AIRCRAFT *News*

OCTOBER · 1950

THE HYDRA-STATIC TWO LEADING SHOE AIRCRAFT BRAKE

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.

Master cylinder for use with the above brakes is a 15/32 ins. diameter x $1\frac{1}{2}$ ins. stroke design.

GIRLING

THE BEST BRAKES IN THE WORLD

Girling Limited
Kings Rd., Tyseley
Birmingham, 11

AIRCRAFT NEWS

published by AUSTER AIRCRAFT LIMITED

Rearsby Aerodrome, Rearsby, Leicester. Tel. Rearsby 276/7

OCTOBER, 1950

Editorial

MY SMALL DAUGHTER had occasion, some few months ago, to visit the dentist for the first time. An extraction was necessary. Now, presumably because she had heard other children talking about the monster who hurts little children, the event was obviously going to be a nightmare. But what happened ? Her pain was easily relieved, and the small doll she got as her reward changed the dentist into a worthwhile sort of chap.

Her next visit, a few weeks back, was a different proposition. The little girl looked forward to it.....or was it another reward !

Nevertheless, this story from home has quite a parallel in flying. How many times have you heard somebody say, "I wouldn't fly if you paid me. It's much too dangerous, I like my feet on the ground, thank you." Perhaps some of you have said that yourself. But in some cases it may later have become necessary to fly.....perhaps an emergency. What usually happens ? That initial feeling of doubt.....those awful thoughts of not getting down safely .....all of these soon vanish, and through the window the countryside begins to look grand from up here. That town down there must be X, and there is the river Y.....it's much better up here than it would be down there in that train.

Then, on reluctantly arriving, quite safely, how nice it is to stick the chest out and say, "What a good trip it was" .....and quickly fix up for an air trip back ! Yes, flying is like that, once it's been tried. But *don't* get tied up to aerobatics or semi-aerobatics, on a first flight. The odds are against you to start with—there is always plenty of time later anyway to sample this sort of dessert, but have a good taste of the *main course* first.

The Auster Mk. 5D

THERE ARE, THROUGHOUT THE WORLD, a large quantity of Auster Mk. 4 and 5 aircraft in service. These aircraft have a Lycoming engine, and by now most of them will have completed a vast number of flying hours. It therefore follows that engine spare parts will become necessary from time to time, and, in many cases, these are extremely difficult to obtain, since they are normally only available from the dollar area.

The Mk. 5D Prototype

As a result of various requests by owners who have acquired a Gipsy Major I engine, Auster Aircraft Ltd. have now evolved a modification whereby the Lycoming engine can be replaced by the Gipsy engine. Completion of this modification gives rise to a new Auster type—the Auster Mk. 5D.

The modification concerned is No. 1905, which, apart from all necessary drawings and instruction leaflets, includes the following :—

1. Complete new cowlings, engine mountings and, in fact, everything, except the engine, which is forward of the fireproof bulkhead.

2. Exhaust stubs and carburettor heater pipes.
3. New throttle control unit.
4. Ballast weight.
5. Increased area fin and rudder.

The larger area fin and rudder are necessary to meet directional stability requirements. The modification set includes a rudder in final covered form, but the fin is a bare frame, since any new fabric covering would have to be effected locally and mated into the fuselage fabric covering.

Dependent upon the state of the Gipsy engine acquired, some, or all, of the following engine modifications may also be necessary.

1. De Havilland modifications 1483 and 1659.
2. Double D/AC fuel pumps.
3. Propeller type DH. 5220/P25 or P26.

This Propeller is a wooden type, but a Fairey-Reed metal propeller type, A.66696/X1, can be fitted in lieu, and will be found most highly effective.

The modification set is naturally intended for those who intend effecting the conversion locally, but any owner can get the change-over completed at Rearsby Aerodrome. The price of the modification set, or the cost of a conversion effected at the Auster Works can be obtained on application to the Service Department of Auster Aircraft Limited.

