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AIRCRAFT CIRCULARS
NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS

No. 74

BLÉRIOT-SPAD 91 AIRPLANE (FRENCH)
Pursuit Single-Seater, Type "Jockey"

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NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS
LANGLEY MEMORIAL AERONAUTICAL LABORATORY
LANGLEY FIELD, HAMPTON, VIRGINIA

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Washington
May, 1928

NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS
1723 STREET, N.W.,
WASHINGTON 25, D.C.

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BLÉRIOT-SPAD 91 AIRPLANE (FRENCH)*

Pursuit Single-Seater, Type "Jockey."

By J. Serryer.

The value of a pursuit airplane depends especially on its maneuverability and speed. These two qualities will be all the more essential when all the aeronautic powers are supplied with multiplace combat airplanes on which machine gunners can fire advantageously without changing position and without dead angles.

A program of light, swift and maneuverable pursuit airplanes has been elaborated by the "XIIe Direction" to meet this eventuality. These airplanes come under the category of "Jockeys."

Different constructors have entered the contest to satisfy the requirements. The Société Blériot-Aéronautique," whose past has been replete with victories in the pursuit class, has produced a new pursuit airplane capable of interesting performances.

This airplane, the Blériot-Spad 91, has already distinguished itself, in the hands of the pilot Villechanoux, by its perfect maneuverability. Its constructor announces a speed of 270 km (168 miles) per hour at an altitude of 4000 m (13,123 ft.).

It is all metal. Its small dimensions, excellent centering

*From "Les Ailes," April 19, 1928.

and judicious choice of wing profiles render it very easy to operate.

Cell.— Excepting for the profiles, the biplane cell of the B.-S.91, closely resembles that of the pursuit airplanes built by Herbemont. The upper and lower wings have the same chord. The lower wings are rectangular and staggered aft, while the upper wings present a decided sweep back.

It may be mentioned, in passing, that the English firm, Parnall, has just brought out an interesting light airplane with the same wings and arrangement as the Spad.

The upper wings of the B.-S.91 are attached to the fuselage by a metal cabane consisting of two sets of reversed N struts. The lower wings are attached to stubs which constitute integral parts of the fuselage. The wings of each half-cell are joined by a single strut and braced by streamlined wires of high-resistance steel. The lower wings each have an unbalanced aileron of relatively large area. The wing framework consists entirely of duralumin. Each wing has two spars of open-work rectangular tubing without rivets or joints. The covering is of fabric.

Fuselage.— The fuselage framework is made of light metal. The front portion, from the power plant to the pilot's seat, consists of open-work box girders. Back of this point, the fuselage forms a single girder, constructed of duralumin tubes, the longerons, uprights, cross beams and diagonals being assem-

bled by riveted gussets.

The pilot's cockpit is behind the cell. The lower wings are slightly cut away in this vicinity, in order to improve the downward visibility, which is excellent, due to the arrangement of the wings. The pilot has two machine guns, which are perfectly accessible during flight.

The horizontal empennage consists of an adjustable stabilizer, the front edge of which rests on the upper fuselage longerons (Fig. 3e), as also the rear edge, where there is an adjusting device. The two-part elevator forms a continuation of the stabilizer. The vertical empennage consists of a normal fin and rudder. All the tail planes are duralumin with fabric coverings.

Power Plant.— The B.-S.91 is equipped with a 500 HP. Hispano-Suiza engine. The Lamblin water radiators with fins are mounted on struts in front of the landing gear. The oil radiator, of the same make, is under the fuselage. The removable fuel tank is inside the fuselage.

The landing gear, with hinged axle, is formed of two Vee struts, consisting, in front, of box members and, in the rear, of tubes. Each half-axle, high with respect to the axis of the disk wheel, is likewise a box spar with a streamlined housing (Fig. 3a). The sandow shock absorbers are placed on the inner side of the wheels.

The tail skid consists of a spring with steel leaves (Fig. 3c-d). It is hinged to the sternpost of the fuselage and is attached at its upper end to a removable sandow shock absorber. The skid can be replaced by simply removing the pin which connects it with the sternpost.

