AIRCRAFT CIRCULARS

NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS

No. 49

THE AVRO "GOSPORT," 504 R

A New Training Airplane

From "Flight," April 15, 1926

Washington
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A New Training Airplane.

Perhaps one of the most remarkable features in the development of airplane design is centered around the world-famous Avro "504" biplane - which is a sort of "Peter Pan" of the airplane world. After Mr. A. V. Roe had produced his triplanes, during 1909-1910, he designed in 1911 a tractor fuselage biplane - one of the first airplanes of this type in the world to be produced - which was developed into the original "504" in 1913.

It is the opinion of the house of Avro that the "light airplane" is unsuitable for the serious training of pilots. They have therefore designed this new type 504 R, which, while being lighter in construction than other Avro training airplanes, is yet sufficiently strong to withstand the rough handling to which a training airplane is subject This airplane is the outcome of their long and unparalleled experience in the production of training aircraft, and every quality essential for training purposes is incorporated in the design.

The fuselage is similar in construction to that of all Avro training airplanes, and is in the form of a wire-braced girder. This method has been proved in practice to be very

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strong, and at the same time to provide the best facilities for repairs in case of damage.

The instructor and pupil (or pilot and passenger) occupy two cockpits, which are arranged in tandem, and all airplane and engine controls are duplicated in each cockpit. A particular feature, and one which is essential in a practical training airplane, is that the airplane can be flown equally well, and landed with equal safety, from either cockpit. If desired, special seats can be fitted in order that the Irving seat-type parachute may be used.

The main planes are built up on two spars of solid silver spruce spindled to a suitable I section. The ribs are of the same material, and the whole structure is cross-braced with high-tensile steel wire.

The top main planes differ slightly from the bottom planes in that the inner portion is tapered to suit the center section plane, which has been cut away at both leading and trailing edges as far as the main spars. As a result of this alteration both instructor and pupil have a much better overhead view - a distinct advantage in a training school, where often several airplanes are in the air at the same time.

The contour of the ailerons has been altered in such a way that they now harmonize perfectly with the elevators. All controls are particularly light and very sensitive, and the airplane responds immediately to the slightest touch.

The fixed tail plane is in two sections, and an elevator is hinged to the trailing edge of each tail plane. Both tail planes and elevators are interchangeable port or starboard. The rudder is of the balanced type.

The interplane struts are of solid silver spruce carefully streamlined, with bracing ties of flexible steel cable, and the lift cables are in duplicate.

The landing gear is similar to that fitted to the famous Avro 504 K training airplane, and has been specially designed for training purposes. The shock absorbers consist of rubber cord in tension and are built to withstand very heavy landing shocks. The most important feature of this landing gear, however, is the long main skid, which not only protects the tip of the propeller in the case of a faulty landing by a pupil, but in a similar occurrence often prevents the airplane turning over on its back, with serious consequences. The tail skid is sprung by rubber pads in compression.

The gasoline and oil tanks are fitted inside the fuselage above and forward of the front seat. Gasoline is pumped to the engine by means of a hand-pressure pump, which may be operated from either cockpit.

The engine fitted is the new model 100 HP. Monosoupape with "Y" metal pistons, which obviate the necessity for obturator rings.

In conclusion, it should be mentioned that every part of

this airplane is absolutely standardized in order to insure complete interchangeability.

Its performance as a training airplane is beyond comparison, and because robustness of construction has not been sacrificed for the sake of lightness, it is economical in operation.

The name "Avro" has alway been the hall mark of the best training airplanes; the word "Gosport" at once brings to mind the most thorough and scientific system of training that has ever been devised, and which was, from the outset, operated by the earlier 504 type of Avro airplane. For these reasons, this, the latest training airplane, has been rightly named the Avro "Gosport."

The principal characteristics of the "Gosport" are as follows:

Span	36 ft.
Chord	4 " 9.75 in.
Gap	5 " 5 in.
Over-all length	28 " 11 "
Over-all height	10 " 4 "
Area of main planes	320 sq.ft.
" " ailerons	40 "
" " tail plane	26 "
" " elevators	10 "
" " rudder	9 "
Dihedral angle	2.5°

Angle of incidence	4°
Weight empty	1107 lb.
Useful load	569 "
Full load	1676 "
Weight per sq.ft.	5.24 lb.
" " horsepower	15.52 "
Speed range	35-87 M.P.H.
Climb to 10,000 ft.	24 minutes
Service ceiling	13,000 feet
Duration (cruising)	2 hours.

