Airborne Wing . . . . .

opening-up the Nenes separately with nose to wind he released the brakes and accelerated rapidly down the runway. In much the same way as he did when flying the earlier 52 glider, S/L. Franklin lifted the aircraft firmly, almost sharply, off the ground and then climbed away to about 600ft before commencing a wide turn to port. Less than five hours' flying has been completed to date, chiefly as a result of the bad weather, and since the flight from Boscombe Down to Bitteswell, cloud has persisted and prevented all but the simplest of handling trials. After two or three low passages across the airfield, at speeds between 200 and 250 m.p.h., S/L. Franklin made a long, shallow approach, culminating in a faultless nose-up touch-down on the main wheels. The landing speed appeared to be quite slow and was, in fact, less than 100 m.p.h. As the machine passed by on the landing run the very large slotted flaps, their size accentuated in the lowered position, were particularly apparent.

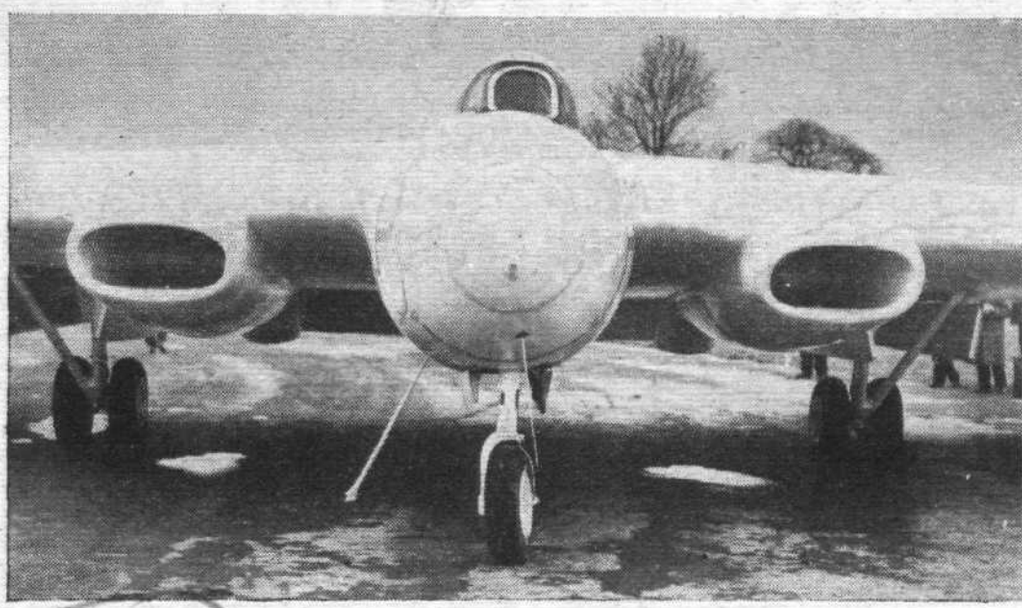
Following Sir Ben's speech, tribute was paid by Mr. T. O. M. Sopwith, chairman of the Hawker Siddeley Group, to the men whose exceptional efforts had enabled the machine to be completed a year, almost to the day, before this flight. Their disappointment at the subsequent delay due to relatively minor troubles had been to some extent alleviated as they watched with pride the machine circle over Coventry and Leamington a few days previously. It seems that, in addition to certain weaknesses in the undercarriage arrangements, it was found that the flutter speed was lower than that regarded as safe, and modifications to raise this to a safe figure have also been partially responsible for the delay in making a first flight. Some months ago it would have been possible to fly the A.W.52 at restricted speed. In his speech, some of which has already been quoted, Sir Ben Lockspeiser discussed and gave a simple explanation of flutter in wing structures and its causes.

Since the time of our complete description of the structure of the A.W.52 (*Flight*, December 19th, 1946) it has become possible to quote performance data, and the new figures are given below together with a summary of the principal data concerning the aircraft.

