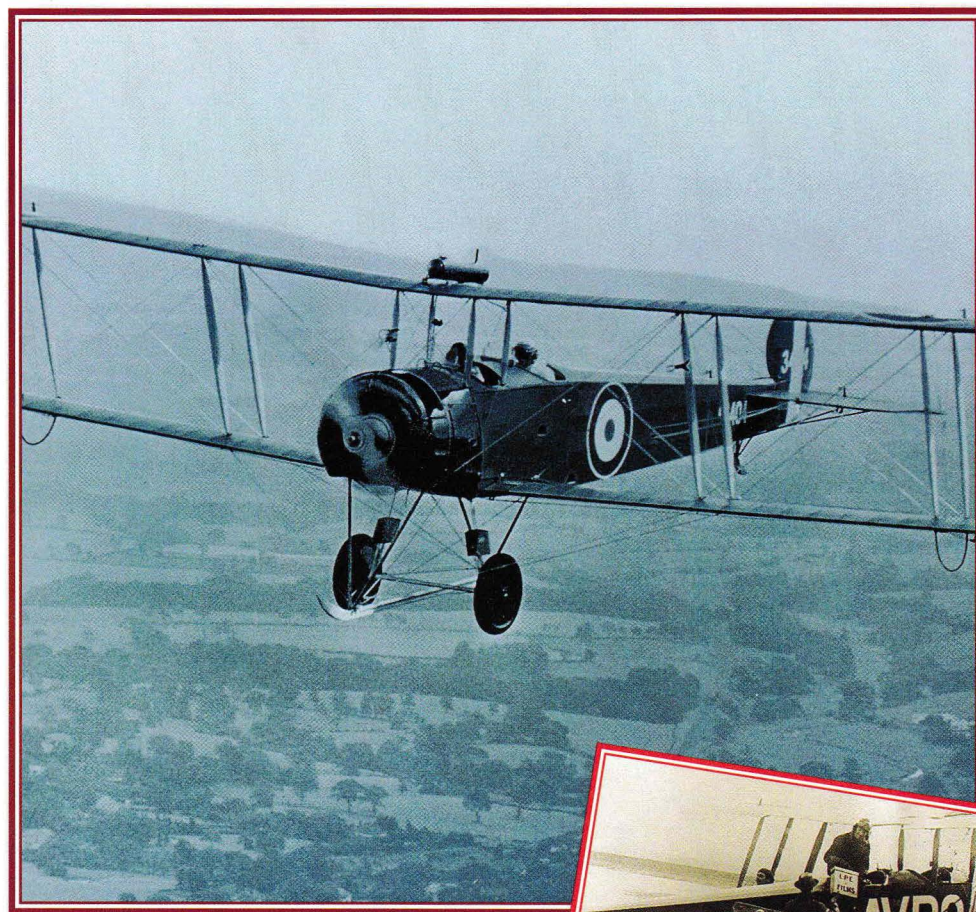


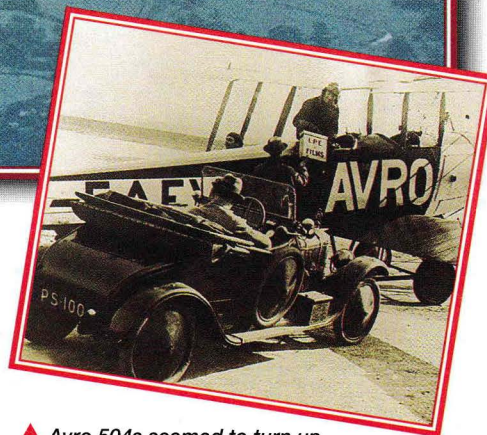
AVRO

504

● Barnstormer ● Trainer ● Pleasure flyer



Avro's 504 is remembered as the finest trainer design of the early years of aviation. Despite serving with great success in World War I, its main contribution to aviation was to popularize flying in postwar Britain, where hundreds were sold on to the civil market after the Armistice. With its combination of safe handling, powerful rotary engine and tough structure, the 504 was a classic design.



