AIRCRAFT CIRCULARS

NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS

No. 8

THE ALBATROS L 72A

A German Newspaper Carrier with Slotted Wings

From "Flight," April 15, 1926

Washington
June, 1926

NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS.

AIRCRAFT CIRCULAR NO. 8.

THE ALBATROS L 72A

A German Newspaper Carrier with Slotted Wings.*

The new Albatros, which is known as the type L 72A, has been constructed to the order of the famous German publishing firm "Verlag Ullstein," and is to be employed for the rapid distribution of newspapers, for which purpose the airplane has been specially arranged to allow parcels of newspapers to be shot overboard at suitable points, where the parcels are picked up and conveyed by ground transport to the distributing office.

The general lines of the Albatros L 72A are well brought out in Figs. 1, 2, 3 and 4. The airplane it will be seen is a normal tractor biplane, but is perhaps of rather unusually clean design, with but a single pair of interplane struts on each side, in spite of the relatively large span (42 ft.). The 220 HP. B.M.W. engine is very neatly cowled in, and the streamlining is further improved by fitting a pointed spinner over the propeller boss. The pilot is situated immediately under the top wing, and aft of the pilot's seat the roof of the fuselage rises steeply to meet the rear spar of the top wing. Notable features of the airplane, apart from the fitting of leading edge slots and slotted ailerons, are the high aspect

* From "Flight," April 15, 1926.

ratio and the great distance from trailing edge of the main wings to leading edge of stabilizer, which is in the neighborhood of three chord lengths. Both are features which should assist efficiency and stability, although it may be admitted that owing to the use of but a single pair of interplane struts the angles of the wing bracing wires are somewhat small.

Constructionally the Albatros L 72A is of the all-metal type, with a fuselage built of welded steel tubing, diagonally braced by wire and covered with fabric, while the wings have box spars of duralumin and ribs of steel tubing, the covering also being in the form of fabric.

As regards the arrangement of the fuselage, the 320 HP. B.M.W. engine is, as already mentioned, mounted in the extreme nose, and behind this is the cockpit for pilot and mechanic. Aft of this is a cabin having two windows in each side, and with two tip-up seats for those in charge of the distribution of the newspapers. Should the airplane be required as a passenger-carrier, the arrangement for dropping newspapers can be removed and two extra seats substituted. Provision has also been made whereby the pilot, by pulling a lever situated in his cockpit, can discharge the newspapers at any desired moment, the arrangement provided including 16 compartments, each containing a parcel weighing 22 pounds. An indicator is also fitted in the pilot's cockpit so that from this he can see how many parcels have already been dropped.

The wing construction is, as already stated, of all-metal type, except for the doped fabric covering. The upper and lower wings are identical, as are also the fittings at their roots, so that one spare wing can be used as the top wing or bottom wing as required, the center section of the top wing having fittings to receive the wings identical with those on the bottom longerons. The section used in the wings is a semi-thick one, and except for the elliptical rounding off of the wing tips, there is no change in chord or thickness from root to some distance outside the points of strut attachment. The slotted wings incorporate the latest type of leading edge slot in which the auxiliary airfoil is in the form of a thin duralumin strip which lies snugly against the leading edge when the slot is closed. The ailerons, or rather trailing edge flaps, are also slotted and are pivoted in such a way that with the trailing edge flaps down 24° the flap slot is open. The outer portion of the trailing edge flaps is retained as differential ailerons for lateral control.

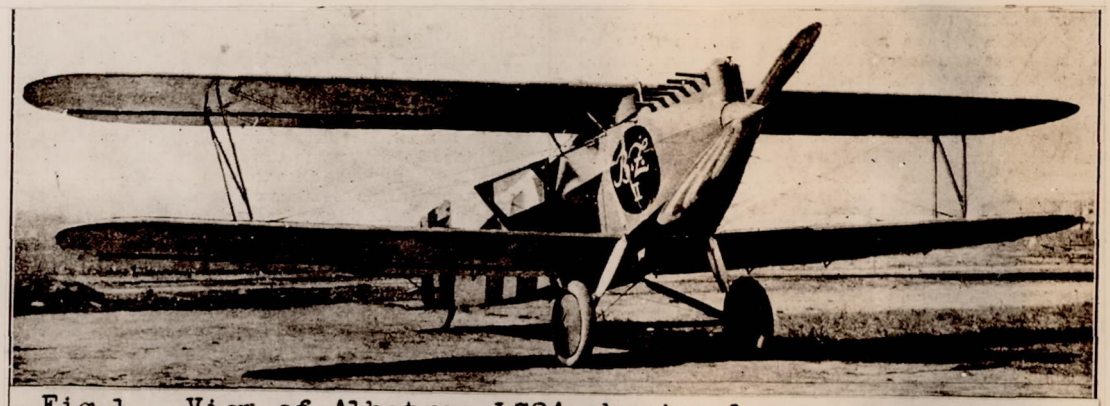
Like the rest of the airplane the tail surfaces are of metal construction, the material used in this case being steel tubing, although the spar of the trimming stabilizer is of duralumin. A novel feature is found in the rudder and fin, both of which are pivoted, and in such a manner that when the rudder moves to one side, the fin also pivots around a vertical axis. The object of this arrangement is to get a more powerful

rudder control with smaller angular movement, and wind tunnel experiments at Göttingen appear to indicate that the increased effectiveness of the rudder obtainable by this arrangement is of the order of 40 or 50 per cent.