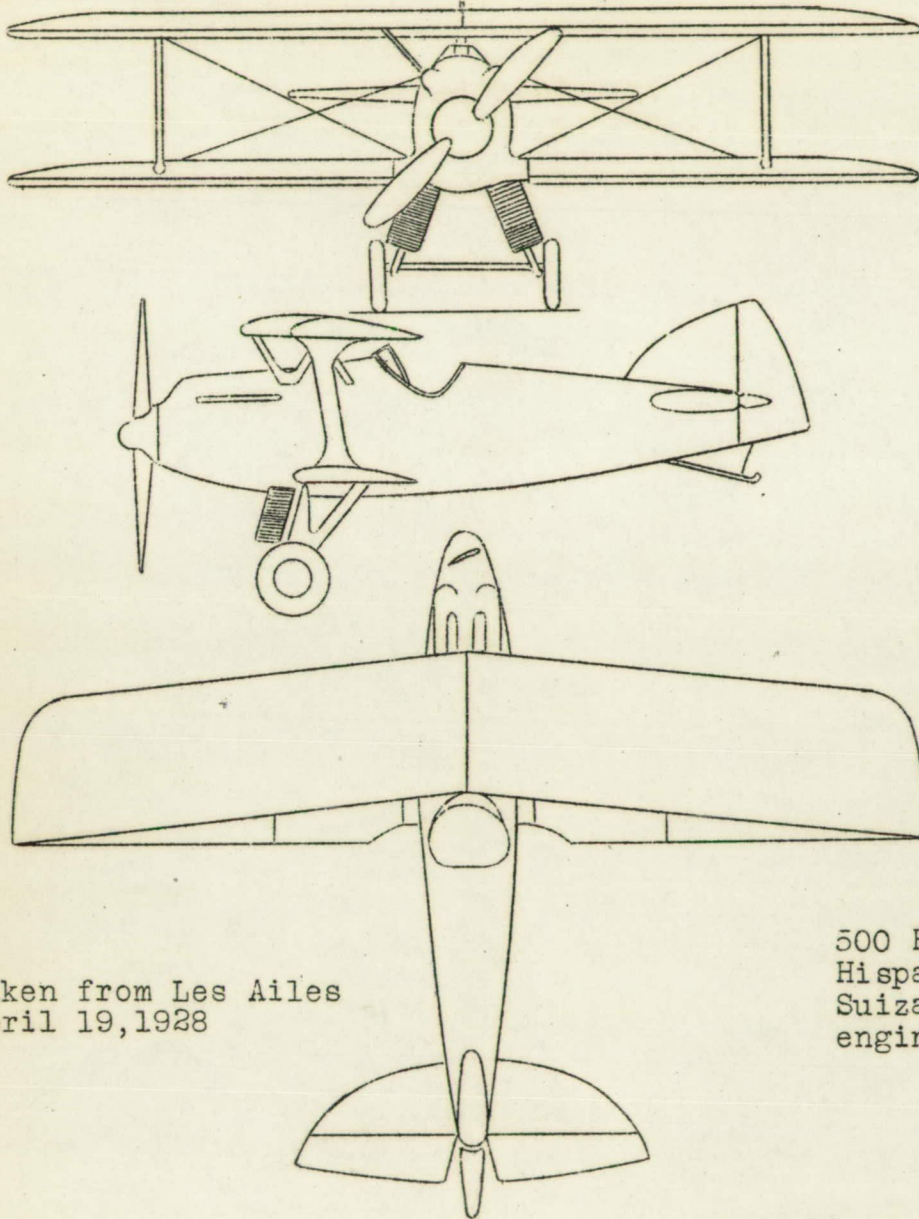
Characteristics

Span	8.65 m	(28.38 ft.)
Length	6.52 "	(21.39 ")
Height	2.94 "	(9.65 ")
Wing chord	1.30 "	(4.27 ")
Wing area	22 m ²	(237 sq.ft.)
Engine power	500 HP	(493 HP.)
Weight empty	1120 kg	(2469 lb.)
Full load	1450 "	(3197 ")
Wing loading	65.9 kg/m ²	(13.5 lb./sq.ft.)
Power loading	2.9 kg/HP	(6.3 lb./HP.)
Power per unit area	22.7 HP/m ²	(2.09 HP./sq.ft.)

