AIRCRAFT CIRCULARS

NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS

No. 86

BLÉRIOT COMBAT MONOPLANE 127 (FRENCH)

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BLÉRIOT COMBAT MONOPLANE 127 (FRENCH) *

The Blériot 127 is a cantilever monoplane without external bracing, and designed to serve the double purpose of accompanying and protecting bombardment and observation airplanes and also of performing similar tasks by itself.

Airfoil.- In order to obtain the most unobstructed firing field possible, accompanied by a high aerodynamic efficiency, the airfoil of the Blériot 127 consists of a single trapezoidal wing with a straight leading edge on each side of the fuselage. The wing section or profile has a straight lower edge and a relative thickness of 17.5% at the point where the wing joins the fuselage. The wing structure comprises two rather narrow box spars, with strong open-work box ribs serving as compression members for the bracing in the plane of the wing. Two intermediate strips parallel to the spars serve to support the intermediate ribs. Due to the great thickness of the profile, the upper and lower flanges are independent, and each works as a continuous girder. Where the thickness of the wing is more nearly normal, the ribs have a lattice structure. The leading edge is covered with a bent sheet of plywood. Near the box ribs the plywood is extended back of the front spar forming large gussets. A similar device is installed on the rear spar.

*From Les Ailes, September 20, 1928.

The portion of the wing behind the rear spar, and which supports the aileron, constitutes an independent piece. It is attached at 12 points to the upper and lower flanges of the spar. The long narrow aileron extends to the tip of the wing. It is provided with a small regulating plane embedded in the trailing edge.

Fuselage.- From the front to the rear, the fuselage comprises a gunner's post, a navigation room with compass, drift indicator, speed indicators, wardrobe, map table, radio instruments, photographic camera with a radius of 50 cm (19.7 in.) for vertical and oblique views, and the controls for the vertical bomb rack.

The fuselage structure comprises a ceiling and a floor covered with plywood with strong cross pieces at the joints and occasional narrow strips to support the covering. These two planes are connected by uprights of duralumin tubing. Plywood gussets assure the rigidity of the joint, and brace wires hold the whole system in shape.

At the rear the fuselage ends in a box girder, which supports the tail skid, fins and rudders.

In front, the fuselage structure likewise consists of box girders with interior bracing members of turned wood.

The vertical empennage comprises a well-rounded fin followed by the rudder. The horizontal empennage comprises a sta-

bilizer and elevator of the usual type. The rudder and elevator are provided with small regulating planes similar to the ones on the ailerons and are controlled by flexible cables.

Power Plant.- The two 500 HP. 12-cylinder Hispano-Suiza engines are installed in two lateral nacelles, one on each side of the fuselage. Each nacelle contains two strong box girders which are prolongations of the wing structure. In front, box girders and oblique tubular struts support the engine bed, whose suspension plane corresponds to the lower part of the wing. Oil tanks and radiators complete the equipment. The water radiators are situated in front of the W-type engines or under the wing between the fuselage and the nacelles with the V-type engines.

The fire hazards are very small by reason of the position of the fuel tanks in the fuselage far from the engines.

Landing gears.- The landing device consists of two independent gears, one under each nacelle. These gears are of the usual type with two V's, a false axle, an axle, two wheels, a double cross bracing for the skidding stresses and rubber-cable shock absorbers. Provision is made, however, for the substitution of a Blériot elastic wheel in place of each two-wheel landing gear.

Armament.- In addition to the customary machine-gun mount in the bow of the fuselage, the principal characteristic of the

Blériot 127 resides in the presence of a gun mount in the stern of each nacelle. The field of fire presents no dead angle and even enables the guns to cross their fire a few yards behind the airplane.

The problem of firing at high speed has not been perfectly solved and it is still difficult, despite compensations, to sight with a weapon exposed to a wind of over 200 km (124 miles) per hour. In order to obviate this disadvantage, the forward gun mount of the Blériot 127 is protected by a circular cowling and the other gun mounts by windshields on the top of the wing, which are raised only at the moment of firing.