At this early stage in the flight trials, all made at low altitude, the A.W.52 is limited to about 300 m.p.h. and to medium angles of bank.

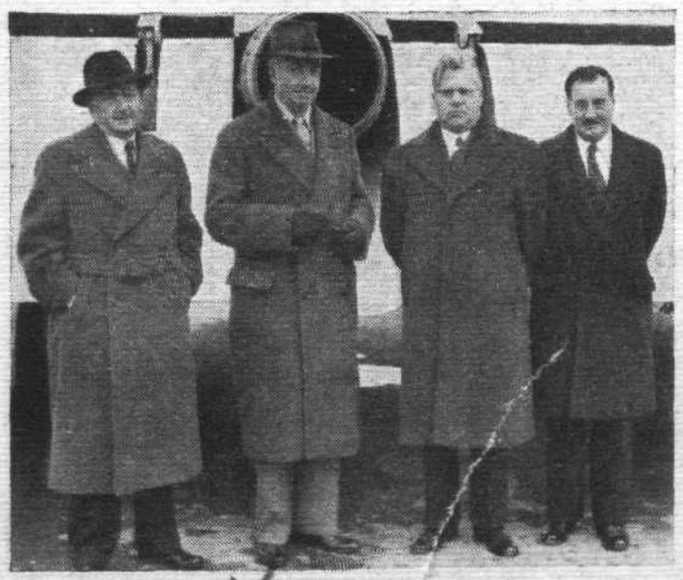
The pressurized cockpit is similar to that of a more conventional type of aircraft, and with the exception of the correctors, which have their own control and dials indicating the angles of the control surfaces, the controls and instruments are normal. The main control wheel is carried on an arm from a column on the left-hand side of the cockpit, and both pilot's and observer's seats are offset to port. The A.W.52 carries a Sperry Gyrosyn compass and an electric gyro horizon which is stable within wider limits than previous air-driven instruments.

The second A.W.52, which is nearly completed, is to have two high-rated Rolls-Royce Derwents in place of the Nenes as fitted to the prototype.



"Flight" photograph.

This striking head-on photograph shows how far from being a true flying wing the tailess 52 is. The crew nacelle is pressurized and a pilot and observer can be carried.



Responsible for the building of the A.W.52 are (l. to r.) Mr. John Lloyd, chief designer; Mr. T. O. M. Sopwith, Hawker Siddeley chairman; Sir Ben Lockspeiser, M. of S. chief scientist, and Mr. H. M. Woodhams, Armstrong Whitworth director.

A.W.52 (E9/44) WITH TWO ROLLS ROYCE "NENE" ENGINES

Take-off weight for Specification Range	33,000 lb
Gross Wing Area	1,314 sq ft
Span	90ft
Wing Loading (take-off weight)	25.1 lb/sq ft
Wing Aspect Ratio	6.16
Sweep-back on line joining ¼ chord points at Root and Tip	24½ deg
Total Twist between Root and Tip	5 deg washout
Total Area of Fins and Rudders	75 sq ft

	Position of peak suction	Design lift coefficient	Tolerance on design lift	T/C
Wing Section at Root	55 per cent	0.2	±0.3	18 per cent
Wing Section at Knuckle	55 ,,	0.1	±0.3	18 ,,
Wing Section at Tip	45 ,,	0	±0.3	15 ,,

Max Level Speeds (including compressibility effects)	
At sea level	500 m.p.h.
At 20,000ft	500 m.p.h.
At 36,000ft	480 m.p.h.
Cruising Ranges	
At 280 m.p.h. true at 20,000ft	980 miles
At 400 m.p.h. true at 20,000ft	880 miles
At 330 m.h.p. at 36,000ft	1,500 miles
At 400 m.p.h. at 36,000ft	1,420 miles
Rate of Climb	
At Sea Level	4,800 ft/min
At 20,000ft	3,000 ft/min
At 36,000ft	1,600 ft/min