A prototype Mark 5D has already been produced and flown at Rearsby, and results prove that this is another exceedingly good aircraft.

BRIEF PERFORMANCE DATA

(At 1900 lbs., and with a wooden propeller)

Take-off run in 5 m.p.h. wind	140 yards
Landing run in 5 m.p.h. wind	120 yards
Initial rate of climb	630 feet per min.
Cruising speed at 1,000 feet	100 m.p.h. I.A.S.
Maximum speed at 1,000 feet	122 m.p.h. I.A.S.
Stalling speed (full flap)	30 m.p.h. I.A.S.
Range:	
Standard	230 miles
Long range tank	430 miles

Readers will note that at the start of this article mention was made of the Auster Mk. 4, and some may assume that if the Gipsy engine is installed in this type of aircraft it will become an Auster Mk. 4D. This, however, is not the position, since, so far as Auster Aircraft Limited are concerned, all Mk. 4 aircraft are converted to a Mk. 5 standard before being used in a civil role. Naturally it is quite probable that in some parts of the world Auster Mk. 4 aircraft are flying in a civil capacity without having been converted in any way, and it is recommended that if an owner of an aircraft in this category is interested in fitting a Gipsy Major engine, he first of all contacts this company in order to obtain information on any additional changes which may be necessary.

The instrument panel of the Auster Mk. 5D is now changed by the introduction of a new type of throttle control

Another point which may interest some readers is the classification of the new type as "Mk. 5D." The Mk.5 series is as follows :—

The Mk. 5A is a standard Mk. 5 which embodies a bench type seat in the rear cabin to convert the aircraft to a family four-seater. The Mk. 5B type has not been allocated since it is felt this may lead to confusion with the J. 5B, which is in fact the Auster AUTOCAR. The Mk. 5C, of which only one is in existence, is a special conversion

which A/Cdr. Wheeler flew in the 1950 King's Cup Air Race. The next type, the Mk. 5D, is, therefore, the one with which we are now dealing.

The Auster Mk. 5 in its original Service condition. The spectacular take-off portrayed in this photograph is one which usually captures the interest of visitors to Rearsby. Note the flaps in the take-off position.

Banner Towing

IN RECENT MONTHS the attention of many companies has possibly been drawn to a form of advertising which, prior to the war, was becoming quite popular in various parts of the British Isles, particularly in the regions of cities and seaside towns. By this we refer to aerial banner towing and "sky writing."

It is now again permissible (at least in the British Isles) to utilise aircraft for this form of advertising, and already Austers have been adapted for banner towing. An example of this is shown in the photograph below, which portrays an AUTOCRAT belonging to Air Kruise (Kent) Ltd., towing a banner which is 50 feet by about 6 feet in size.

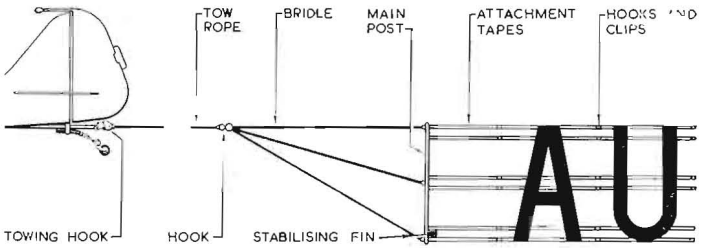
The banner carrying the words 'DECK ICES' is visible on the centre left-hand side of the picture.

In order to comply with current regulations it is only necessary for the towing gear to be approved by the Air Registration Board, the pilot to hold a commercial pilot's licence, and, of course, all normal flight rules and orders to be observed.

The towing gear has already been approved for many of the Auster types, as the gear used for glider towing can, in fact, fill a dual purpose. This equipment is quite easily

fitted, and any further enquiries regarding cost, etc., should be addressed to the Service Department, c/o Auster Aircraft Ltd.