Aviophones, with calling device, as also a transmitter of orders, assure good communication between the different posts. The equipment of the Blériot 127 also includes an electric heating plant and a complete lighting plant for night flying.

The accompanying illustrations (Figs. 1-12) show the appearance and structure of the airplane.

Characteristics

Span	23.2 m	(76.12 ft.)
Height	3.4 "	(11.15 ")
Length	14.5 "	(47.57 ")
Wing area	88 m^2	(947.23 sq.ft.)
Weight empty	3252 kg	(7169 lb.)
Fuel load	520 "	(1146 ")

Characteristics (Cont.)

Full load	4466 kg	(9845 lb.)
Wing loading	50.7 kg/m²	(10.38 lb./sq.ft.)
Power "	4.466 kg/HP	(9.71 lb./HP.)
Power per unit area	11.4 HP/m²	(1.056 HP./sq.ft.)
Speed at 2000 m (6562 ft.)	221 km/h	(137 mi./hr.)
" " 4000 " (13123 ")	216 "	(134 ")
" " 6000 " (19685 ")	207 "	(129 " *
Ceiling	8100 m	(26574 ft.)
Climb to 4000 " (13123 ")	in 12 min. 21 sec.	

Translation by Dwight M. Miner,
National Advisory Committee
for Aeronautics.