The landing gear is of the Oleo pneumatic type, the landing shocks being absorbed by the compression of the air in the landing gear cylinder and bouncing being damped by a normal type of Oleo gear.

It will be observed that the center section of the top wing is thicker than the rest of the wing. This is accounted for by the fact that the center section contains the two main gasoline tanks. As a result of this placing of the tanks direct gravity feed is possible and the capacity of the tanks is such as to give the airplane a duration of 4½ hours at cruising speed.

The main dimensions of the Albatros L 72A are given in Fig. 4. The weight of the airplane empty is 1300 kg (2866 lb.), and the useful load is 700 kg (1543 lb.), giving a total loaded weight of 2000 kg (4409 lb.). As the wing area is 36 sq.m. (387.5 sq.ft.) the wing loading works out at the rather high figure of 11.35 lb./sq.ft. With the particular wing section employed the landing speed is stated to be 110 km per hour (68.2 M.P.H.) but with slots open this figure is reduced to 75 km per hour (46.6 M.P.H.), so that it would appear that the provision of the slots has been very well worth while. The top speed of the airplane is given as 180 km per h (112 M.P.H.),



Fig,1 View of Albatros L72A showing large span, single bay bracing and clean nose with Lamblin radiator.

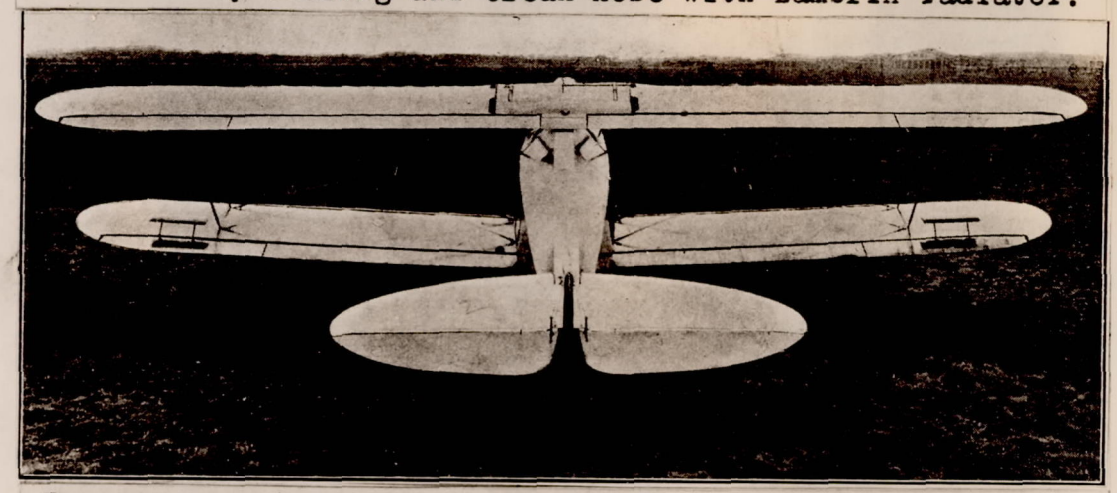


Fig.2 Rear view of Albatros L72A showing gasoline tanks in top center section.

