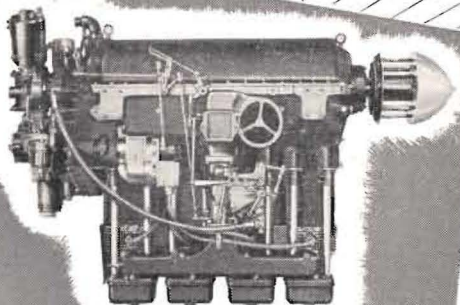


AIRCRAFT

News

SEPTEMBER • 1950

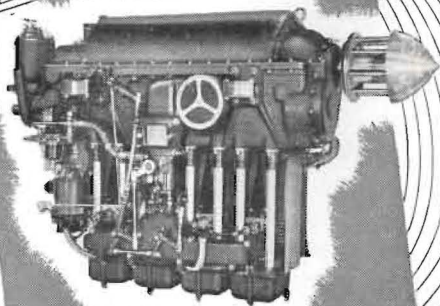




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AIRCRAFT NEWS

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SEPTEMBER, 1950

Editorial

ONCE AGAIN the S.B.A.C. Exhibition and Air Display at Farnborough has shown the world that Great Britain has a great variety of aircraft for all purposes, ranging from light aircraft to heavy bombers, freighters and passenger carriers, and including some of the fastest types available to-day.

Austers were represented by an AIGLET three or family four-seater which Ranald Porteous demonstrated in the Flying Display, an AUTOCAR four-seater, and a Series J.5 fitted with seeding and crop dusting equipment, which were on view in the Static Display.

This S.B.A.C. event is one which never fails to thrill visitors, and the organisers and exhibiting companies are to be congratulated on giving us a show which so competently demonstrates Britain's foremost position in the aeronautical field.

The Press is most welcome to utilise subject matter from the *Aircraft News* in whatever manner it may desire with or without acknowledgement. The Editor will also be pleased to be advised of any items suitable for inclusion in a future issue, and to receive photographs of Austers and those who fly in them.

Thunderstorm Flying by R.A.F.

WHERE POSSIBLE, flight through thunderstorms is in future to be part of the training of all Royal Air Force pilots. Research by U.S.A.F. and R.A.F. pilots is showing that if correct techniques are used, flight through thunderstorms is not hazardous. Although the presence of heavy turbulence, snow and lightning can prove alarming to uninitiated pilots and hail can cause damage, there is no reason why a military aircraft should not fly through thunderstorms if by not doing so they would prejudice the objective of their mission.

The American flight technique, which was developed during a scientific project involving 1,363 traverses through the most active thunderstorms that could be located by radar during two years of investigation, has been confirmed and officially endorsed by the R.A.F. British pilots belonging to the Royal Aircraft Establishment, Farnborough, the Empire Flying School, the All-Weather Training Flight at Singapore, and some of the operational Commands, have now collected considerable experience of flight through thunderstorms in many different parts of the world.

THE TECHNIQUE EMPLOYED

It has been found that, generally speaking, the most severe turbulence occurs in a thunderstorm at altitudes between about 10,000 and 20,000 ft., and that aircraft flying below or above these heights are not likely to encounter gusts which would impose dangerous structural strains on the airframe, providing that the appropriate speed has been maintained. As a thunderstorm is chiefly composed of rising and descending air currents, the main technique of flight in these conditions is to ignore changes in height which may be caused by the vertical airstreams, although maintaining a constant level-flight attitude.

From an analysis of accidents previously attributed to the violence of turbulence inside thunderstorms, states the Air Ministry, it is now realised that many so-called thunderstorm accidents must have been caused by structural failure, which has followed an excessive loading being placed upon an aircraft when recovering from a stall which has itself resulted from flying in the storm at too low an airspeed.