Performances

Speed at 4000 m (13,123 ft.) 270 km/h (168 mi./hr.)
 Ceiling, 8000 m (26,246 ft.)

Span 8,65m(28.38 ft.) Height 2.94m(9.65 ft.)
Length 6.52m(21.39 ft.) Wing area 22m²(237 sq.ft.)



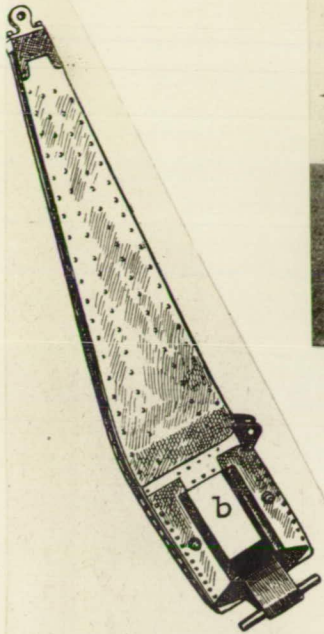
Taken from Les Ailes
April 19, 1928

500 HP
Hispano-
Suiza
engine

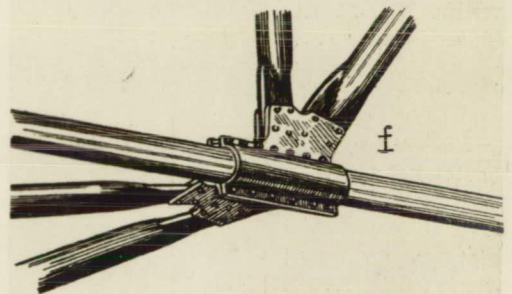
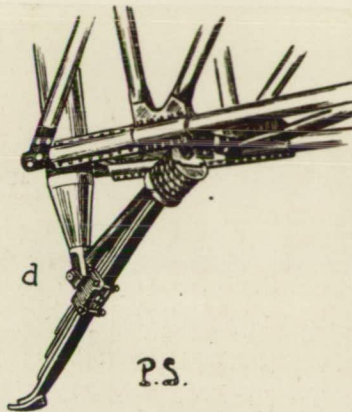
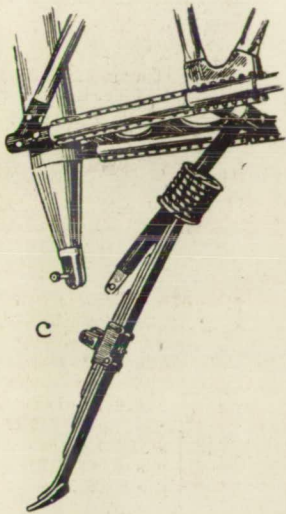
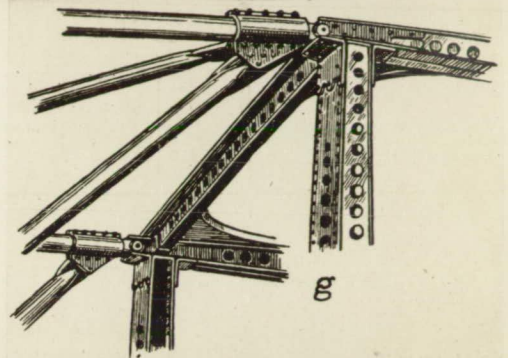
Fig.1 Blériot-Spad 91 pursuit airplane..



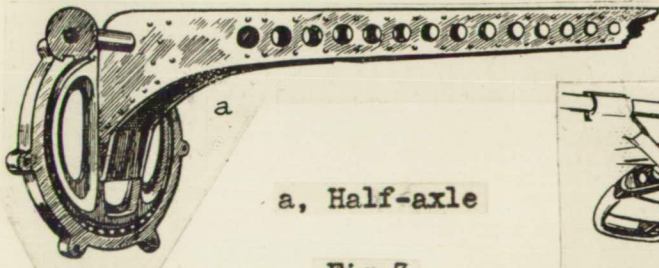
Fig.2 Three-quarter view of the Blériot-Spad 91 pursuit airplane.



b, Landing gear
 c,d, Tail skid
 g, Attachment of tubular rear part of fuselage to box-girder front part.
 f, A fuselage joint.



P.S.



a, Half-axle

Fig.3

e, Adjustable stabilizer

