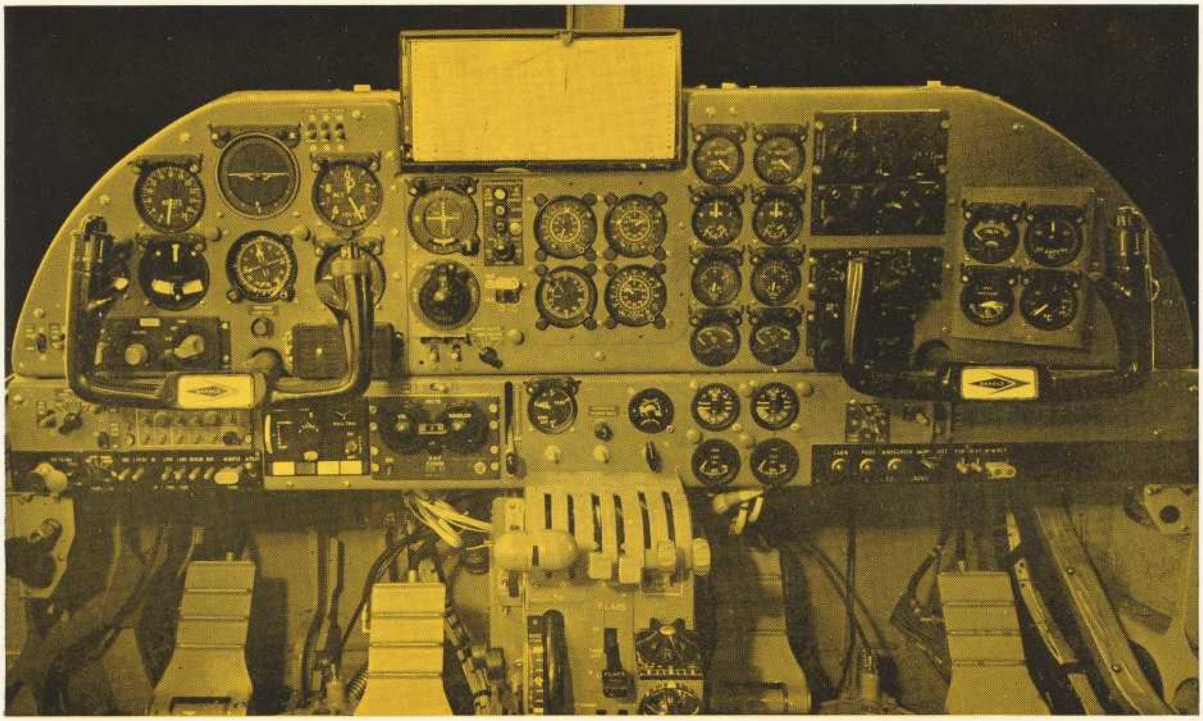
BEAGLE NEWS

January 1965

Number 2



SPERRY IN THE BEAGLE B.206

Each of the 22 aircraft ordered by the Ministry of Aviation will have a complete Sperry flight control system comprising a CL.6 Gyrosyn† Compass System, Horizon Gyro Unit and SP.3 Auto-pilot. The civil version also incorporates the SP.3. Auto-pilot and Sperry panel instruments.

† Gyrosyn—Registered Trade Mark

SPERRY

AERONAUTICAL GROUP

SPERRY GYROSCOPE COMPANY LTD., BRACKNELL, BERKS. PHONE: BRACKNELL 1301.

BEAGLE NEWS

EDITOR: F. J. JACKSON

CONTENTS

Front cover photo:
Production of the B.206 gathers momentum at our Rearsby works.

A superior all-rounder, the Husky is an outstanding general purpose aircraft. It is the answer to the need for a relatively cheap aircraft capable of working hard under strenuous climatic and operational conditions. The Husky has a degree of performance usually found only in the more expensive aircraft. In its 6ft. long cabin there is ample room for three adults, or two adults plus two children in a rear bench-type seat. The Husky is quite at home in high land or plain. The latest plastic-based Butyrate surfaces applied to the steel fuselage frame and all metal wing skeleton make the aircraft particularly suitable for operation in hot and humid territories. This photograph depicts the Husky with another British product – Belvoir Castle – as a backcloth.

TEST FLYING THE HUSKY

The magazine Air Pictorial, by whose permission this article is reproduced, was recently given the opportunity to flight test the Beagle Husky. We thought that the conclusions of Air Commodore Paul, who conducted the test, would be of interest to our readers.