Taking into account the velocity of the gusts registered in thunderstorms, together with strength factors of the different aircraft in use in the R.A.F., "best turbulent speeds" have now been calculated by aerodynamicists for pilots to maintain when flying through cumulo-nimbus or thunder cloud. These give the aircraft the greatest possible safety margin from a point at which a stall would occur, and so from the stage where the risk is greatest of structural overloading of the airframe. These speeds are generally higher than those previously considered suitable; in some cases they are in excess of the normal cruising speeds.

While, with greater knowledge, the problem of flight through thunderstorms has been rationalised, the R.A.F. does not regard it lightly, and is introducing it to pilots through careful indoctrination during their Service training.

Miscellaneous Jottings

LIGHT AIRCRAFT IN U.S.A.

THE LIGHT PLANE BUSINESS is moving westward. There is a definite trend toward shifting of aircraft ownership away from the heavily populated areas of the eastern United States into farming and ranching areas, according to a new study, *Geographic Aspects of the Civil Aircraft Market*, recently completed by the Civil Aeronautics Administration.

Utility is the motivating force behind the shift. More than 1,800 planes were used in crop-dusting alone last year. The number of aircraft used in spreading fertilizer increased from 51 to 768, a rise of 1,400 per cent.

This increase in the agricultural use of aircraft is reflected in the C.A.A. study, which shows the location of the 92,658 personal aircraft in the United States as at July 1st, 1949. From a numerical total of planes alone, without relation to population, the largest numbers of planes are concentrated within certain large states: California, Texas, Illinois, New York, Michigan, Ohio, Pennsylvania, Kansas, Indiana and Florida in that order. These states total 47,452 aircraft or 51 per cent. of the national total.

But, viewing aircraft registration in relation to population, aircraft ownership *per capita* is lowest on the eastern seaboard and in the southern states east of the Mississippi river. Moving westward, aircraft ownership per unit of



An Auster "Autocar" shown here during a visit to the aerodrome at Grenchen, in Switzerland.

population gradually increases, reaching a peak in the mountain states and only declining slightly on the Pacific Coast.

SURVEYING EXMOUTH

FOR TWO DAYS during last month Service Austers, fitted with aerial photographic equipment, were engaged in making an aerial survey of the Exmouth district.

GROUP CAPTAIN WHEELER

G/C A. H. WHEELER O.B.E., has now been promoted to Air Commodore and appointed to Cyprus as A.O.C. A/Cdre. Wheeler has been in charge of experimental flying at Farnborough during the past twenty months, and has over 200 types in his log book. *Aircraft News* readers will recollect that A/Cdre. Wheeler piloted his Auster into third place in this year's King's Cup Air Race.

SPARES BY AIR

DURING THIS YEAR'S HARVEST PERIOD Bedfordshire farmers were using at least forty combine harvesters supplied by a Manchester firm. The demands made on the machines

were so heavy that frequent breakdowns were encountered, and local stockists of spares were hard-pressed to keep them in action. They overcame urgent requests for parts which were out of stock by arranging for the manufacturers to fly these spares down by air. A charter company did the job, and once again Austers were found flying in the service of the farmers.

BATTLE OF HASTINGS, 1950

THE EAST SUSSEX FLYING CLUB which had its headquarters at Hastings Airport has, we understand, been disbanded. It is the second Sussex club to meet this fate. After having worked hard, the sixty members had built up a fine club, and it is a pity that official sources do not help to keep such "nurseries" alive. In this case there is a further possibility that the Airport may be closed, and converted into a recreation ground.

CAPT. FARRAN'S ESCAPE

IN OUR JUNE *Aircraft News* we pointed out that the Otago Aero Club, New Zealand, had recently received AUTOCRAT G-AJAF, which had seen service in Palestine, under the ownership of Lt.-Col. B. E. Fergusson, friend and commanding officer of Capt. Roy Farran.

Subsequently we received a letter for Lt.-Col. Fergusson in connection with this subject, and part of the letter reads as follows :—

"I was interested to read of the speculation caused by the absence of some months from the journey log of G-AJAF in the summer of 1947. The speculators were right in supposing that the Syrian customs stamps relate somehow to Captain Farran's escape. I must, however, make it clear that he did not escape in the aircraft."