The banner shown in the accompanying photograph is a "solid" canvas type, though many people prefer a silhouette letter banner. This latter type comprises a main post, to which a number of short attachment tapes are secured. Silhouette letters are provided, with the leading edge of each "down stroke" reinforced with bamboo, about six feet in height and with connector tapes, hooks and clips at positions to correspond with the attachment tapes. These are then fastened to hooks on the attachment tapes and to each other to spell out the word(s) required. A heavy gauge netting is attached to the end of the banner to prevent oscillation.



A typical arrangement for a "silhouette-letter" banner

The main post is weighted at the bottom and has a stabilising fin to keep the banner vertical in flight. From the forward side of this post a towing bridle of three ropes extends to a hook which is designed to allow the banner to fly easily, and final attachment to the aircraft towing hook is made by a single tow-rope.

The message, at a height of 200 feet, is readable from the ground for about one mile to the left. Viewers on the other side would, of course, see the message in reverse, so the obvious flight route is a wide left-hand circuit of the area for which the message is intended.

For Austers, messages of adequate length can be towed. So far as flying is concerned, the same few limitations applicable to glider towing also apply to banner towing, and these concern the maximum speed of tow, the maximum

breaking strain of the tow-rope, and engine cylinder temperature limitations.

Regarding aerial sky-writing, nothing has yet been finalised on the design side. There is no reason why, if any operator is interested in this subject, he should not contact the Design Office for preliminary information.

Auster Personalities

No. 7. Mr. T. F. RINGER

MR. RINGER IS A FARMER at Docking, near King's Lynn in East Anglia, who, between his numerous local activities and the somewhat unco-operative English weather, has this year become a pilot and, furthermore, also become an Auster owner.

Under the capable tuition of Dave Eastwood (Personality No. 2) Mr. Ringer commenced his instruction in February and, quickly appreciating the pleasure and usefulness of flying, he placed an order for an AUTOCAR four-seater.

Pending delivery of this, he planned one of his fields as a landing-ground, and cleared up one of his machinery sheds

for use as a hangar. Consequently, everything was ready, even to the windsock and a towing winch for "garaging" purposes, when the time came to fly his AUTOCAR home.

Mr. Ringer is using the aircraft mainly for pleasure at the moment, but as the occasion arises he uses it on business trips. This summer he found it most interesting to fly over his fields and note how his crops were progressing. Any sparse areas were soon spotted. No doubt neighbouring farmers' fields also come under surveillance at the same time too ! "Without my realising it at the time," says Mr. Ringer, "the AUTOCAR has doubtless helped me tremendously around the farm in one way or another."

A more unassuming man than Mr. Ringer is most difficult to imagine, and for that matter there cannot be many who are more willing to assist others. His farm is full of examples of his ingenuity, and in one of our future issues we hope to be able to give pictorial evidence of this.

"Since I have been flying around East Anglia," Mr. Ringer pointed out, "the aircraft has been an attraction everywhere. I am sure now that there are to-day many ordinary young men who want to take up flying immediately, but they just cannot afford the present costs, which are well out of their reach."

"Another thing this AUTOCAR has done is to identify me. Often I am asked if I were over a certain place at a certain time. Sometimes I was, but many times it must have been somebody else in another Auster !"

Land or Water

WHILE, AT THE PRESENT DAY, the scales appear to be heavily weighted in favour of the landplane as opposed to the seaplane, future developments in weight and power of aircraft, with their repercussions on aircraft design and cost, may lead to a reconsideration of the merits of the flying-boat, where it can be used.

The partisans of the landplane and seaplane have always waged wordy warfare as to the respective advantages of the rival aircraft.

Their advantages and disadvantages were recently summarised by *Shell Aviation News*, which briefly discussed the pros and cons of the types.