▲ Avro 504s seemed to turn up in every aviation situation in inter war Britain, whether it was introducing pleasure flights, wing-walking or flying film containers during a rail strike.

Britain's Classic 1920s trainer

A generation of British pilots learned to fly with the Avro 504 during World War I and in the 1920s. The design gained a reputation as the finest trainer of its day. Derived from the prewar Avro 500, the 504 was a considerable advance on other prewar aircraft, with an efficient wing section and Gnome rotary engines. The 504 made a dramatic entry into aviation by competing in the 1913 Aerial Derby only days after its first flight, and climbing to above

17,000 feet soon after.

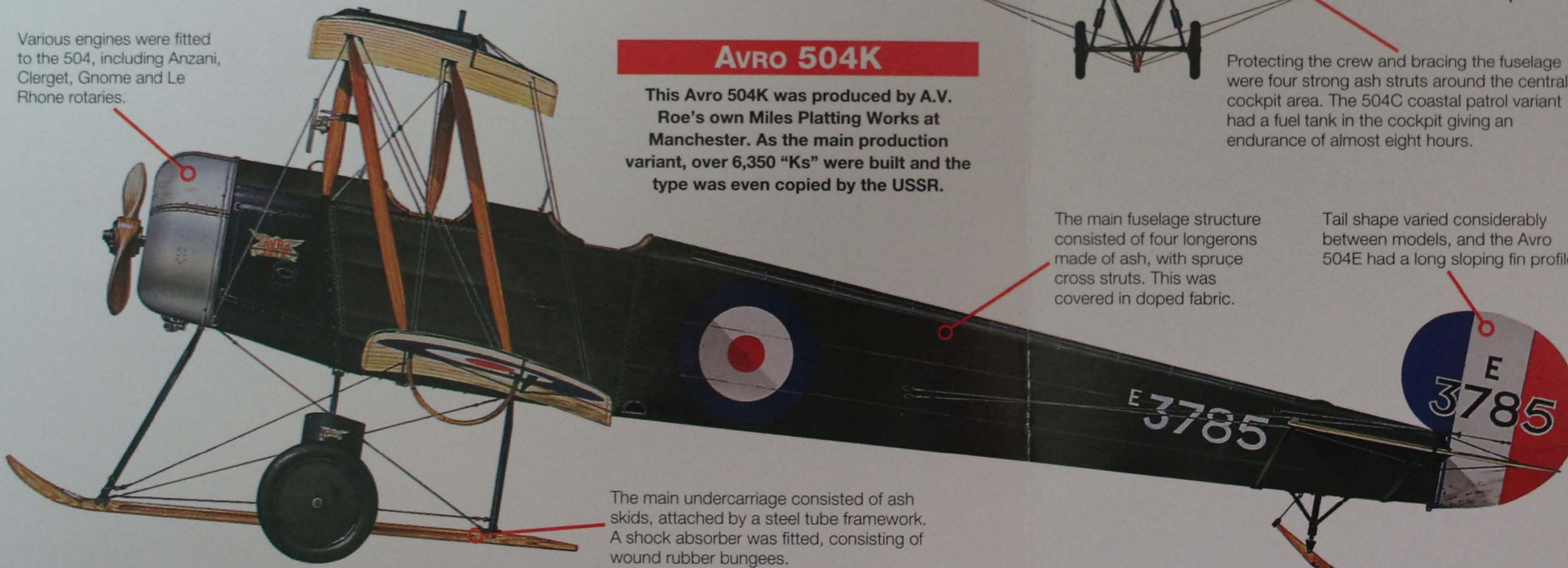
The war made the 504 vital; soon the type was in action strafing troop trains and trading shots with German scouts. The 504's greatest moments were when Royal Navy Air Service pilots raided the Zeppelin balloon sheds at Friedrichshafen in 1914, and then attacked and sank U-boats at Ostend the following year.

