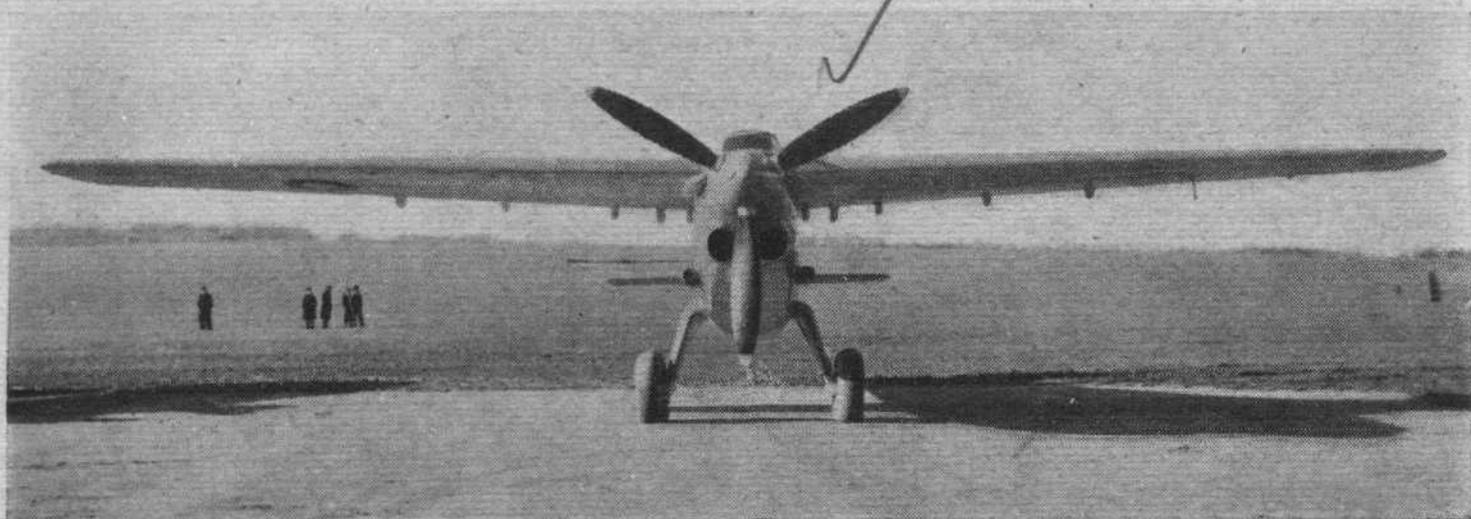


## VARIABLE INCIDENCE



The clean appearance of the Supermarine 322 is well illustrated in this front view. The fixed, semi-cantilever undercarriage is of narrow track.

Two fuel tanks, each of 65 gallons capacity, form the nose portion of the wing centre section. They are made of alclad, and the inner leading-edge slats are supported on brackets bolted to the ends of the tanks. In spite of the varying loads to which they are subjected, and the high torsional loads which are applied when the wings are folded, the de Bergue riveted joints have remained petrol-tight throughout.

The semi-cantilever undercarriage has Vickers oleo struts carrying Dunlop wheels. The wheel track is 6 ft 4 in, which appears somewhat small for a high-wing monoplane of 50 ft span. The tailwheel is a Palmer Cord carried on a Vickers strut.

#### Control and Stability

Reference has been made to the use of a slotted and flapped wing to get a high maximum lift coefficient. When combined with variable incidence this was likely to present some aerodynamic problems, and wind-tunnel tests were made at the Royal Aircraft Establishment, Farnborough, on two constant-chord models which represented two span-wise stations. To get the high lift aimed at it was decided to use full-span slots and part-span slotted flaps. In order to make sure of avoiding tip stalling, the slat of the outer slot was so arranged that the stall occurred four degrees later than the stall behind the inboard slats. Originally

the prototype was fitted with plain ailerons, but it was found that they did not enable full use to be made of the very high maximum lift coefficient (3.9 engine-on in the full-size machine), and slotted ailerons have now been fitted instead, with good results.

#### SUPERMARINE TYPE 322 ROLLS-ROYCE MERLIN XXXII Dimensions and Areas

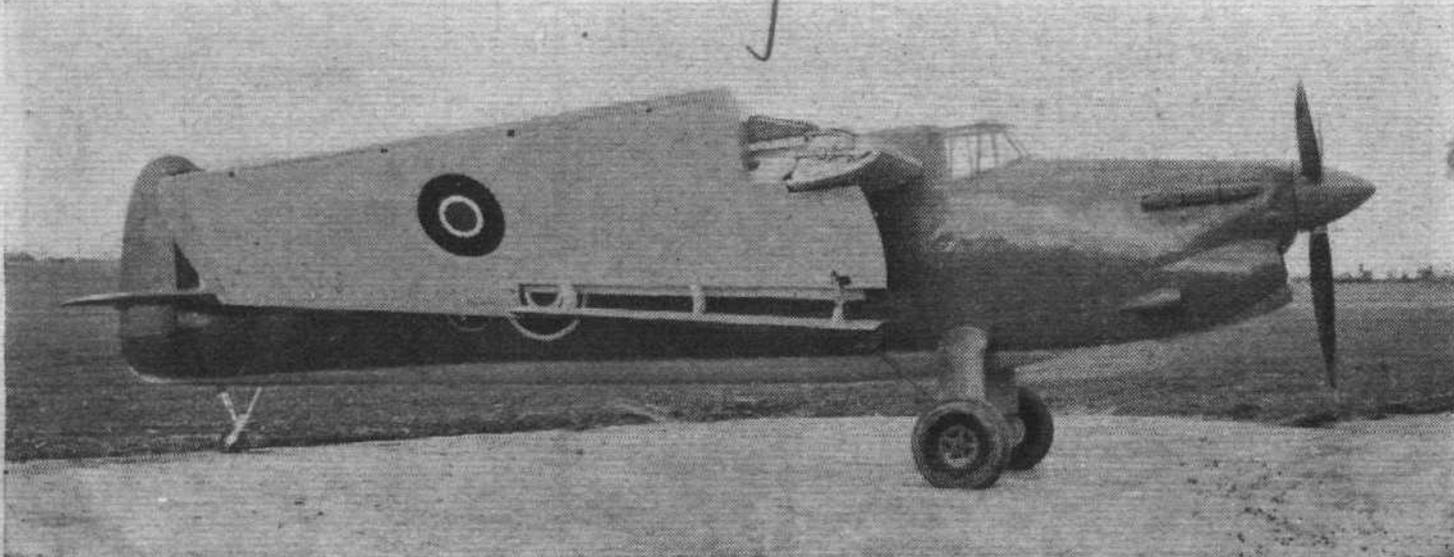
Length o.a.	...	40ft 0in
Wing span	...	50ft 0in
Height	...	14ft 2in
Wing area	...	319.5 sq ft
Ailerons	...	26.0 sq ft
Tailplane	...	29.0 sq ft
Elevators	...	17.0 sq ft
Fin	...	15.0 sq ft
Rudder	...	17.9 sq ft

#### Weights

	lb	% A.U.W.
Wing and centre section	1,750	14.6
Fuselage	1,000	8.3
Undercarriage	575	4.8
Total structure	3,600	30.0
Total powerplant, fuel supply and power services	2,825	23.5
Total load	5,575	46.5
Designed all-up weight	12,000	

#### Performance

Max. speed	...	279 knots at 4,000ft
Cruising speed	...	250 knots at 2,000ft



Achieving the apparently impossible. Wing folding is combined with variable-incidence wings in the 322.