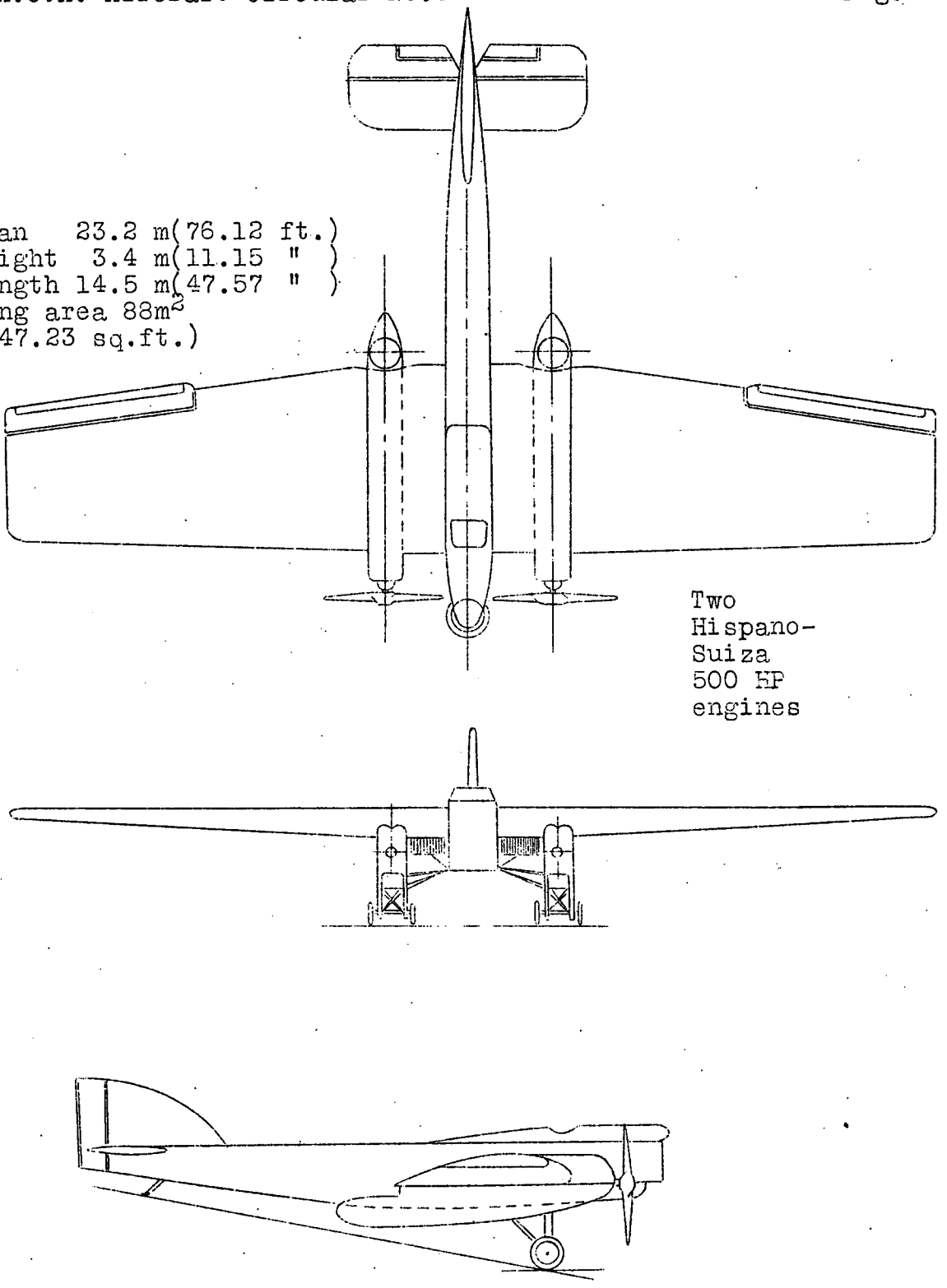
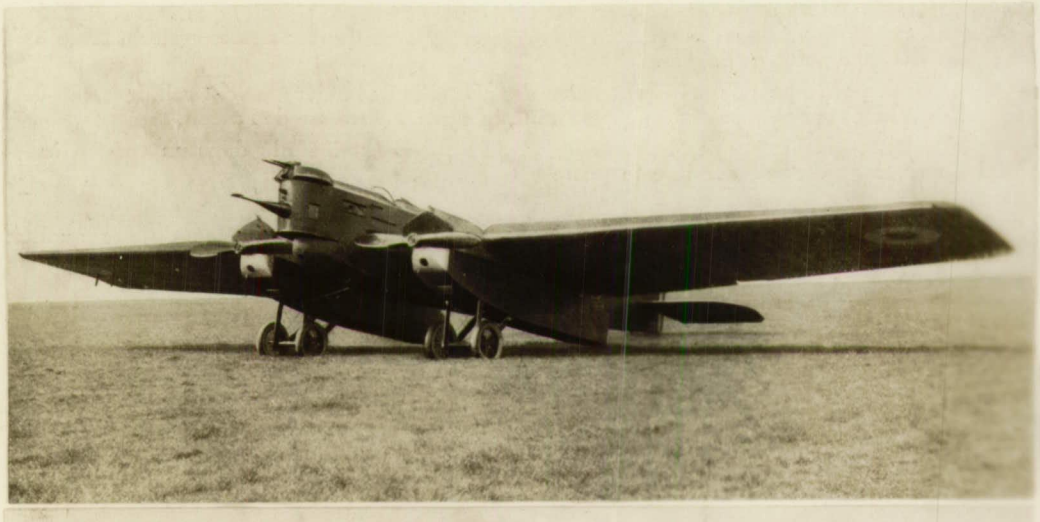
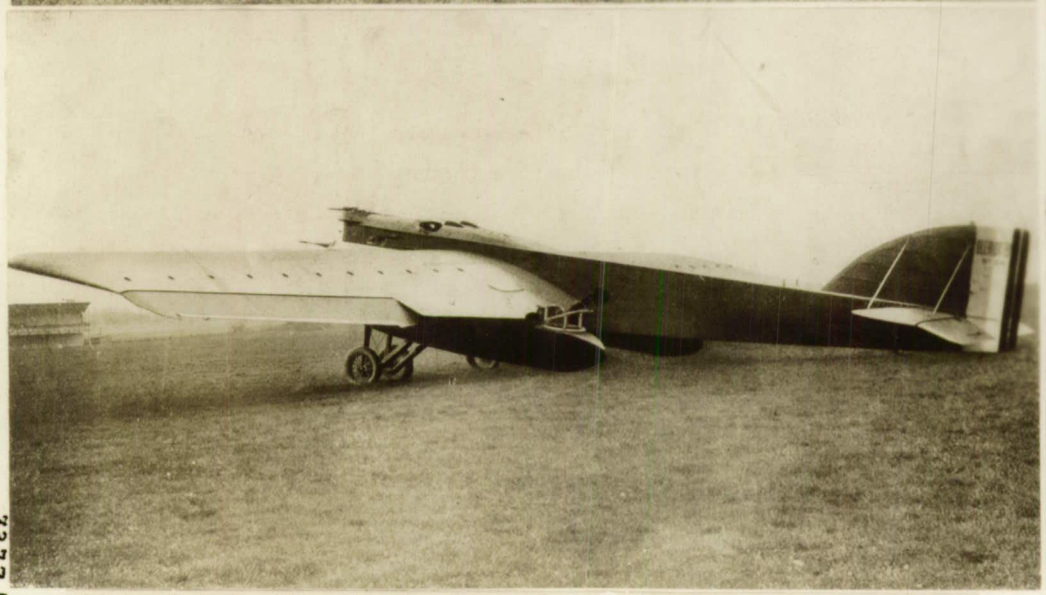


