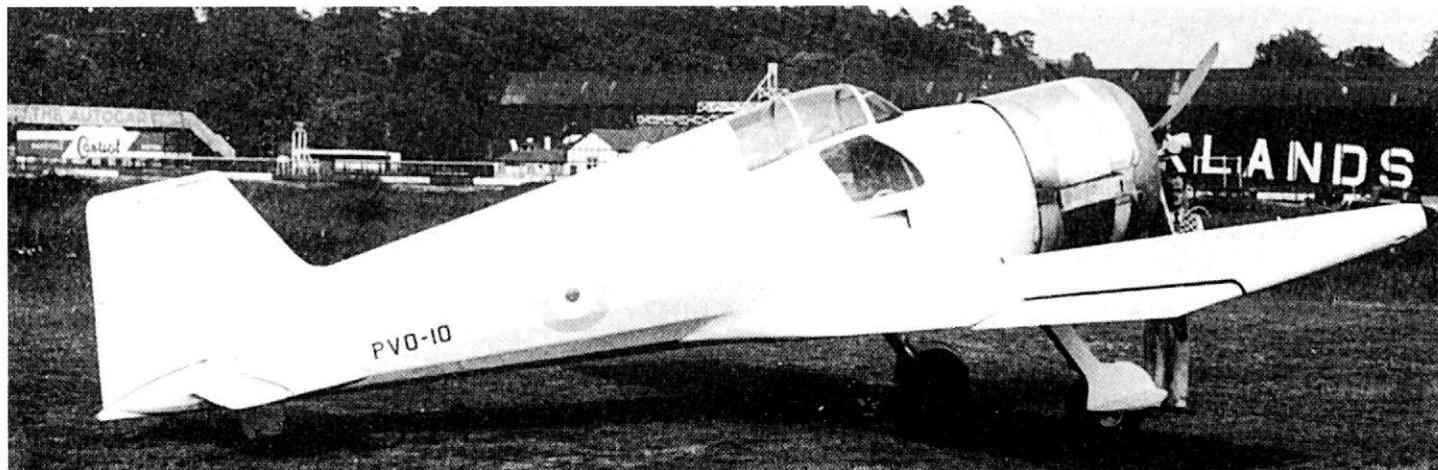
## TECHNICAL DATA

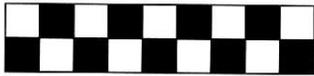
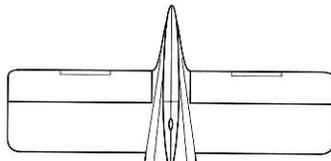
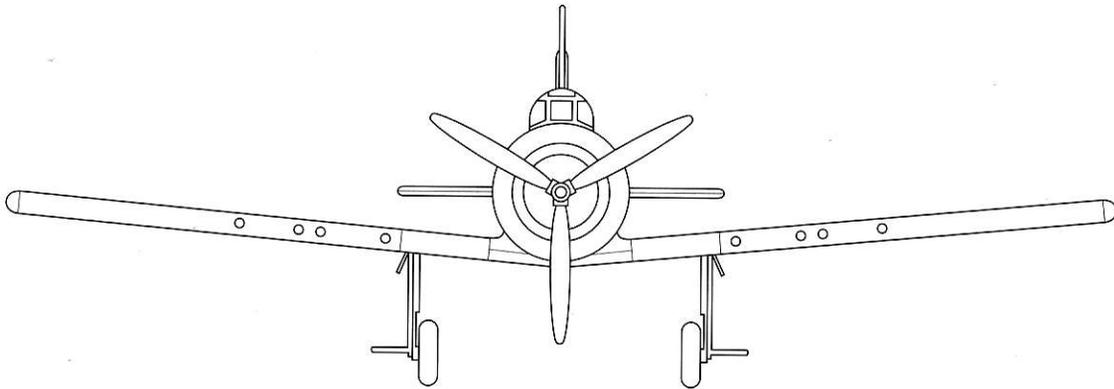
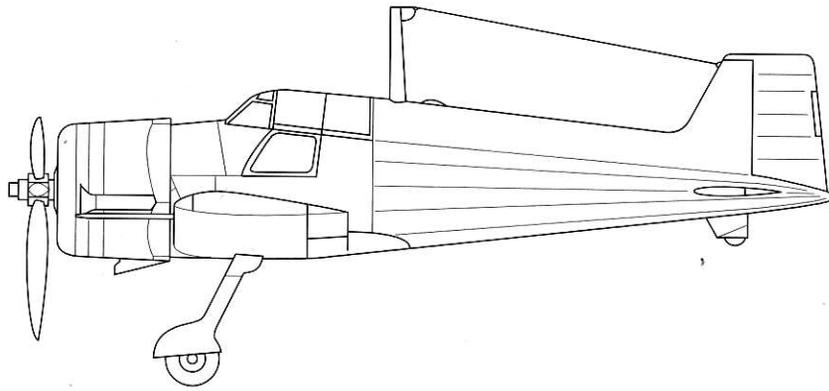
### Dimensions

Span:	32ft. 8in
Length:	23ft. 6in
Height:	8ft. 3in
Wing area:	170sq.ft.

### Performance

Top speed:	315.8 mph. at 15,000ft.
Initial climb:	3,000ft/min.
Service ceiling:	32,000ft.





SCALE IN FEET

## VICKERS TYPE 279 VENOM