OVERHEARD IN THE FACTORY

THE WEST INDIES VERSUS ENGLAND cricket Test Match scores were coming over the radio. Ramadhin and Valentine were apparently doing their usual good bowling, but one of our Works Managers wasn't impressed. "It would take more than those two to get out our production figures," he said.



At Lausanne, Switzerland, the "Autocar" attracted considerable attention and interest.

Servicing Reminders

CIRRUS MINOR ENGINES

THE BRITISH AIR REGISTRATION BOARD now permits the Cirrus Minor Series I (90 h.p.) and Series II (100 h.p.) engines to run for 800 hours before complete overhaul. This represents an increase of 200 hours on the previous figure, and will be appreciated by those who operate Austers AUTOCRAT, Model D. or Series J.4.

LONG-RANGE FUEL TANK

ALL FUTURE LONG-RANGE FUEL TANKS supplied for Austers will incorporate a 36-mesh filter in the filler neck. This is to prevent foreign matter entering the fuel lines, through the tank, and so possibly cause the non-return valve to stick. It is recommended that the drain plug of the tank be partially unscrewed after each ten hours' flying, or weekly, so that any moisture or foreign matter can be drained off. The plug should then, of course, be screwed up and locked. The filter too should be periodically removed and cleaned.

It will be an asset for all earlier long-range fuel tanks to be fitted with a filter, and these will be available if application is made to the Service Department, Auster Aircraft Limited.

(Continued on page 12)

British Military Aircraft Serial Numbers

By M. J. F. Bowyer

ALL R.A.F. AND NAVAL AIRCRAFT carry a serial number allotted when a contract is placed with a manufacturer or when the aircraft are purchased. This article, necessarily short, has been written to give an outline of the system and numbers so far employed.

A method of identifying each airframe became an obvious necessity when the Army began to adopt aircraft in 1912, and so each machine was given a number starting at 1 and following through to 9999. Originally the Air Battalion R.E. was responsible for operating aircraft, but on May 13th, 1912, the Royal Flying Corps came into being..... having a Military and Naval Wing. The latter changed its name to the Royal Naval Air Service in 1914, and at the same time took over all airships from the Army.

Numbers 1 to 200 were allotted to the Naval Wing and 210 onwards were allotted to the Army. When the Naval Wing used up its first block, it was allotted a second batch, 801 to 1600 inclusive ; 1601 to 3000 and 4001 to 8000, both inclusive were Military aircraft, whilst 3001 to 4000 and 8001 to 9999, both inclusive, were Naval aircraft. It is believed that numbers above 999 were allotted but I have no definite information upon this point.

When number 9999 was reached—or a number slightly greater, assuming that five figure numbers existed—it was decided to place an alphabetical letter preceding the number to prevent the numbers from becoming too great. A second series began at A1 and ran through to A9999, followed by a third, B1 to B9999, etc. Allocation of serials was rapidly speeded up as the immense value of the aeroplane in war was realised. Series prefixed "C," "D," "E," "F," and "H" were allotted, running through in each case from 1 to 9999. "G" series was reserved for captured German aircraft, whilst "I" was not used, to prevent confusion with the number one.

When the letter J was reached it would seem that the first number allotted was J1000. It is true to say that no

machine ever appeared with a number prefixed by "J" between 1 and 999. By the end of the 1914-18 war J1100 was approximately the number reached, but few aircraft between J1000 and J6700 were actually built, and many contracts were cancelled due to the completion of hostilities.

The remaining "J" numbers 6700-9999 were used up between 1919 and 1927, a true indication as to how the industry suffered then.

Upon the formation of the R.A.F., on April 1st, 1918, a new series prefixed "X" and beginning at 1 was introduced for experimental aircraft, but this was a very short-lived series, soon dispensed with.