Several versions, built by many subcontractors, were used as scouts, gunnery trainers and patrol aircraft. After the war,

vast numbers of 504s were sold to civilian users, and the type became the first real pleasure flying aircraft in Britain as well as the RAF's main trainer, until rotaries were banned by the Air Ministry in 1934.

AVRO 504K

This Avro 504K was produced by A.V. Roe's own Miles Platting Works at Manchester. As the main production variant, over 6,350 "Ks" were built and the type was even copied by the USSR.



Various engines were fitted to the 504, including Anzani, Clerget, Gnome and Le Rhone rotaries.

The main undercarriage consisted of ash skids, attached by a steel tube framework. A shock absorber was fitted, consisting of wound rubber bungees.



One unusual feat flown in an Avro 504 was by Capt. Williams of Gosport Flying School, who landed between two buildings, swung round and finished his landing run inside a hangar.

The upper and lower wings were of equal span. They were braced with hollow spruce struts.

Control was by inverse-tapering ailerons, rigidly fixed at the inner ends and the outer ends turned by cables.

Protecting the crew and bracing the fuselage were four strong ash struts around the central cockpit area. The 504C coastal patrol variant had a fuel tank in the cockpit giving an endurance of almost eight hours.

The main fuselage structure consisted of four longerons made of ash, with spruce cross struts. This was covered in doped fabric.

Tail shape varied considerably between models, and the Avro 504E had a long sloping fin profile.

SPECIFICATIONS 504K

Type: Biplane training and scout aircraft.
Powerplant: One 110-hp. Le Rhone rotary engine.
Maximum speed: 95 m.p.h.
Initial climb rate: 700 f.p.m.
Combat radius: 250 mi.
Service ceiling: 10,000 ft.
Weapons: None; wartime versions sometimes carried a Lewis gun in the rear cockpit.
Weights: Empty 1,228 lb.; max 1,826 lb.
Dimensions: Span 36 ft., Length 29 ft. 5 in., Height 10 ft. 9 in., Wing area 330 sq. ft.

ACTION DATA

SPEED

The rotary engines fitted to the 504 and its cowled engine and efficient wing shape gave it a passable rate of speed. The 504K was considerably more powerful than the early 504s, the "A" model having a top speed of about 80 m.p.h.

AVRO 504K	95 m.p.h.	
CURTISS JN-4	75 m.p.h.	
ALBATROS B.II	74 m.p.h.	

CEILING

A combination of the large and efficient wing, powerful engine and light weight meant that the 504 had superb climb characteristics. The Curtiss JN-4, another successful trainer that came from the war, could only climb to half the 504's ceiling at best.

 AVRO 504K 16,000 ft.	 CURTISS JN-4 6,500 ft.	 ALBATROS B.II 13,000 ft.
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POWER

The Le Rhone rotary was a good engine, and later 504s had other engines generating as much as 100 hp. This power was much of the reason for the 504's performance. It also led to the machine's ultimate demise in Britain when the Air Ministry banned rotaries.

 AVRO 504 110 hp.	 CURTISS JN-4 90 hp.	 ALBATROS B.II 98 hp.
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Users of the Avro 504