Fig.1 General arrangement drawing of the Blériot 127 combat airplane.





Figs.2 & 3 Views of the Blériot 127 combat airplane.

Fig.12 The Blériot elastic wheel.

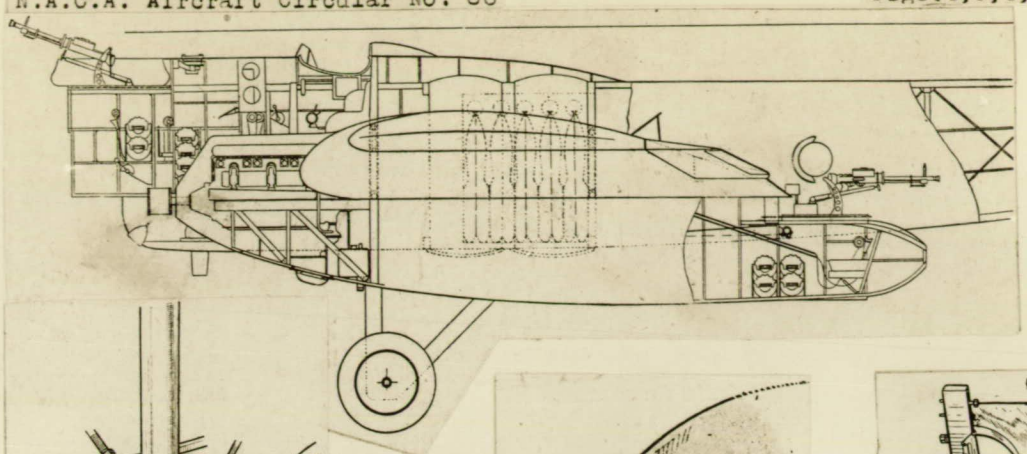


Fig.4

Armament of fuselage and left-hand nacelle of the Blériot 127

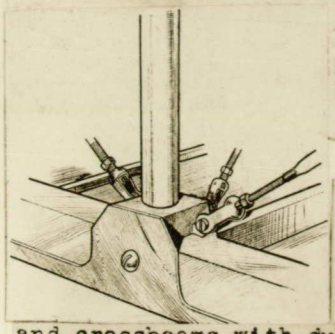


Fig.6

Fuselage junction of wood longerons and crossbeams with duralumin upright and brace-wire attachments.