Until this air test the Husky had seemed to be 'just another Auster'. But how wrong this impression was became increasingly apparent the more one examined the aircraft; until finally when the throttle was opened to take off, the Husky leapt off the ground, and climbed away in a STOL sort of manner reminiscent of the AOP Mark Eleven, reported upon in June. This similarity is noticeable in other respects, so much so that one could regard the Husky as the 'AOP Junior' – or 'the poor man's Mark Eleven'. At £4,100 as the basic export price (the cost in U.K. is about £200 more because of duty on the imported engine and airscrew) the Husky represents a lot of performance and rugged utility for the money, and is extraordinarily good value.

The Husky airframe follows the well-known Auster pattern with an all-welded fuselage structure of steel tube, and strut-braced high wing, built upon two metal spars. The leading edge of the wing is covered with light alloy sheet, and the split trailing-edge flaps are also of metal. The remainder of the wing surfaces, the ailerons, rudder, and after part of the fuselage are fabric covered. The structure is notable for strength, and ease of repair and maintenance away from normal facilities, and has been proved by hard service for many years in all parts of the world.

Constructionally, four main features distinguish the Husky from the Austers from which it is descended. First, the power plant is the Lycoming O-360-A2A engine rated at 180 h.p., and fitted with a fixed-pitch metal propeller specially designed and made by McCauley for best take-off and climb performance. The engine has wet sump lubrication, so that there is very little external plumbing; moreover despite the increased power, compared with installations in earlier aircraft, there is no weight penalty. Secondly, the aircraft has an enlarged fin, clearly seen in the side-view; thirdly, the taller undercarriage permits a greater angle of attack during take-off, and thus improves STOL characteristics. Fourthly, the undercarriage is fitted with Dunlop low-pressure tyres, which enable the Husky to cope with extremely poor and soft surfaces.

Husky Specification

Span	36 ft.
Length	23 ft. 4½ in.
Height (tail down)	8 ft. 1½ in.
Max. all-up weight	2,400 lb.
Max. speed, sea-level	113 knots
Max. cruise	102 knots
Stalling speed, flaps down	26 knots
Stalling speed, flaps up	33 knots
Initial rate of climb	1,450 ft./min.
Service ceiling	14,500 ft.
Absolute ceiling	17,000 ft.
Take-off ground run (still air)	498 ft.
Take-off distance to clear 50 ft. (S.A.)	1,095 ft.
Landing distance from 50 ft. (S.A.)	1,380 ft.
Landing ground roll (S.A.)	380 ft.
Range (still air, normal cruise, no reserve)	582 st. miles

Accommodation

The basic lay-out of the Husky provides for three people (including pilot) and at the maximum permissible all-up weight of 2,400 lb. and with a full load of fuel (32 Imp. gall.) this allows a further 168 lb. of baggage and additional equipment to be carried. With pilot only, and fuel for one hour, a payload of 670 lb. can be carried; this would be a possible arrangement for crop-spraying. The Husky is designed to be suitable for this role; and in addition can be equipped for aerial photography, supply dropping, stretcher bearing, glider towing, cable-laying, sky-shouting, and picking up messages by hook. It may also be fitted with floats, or skis, with dual controls for flying instruction, or with a full radio installation for navigation and radio training; or just for personal transport and for the simple enjoyment of flying. This adds up to no less than thirty-three possible variations of this versatile aircraft.

The Husky used in the test (G-ASBV) was a three-seater fitted with dual controls; it had been recently demonstrated in Belgium, so that the instrumentation was in metric scale, and the instrument panel notices included items such as 'Bobinage de champ de generateur'. The description which follows relates to this particular aircraft.

Entry to the aircraft is by doors on either side of the fuselage, giving access direct to either front seat, or to the rear seat by hinging the back of either front seat forward and down. Although a strap is provided to pull on, and there is a metal step, it is not easy to get in neatly; the difficulty was due to the lack of a catch to hold the door open whilst entering; one hand, therefore, was required to hold the door. The addition of a door hook would remedy this fault, and this will be done on production aircraft. *This omission has now been rectified. Ed.*

Once seated, all controls are found comfortably to hand; rudder pedals with toe-operated disc-brakes on the mainwheels are nicely positioned, and the stick is in the natural position for holding comfortably in normal flight. The only trimming device is the elevator tab, operated by a lever on a quadrant immediately over the left-hand front seat. The flaps are operated by a long lever, also overhead, and on the centre-line of the aircraft. Pulling it down lowers the flaps and in its full down position the handle end is between the occupants of the two front seats. The flaps have three positions, into which they are locked mechanically by a ratchet: full up; take-off; and full down.

Throttle, mixture control, cabin heat, and carburettor hot air are all controlled by push-pull knobs mounted centrally below the panel together with the Ki-gas primer pump. The main fuel cock controlling the gravity feed from two 16 gal. tanks (one in each wing root) is on the floor, below the knees of the occupant of the left-hand seat. It is clearly marked and shielded from accidental operation by a shroud-ring.