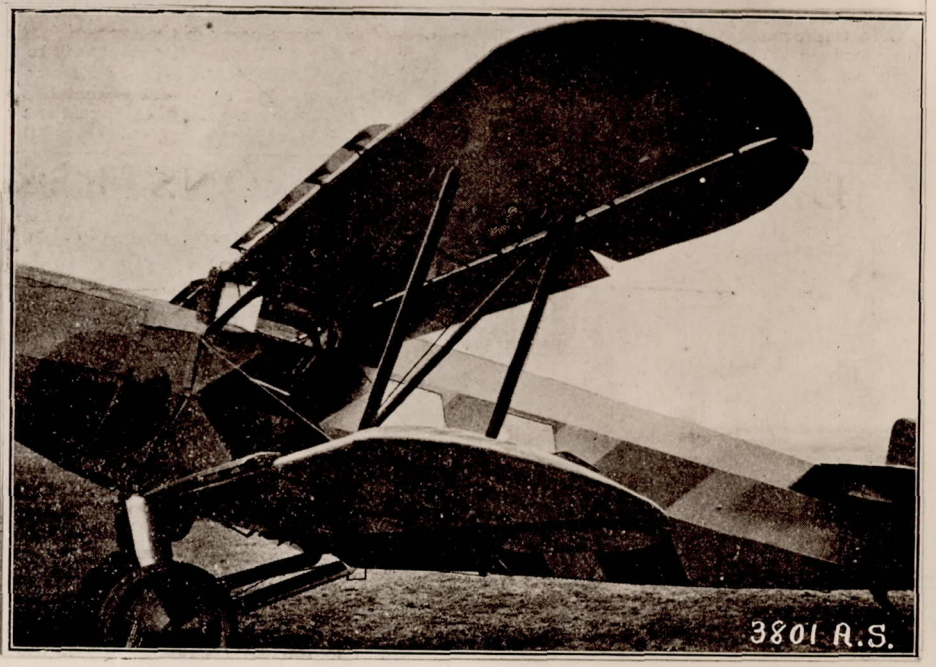
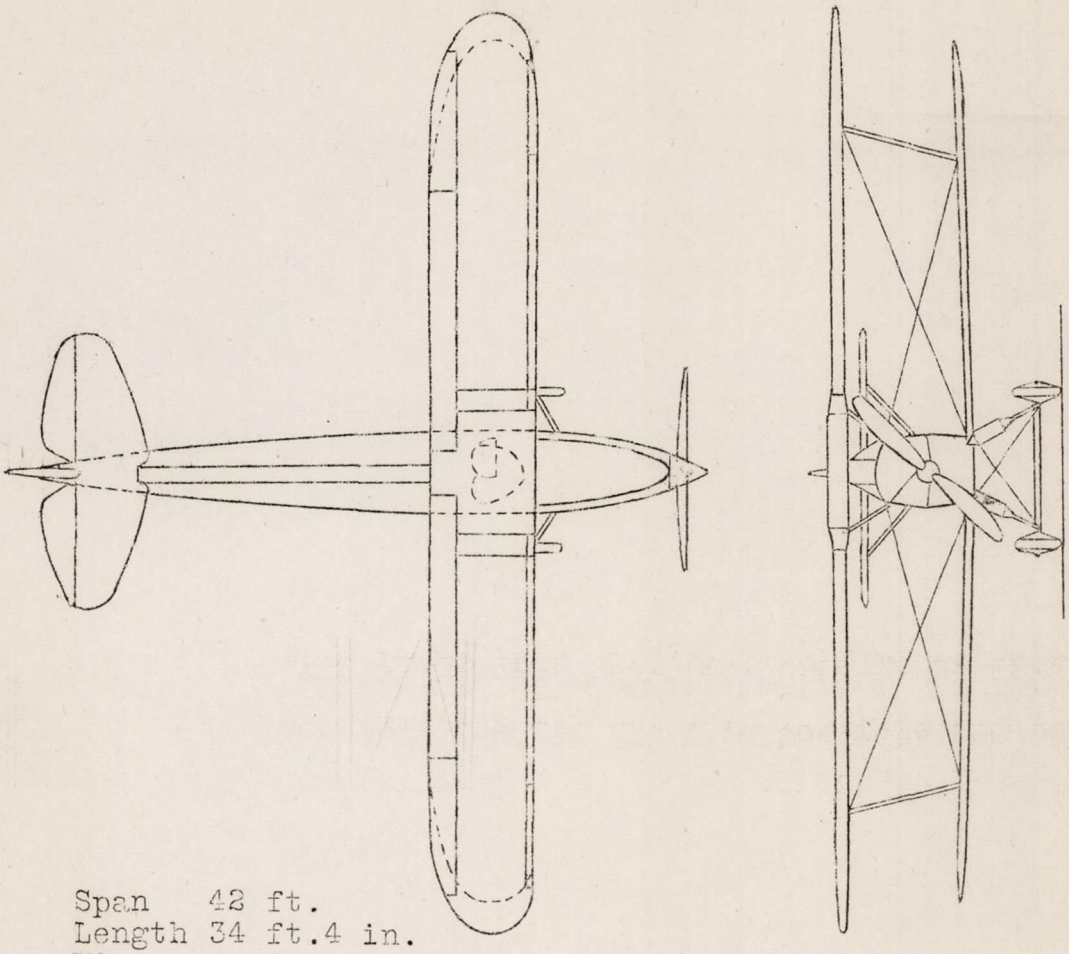


Fig.3 Close-up view of Albatros L72A showing leading edge slots open and wing flaps down. Note depth of fuselage aft of the wings.



Span 42 ft.
Length 34 ft.4 in.
Wing area 387.5 sq.ft.

B.M.W.
200 HP.
engine

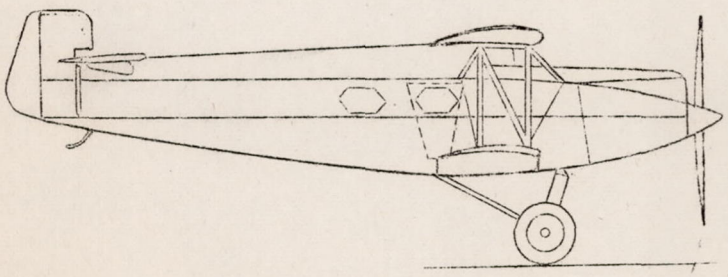


Fig.4 The Albatros L72A commercial airplane with leading edge and aileron slots.