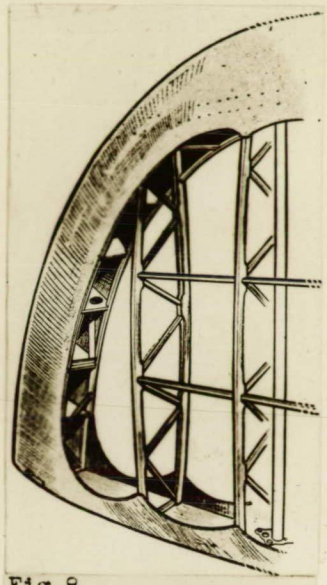


Fig.8

Tip of elevator with plywood reinforcement

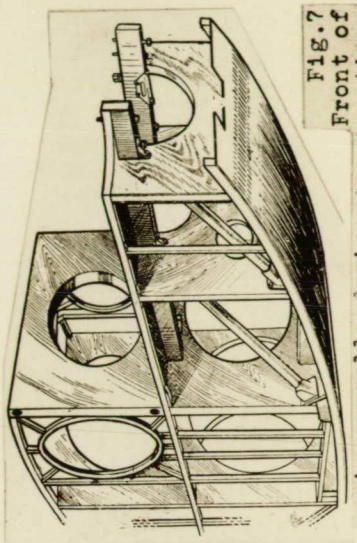


Fig.7

Front of engine nacelle during construction

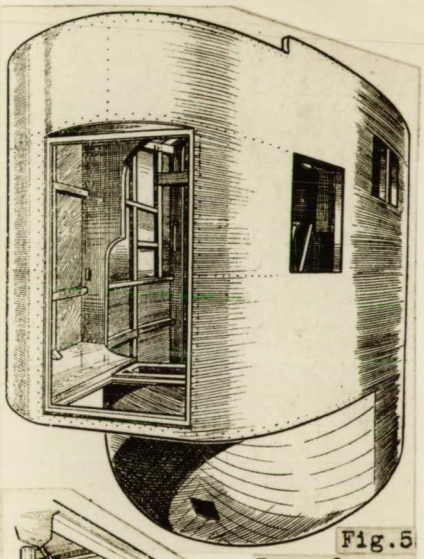


Fig.5

Bow of Blériot 127

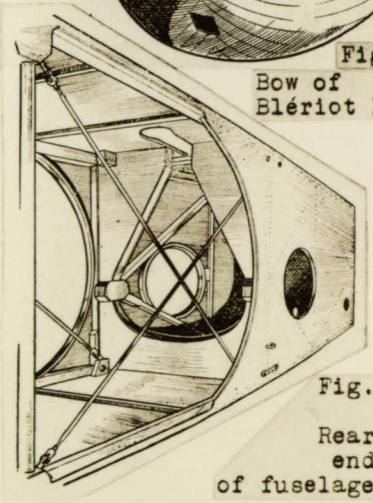


Fig.9

Rear end of fuselage

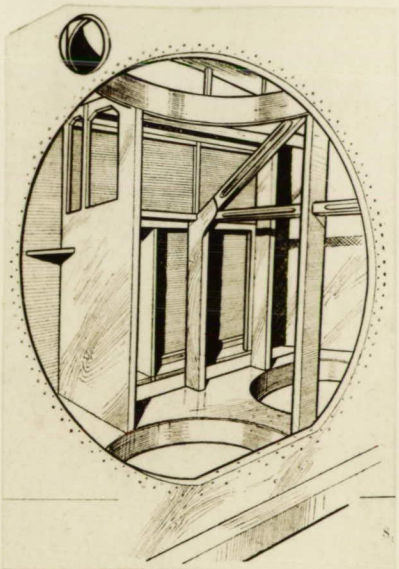


Fig.11 Portion of fuselage showing location of bomb rack and of the two drop-tanks.

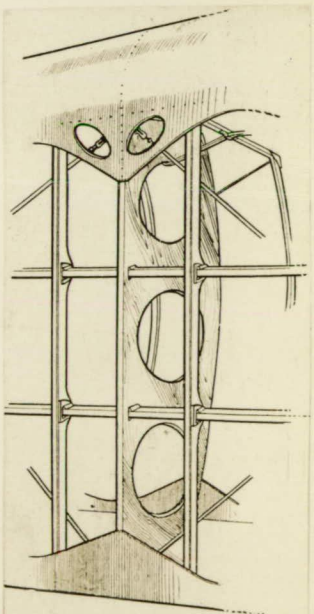


Fig.10 portion of wing with leading edge covered with plywood. The trailing edge is not shown.