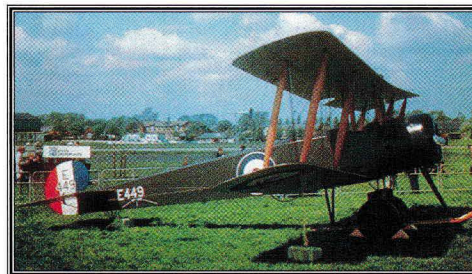
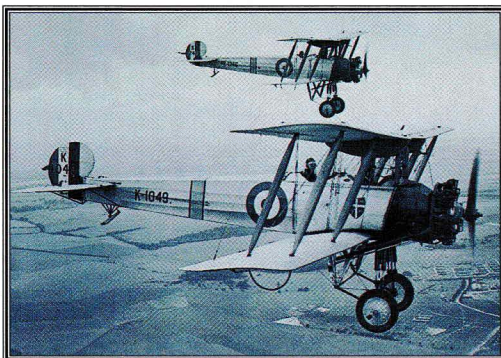
PORTUGAL: 32 Avro 504Ks were ordered by Portugal from Vickers and reconditioned by Avro. They were used for training by the Cintra flying school, and four were still flying with the Grupo de Esquadrias de Aviacao "Republica" as late as 1934.

CORNWALL: Typical of the small British companies that used the Avro 504 for pleasure flying in the 1920s, this vividly painted example was flown by the Cornish Aviation Company, which flew tourists on pleasure flights from St Austell.

ESTONIA: A mail service was flown by Clerget-engine Avro 504Ks of Aeronaut A.S., flying between Reval and Helsingfors, the British pilots often landing on ice-bound harbors. The 504 was also acquired by the Estonian air force in 1921, for training.



AVRO 504



▲ Restored and flying

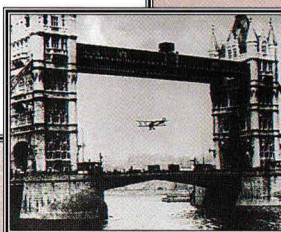
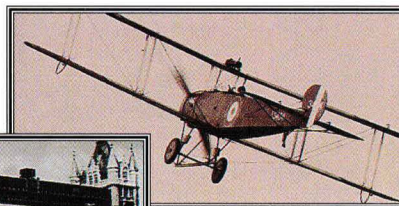
So many 504s were built that several survive today. This aircraft appeared at Biggin Hill air show in 1969, and two are often seen at Old Warden's vintage display during the summer.

▲ University Air Squadron

Many of the RAF's pilots in World War II had previously learned to fly on the Avro 504 with University Air Squadrons, which allowed students to try flying before joining the RAF.

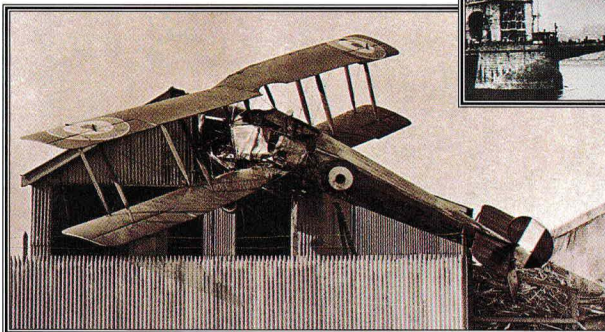
► Tower Bridge stunt

Typical of the stunts that pilots relished in the 1920s, this Avro 504 flew through Tower Bridge over the Thames in London.



▲ Classic model

Perhaps the best remembered 504 was the "K" model used as a postwar trainer.



▼ Floating 504

Many 504s were fitted with floats, for the Navy and for civil purposes. This 504 was built by Eastbourne Aviation.



▲ Hard landing

The 504 was famous for its toughness, but no airframe could tolerate landings like this. Most 504 crashes were due to pilot error rather than aircraft failure.

FACTS AND FIGURES

- One of the first Zeppelin kills was made by Flt. Cdr. A. Bigsworth who dropped small bombs on LZ 39 in 1917.
- In June 1914, a War Office Avro 504 was looped for the first time by F. Raynham.
- An Avro 504 was the first British plane shot down by German troops in 1914.
- Making a gliding descent from 14,700 feet, an Avro 504 travelled over 20 miles during an early altitude record attempt.
- At one time, 13 squadrons of the RFC in France used the Avro 504.
- Surrey Air Services used a fleet of Avro 504Ks to fly passengers to Brussels.