When 9999 had been reached in the first series, all new Naval aircraft were then allotted a number prefixed by the letter "N." R.N.A.S. aircraft numbered between N1 and N499 were prototypes. (*e.g.*, N163 was a Fairey Flycatcher, and N164 was its seaplane version). Whilst N1 to 499 was left for prototypes, the whole batch was never used up, the highest number being about N263. Numbers from N500 were reserved for deck-landing aircraft prototypes, whilst R.N.A.S. production aircraft had serials commencing at N1001. N9999 was reached in about 1924, and a new series for Fleet and Coastal Area Aircraft commencing at S1001 was allotted, but in 1931 this was discontinued, and since that time, Naval and Coastal aircraft have received no special series to themselves.

It is interesting to note that in 1919 civil aircraft were allotted a series beginning K100, but they terminated at K175 because the present system of registration letters was introduced late in 1919.

"K" numbers commenced in 1927 with K1000, and each successive series began at 1000 and terminated at 9999. Single letter prefixes used were K, L, N, P, R, T, V, W, X and Z. "K" numbers were still being issued when the R.A.F. expansion scheme was introduced in the mid-1930's, and many wartime types had prototypes in the K's (*e.g.*, K4049 and K4212, Wellington prototypes; K5054, Spitfire; K5083, Hurricane; K4586, Whitley; and K6127, Lysander). The "L"s were all expansion types, with few exceptions, these being prototypes of aircraft which emerged during the early stages of the war (*e.g.*, Stirling, L7600; Lancaster, L7502; Lerwick, L7248; and

Whirlwind, L6844). It was during the K and L series that the "blocking out" system was introduced. An example will show the meaning of this phrase. Auster Mk I aircraft were of the double serial letter sequence (referred to later in this article) and extended from LB263 to LB385, inclusive. Therefore, one might assume that 123 Austers Mk. I were built in this contract batch. But certain numbers were "blocked out" and small batches within the larger group only were produced, these being LB263 to LB299, LB311 to LB352 and LB365 to LB385. Total production was thus 100 machines and not 123. Only by knowing these "break-downs" of batches would an enemy be able to assess actual production, and this is the reason for the "blocking out" system. It did not, however, apply to wartime American aircraft used by the R.A.F.

Prior to the last war, certain aircraft were re-built from, for example, a Naval to an R.A.F. type (*e.g.*, Fairey 111F to Gordon). When this was done a letter "R" appeared after the original prefix letter and preceded the number.

Z9999 brought an end to the single letter series, and so a new system, using two letters followed by three numbers, was introduced at AA100. As there are so many combinations, it is not proposed to deal with each of them. Numbers ran in each series from 100 to 999, being, of course, "blocked out" in many cases. First letters used in combinations so far have been A, B, D, E, F, H, J, K, L, M, P, R, S, T, V, and W. Second letters used have been A, B, D, E, F, G, H, J, K, L, M, N, P, R, S, T, V, W, X, and Z. Within these, certain configurations were not used, such as DA, DB, EA, ET, HA, HT, JE, JH, MR, NW, NZ, SV, TN and TR. NC were letters used by Wellingtons, but "C" appeared nowhere else in these letters. EV to HD inclusive and JS to KP, were lease-lend aircraft. SA to SK were allotted to lease-lend aircraft but were never taken up, due to the end of the war.

Suffix letters were used during the war to indicate various categories of individual aircraft; as an example of this, SNAKE was one coding, and this gave the clue to what type of equipment was carried (although not such an obvious clue as one might think !).

Auster Personalities

No. 6. MR. D. R. WOOLLEY

FOR THE THIRD consecutive year the Ragosine Auster Homing Trophy was won by a member of the Brough Flying Club and the 1950 victor was twenty-three year old Derek Richards Woolley. Derek learnt to fly under a special reduced-fee scheme organised by Blackburn Aircraft, and now has some 270 hours in his log book, but the Auster Autocrat G-AGOH is the veteran of the partnership. This machine, a 1945 model, must be one of the oldest Autocrats flying, and has amassed over 1,500 hours, mainly as a flying test bed for experimental Cirrus engines. Incidentally, it is this aircraft which has won the Trophy each year, so it must know the rules by now !