It points out that from a design point of view the advantages of the landplane are minimised as the size increases and that any flying-boat for future airline service will almost certainly exceed 200,000 lb. in weight, and above this weight this type has a lower structural weight than a comparable landplane, an advantage which increases with increasing size, because the weight of the undercarriage remains more or less a function of aircraft weight, whereas the hull of the flying-boat becomes proportionately lighter as the weight of the aircraft increases.

The large flying-boat can carry a greater payload than a comparable landplane. At 270,000 lb. all-up weight the landplane is only 3½ m.p.h. faster and the structure weight is two per cent. heavier, but at all weights the landplane has the advantage of less drag, though even this is reduced as the size of the aircraft increases, and, moreover, the total drag can be reduced in the case of a flying-boat by using a smaller wing area and larger take-off run on water.

This, however, is only one side of the question and, as our contemporary points out, the controversial storm usually centres on the vexed question of operating facilities.

It will be agreed that the cost of air transport is directly influenced by the cost of airport construction, and few airports possess runways capable of supporting the landing weight of the increasingly large, present-day aircraft.

Whether the introduction of multi-wheel landing gears, to spread the load, will enable the present-day runways to meet future requirements, remains to be seen.

There is, however, one over-riding factor which places the landplane ahead of its rival, *i.e.*, its ability to make use of landing facilities relatively close to cities.

True, this advantage may be partly offset by the necessity of using a large area of land with unobstructed air approaches which it is not easy to find close to a city or built-up area, and, in this situation, may be costly.

But, needless to say, the convenience of proximity to the passenger's destination has a certain monetary value to the air operator.

On the other hand, the flying-boat is practically limited in its terminal arrangements to the coast, which usually involves another time-wasting journey to the passenger's final destination.

Such arguments do not, of course, arise in the case of light aircraft, and the Auster, as a landplane, can be put down almost anywhere close to a desired destination. In places where a seaplane would be advantageous it only becomes necessary to fly an Auster fitted with floats. An example of the second case is the Falkland Islands, where an Auster floatplane is giving excellent service, and is proving very popular with the authorities there. It is so popular, in fact, that the Falkland Islands authorities have now had another of the Austers repaired at our Works and modified to take floats. This is now on board the *John Biscoe*, which has just left for another voyage to the Falklands. A spare set of floats is already there, and these will be fitted to the modified aircraft on its arrival.

Miscellaneous Jottings

FROM INDIA

MR. S. SUNDRA of the Indo Overseas Corporation, New Delhi, has recently taken delivery of an Auster AUTOCAR, which was shipped to him in a crated condition. We

Mr. S. Sundra (centre), with Sq-Ldr. Bhardwaj, who made the first test flight in the Autocar *after its assembly at New Delhi, and a charming lady whose identity unfortunately did not accompany the photograph.*

were very pleased to receive the news that the aircraft is now flying, and to receive at the same time evidence of its safe arrival.

Mr. Mehra, an engineer of the Delhi Flying Club, who assembled the A utocar. *Readers will note the landing lamp beneath the port wing of the aircraft.*

THEY FLEW TO SILVERSTONE

ON THE OCCASION of the last motor racing meeting at Silverstone, forty-five visiting aircraft landed in a neighbouring field. Of these, thirty-nine were Austers.....just another instance of how these amazing light aircraft get around.

FEATHERED SPOTTERS

IT IS POSSIBLE to distinguish a *Sandringham* from a *Hythe* at several miles distance—for a seagull. These birds fly out to greet *Sandringhams* but not *Hythes,* at an Australian flying-base. The reason is that maintenance men throw scraps of food overboard when a *Sandringham* is in for servicing. *Hythes* carry no food.

NOW IT'S CYCLES BY AIR

MR. H. A. SISSONS, a director of Sissleys Cycles (Essex) Ltd., Dagenham, is an Auster owner who finds his aircraft ideal for business purposes. In the last six months he has made numerous business trips, including visits to the Continent, Trade Exhibitions and Cycle World Championships. His ex-R.A.F. son, Mr. Keith Sissons, pilots the aircraft.