Views of the new Avro "Gosport" airplane with "Alpha" engine.

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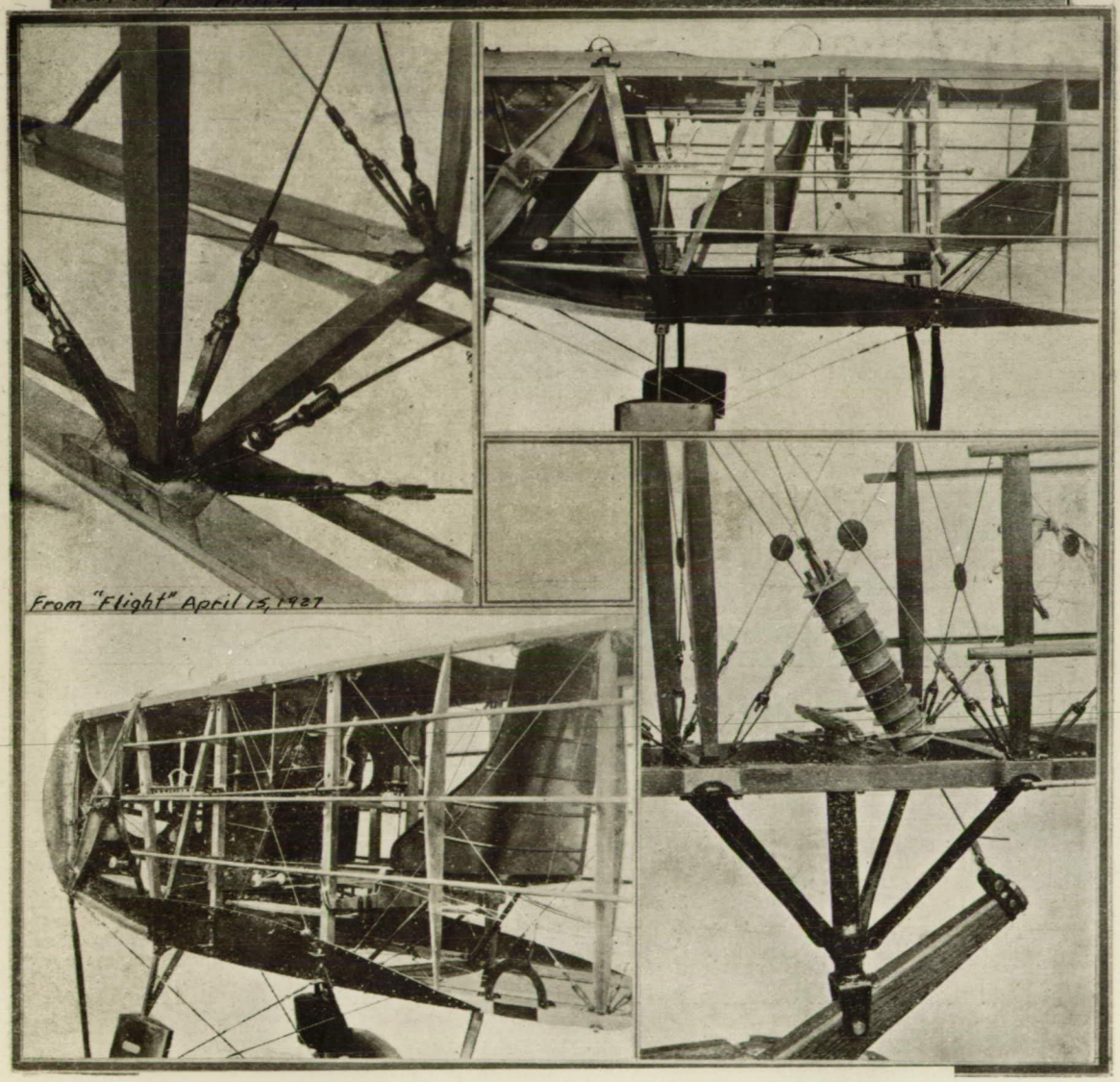

The new Avro 504 R "Gosport" training airplane, with some constructional details of fuselage.

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