Derek Woolley is a flight test observer in the Blackburn Flight Test Development Department at Brough, and is working on their giant Universal Freighter, which is second in size only to the Brabazon. His other hobby besides Auster flying is motor cycle road racing, and he rides a 498 c.c. Grand Prix Triumph with some success, and has already notched up one victory this year. As regards speed there is not much difference to Derek whether he is in the air or on the ground, for he has achieved 120 m.p.h. on a runway riding a super-tuned H.R.D. "Black Shadow" !

Last year Derek came second by half a point in the Homing Trophy Competition, and is determined to retain his title in 1951, for the Brough Club now look upon the Trophy as a piece of "fixed equipment" in the bar of the Flying School.

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D. R. Woolley with G-AGOH, in which he won this year's Ragsine-Auster Homing Trophy.



Derek Woolley racing with his lucky No. 13 on the front.

SERVICING REMINDERS—Continued from page 6
A GREATER LOAD

THE TOTAL AUTHORISED WEIGHT for the Auster Mk. 5 has now been increased from 1850 lbs. (839 Kg.) to 1900 lbs. (961.8 Kg.). This applies to all aircraft of the type, whether in their standard three-seater form or embodying the four-seater conversion modification announced in earlier issues of the *News*.

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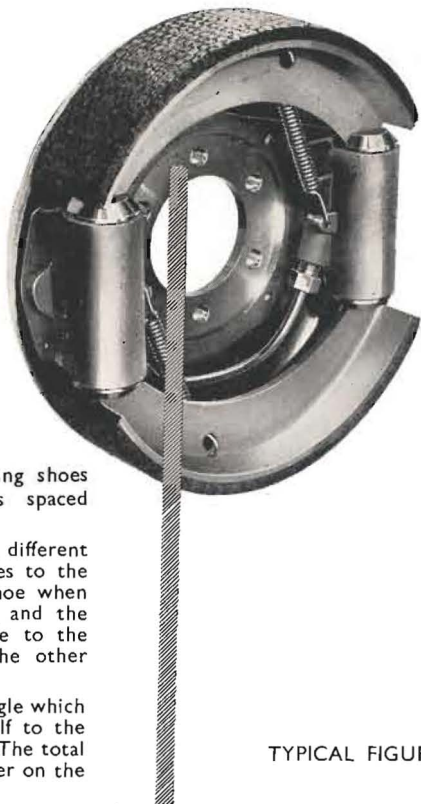


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THIS brake consists of two self-aligning shoes operated by two wheel cylinders spaced diametrically opposite.

Each wheel cylinder has two pistons of a different form: one having a slot at right angles to the axis of the bore, which operates the shoe when the brake is used in forward rotation, and the other with the slot inclined at an angle to the bore which forms the abutment for the other shoe in similar condition.

This inclined slot has a predetermined angle which allows the shoe to accurately align itself to the drum as well as forming the abutment. The total shoe reaction is transmitted via a shoulder on the piston to the cylinder body.

By this arrangement, two-leading shoe operation is obtained in either direction, and greater power for a given input and greater stability is obtained.

TYPICAL FIGURES

$5\frac{7}{8}'' \times 1\frac{1}{2}''$ Approximate maximum dynamic torque 2,950 lbs. inches, at 60 lbs. per sq. inch lining drag. Two $\frac{5}{8}$ ins. diameter cylinders.

$7'' \times 1\frac{1}{2}''$ Approximate maximum dynamic torque 4,200 lbs. inches, at 60 lbs. per sq. inch lining drag. Two $\frac{3}{4}$ ins. diameter cylinders.

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