At Tollerton recently. After a call on Raleigh Industries Mr. H. A. Sissons is here seen loading a child's tricycle into the Autocar *while Keith holds the door open*

FROM HONG KONG

MR. PETER SELBY, known to several readers as a past member of the Auster Service Department, is now a pilot with Cathay Pacific Airways. He writes to say that he has now done nearly three thousand hours flying. On a charter flight to Hanoi during August, Peter was pleased to see four Auster Mk. 5 aircraft there.....or were they Mk. 4s ? He isn't too sure, but they certainly "brought him back to England."

In Lighter Vein

by The Elevator

YOUNG HOPEFUL

"So you want to marry my daughter?" said the prospective father-in-law. "And what, may I ask, are your prospects?"

"I should say they're pretty good, unless your daughter has misled me."

ODE TO LOVE

In a ritzy restaurant they met,
Brave Romeo and Juliet,
He had no cash to pay his debt,
So Romeo'd what Juliet.

AFTER YOU, CECIL

HUSBAND (arriving home late): "I'll bet you can't guess where I've been."

WIFE: "I can, but let me hear your story first."

CLASSIFIED ADVERTISEMENTS

AIRCRAFT FOR SALE

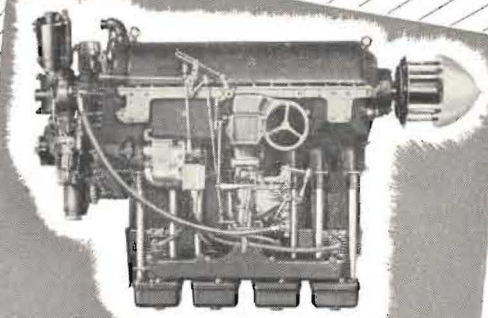
AUSTERS—Always contact the makers for the best used Austers. AUSTER AIRCRAFT LTD. offer :—

AUTOCRAT, 370 hours, sandcast cylinder heads, silver/red finish, red upholstery with special covers, engine starter, battery, artificial horizon, direction indicator, navigation lights, silencer, metal propeller, twelve months C. of A. by the makers . . . .strongly recommended . .£645 *ex* works.

AUTOCRAT, silver/orange finish, red upholstery, long-range fuel tank, direction indicator, sensitive altimeter. Engine hours since complete overhaul approx. 460. This aircraft has been particularly well kept by a most conscientious owner, and its condition greatly excels that of many aircraft of far lower hours. C. of A. till September, 1951. Strongly recommended . . . .£595 *ex* works.

Auster Aircraft Ltd., Rearsby, Leicester. Rearsby 276.

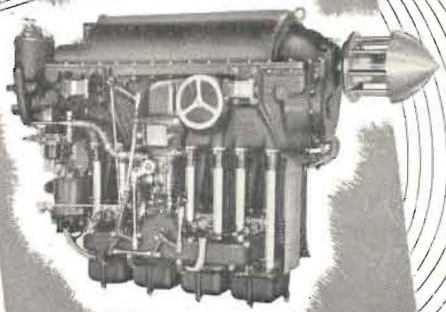
REPAIRS and Servicing of Oil Coolers, Radiators, etc. Car Heaters available for all makes of Cars. Consult the Specialists :
Delaney Gallay Ltd., Vulcan Works, Edgware Rd., Cricklewood, N.W.2



MAJOR

CIRRUS engines have a long record of success in many countries and in a great variety of light aircraft, and are now shewing their worth in the new light civil planes being built by many leading manufacturers.

You will want absolute reliability coupled with the utmost economy. You will expect the engine to give you real service with the minimum of upkeep and maintenance such an engine is the sturdy war-tested CIRRUS.



MINOR

Cirrus REGD. TRADE MARK

REGISTERED CIRRUS TRADE MARK

BLACKBURN & GENERAL AIRCRAFT LTD.
BROUGH, E. YORKS