Instrumentation and radio is fitted to order as required. G-ASBV had a full instrument panel centrally mounted with radio to the right of it, and engine instruments to the left. The whole panel was commendably simple, and easy to scan. In normal seating position the nearest flight instrument to the pilot's eye was 20 in. distant, and the furthest, viewed somewhat obliquely, 25 in.

These measurements were taken with the seat in mid-position. Both front seats are adjustable into one of three positions; the fore-and-aft range of movement is $2\frac{1}{4}$ in.

The seats are well padded and comfortable, and the internal width of the fuselage at seat level, which is 38 in., gives sufficient room for two normal-sized well-clad persons. The third seat provides a luxurious amount of space; the rear cockpit measures 40 in. from the rear bulkhead to the back of the front seats, and the passenger, whose eyes are just about level with the trailing edge of the wing, has the most perfect rearward and sideways vision.

The pilot's outlook is less impressive. His eyes, with the seat in mid-position, are 2 in. below the lower surface of the main plane, and 24 in. aft of the leading edge. The top flange of the door, which is of metal and 2 in. deep, intrudes into his sideways vision; whilst when taxi-ing it is essential to weave from side to side since it is not possible to see over the nose. It is, of course, inevitable that the high-wing configuration can never, in a small aircraft, permit the same degree of visibility from the pilot's seat as the low-wing arrangement; but a great deal can be done by pilots themselves to minimise this difficulty, notably by having a jolly good look, by tilting the wing clear of blind spots, before going into turns.

One other feature of the accommodation worthy of special mention was the fitting of a perspex panel in the lower part of the starboard door. This permitted a most unusual view, with the undercarriage main-wheel in view from either seat, and the ground almost vertically below.

Handling

Starting up is simple, and seems to work first go every time. There are no tricks and no special checks. Taxi-ing the Husky at first gives the

Dual flying controls are fitted as standard, at no extra cost, and a dual set of brake pedals is available as an optional extra. The location of the instruments is arranged for easy reading from either side of the cabin, and they are quite accessible to either front-seat occupant. Basic instruments include Cylinder Temperature Gauge, Oil Temperature Gauge, Air Speed Indicator, Oil Pressure Gauge, Ammeter, Engine Speed Indicator, Turn and Bank Indicator, Altimeter and the standard specification of the Husky also includes electric starter, generator, soundproofing and carpets. A full range of optional extra equipment is available for this aircraft, which includes, blind flying instruments, V.H.F. radio, extra long range fuel system, wheel spats and lift strut fairings.

impression that it is a bigger aircraft than it really is; it has rather a solid feel about it, and the weight of the elevator is noticeable on the stick. It is essential to weave from side to side in order to observe the path ahead. Wheel brakes, together with the familiar steerable tailwheel coupling, permit easy and accurate control on the ground. The brakes proved adequate to hold the aircraft for a full power check on moist grass without the use of chocks.

For take-off it is normal to set half-flap, and tail trim neutral. Full flap confers no advantage, since it gives no significant increase in lift over half-flap, but increases drag. Take-off without flap is possible, but in addition to a longer ground run involves take-off in a rather nose-up attitude which obscures the view ahead. A little pressure on the right rudder is needed to keep straight especially in the initial stages of the run; the forward view is much improved as soon as the tail is lifted. A moderate pressure on the stick lifts the aircraft off at about 35 knots (I.A.S.) and it may then be allowed to accelerate and rounded up gently into climbing attitude. Flaps must be raised prior to 65 knots (I.A.S.). This produces no significant change of trim, and maximum climb is obtained by continuing on full throttle at 65 knots (I.A.S.). At the weight of 1,950 lb. at which these tests were flown, the VSI showed a steady rate of climb under these conditions of 1,100 ft./minute.

A much steeper angle of climb can be obtained by keeping the flaps at take-off setting, and the ASI at 50 knots. This results in a rate of climb of 880 ft./minute. The ground run was at all times notably short, and seemed to be of the order of 150 yards. The makers' figures for full load performance in still air specify clearance of a 50-ft. obstacle at a distance of 365 yards from the start of take-off, and they call attention to the fact that good STOL performance is still available at high-altitude airfields.

In level flight the Husky proved stable in all axes, and could be trimmed to fly 'hands off' at any power and flap setting. It could be flown 'feet off' for long periods, and hands off long enough to write notes, etc. A particular feature of the Husky is the remarkable absence of trim changes at different flap or throttle openings. This is a characteristic already noted in other Beagle aircraft; it contributes greatly to the pleasant handling of the aircraft, in particular on the approach, and during an overshoot. At the same time the tail trim is powerful enough to cope with wide variations in loading, and is capable of trimming out stick loads under all normal conditions.

Whilst aileron control is perhaps somewhat heavier than in other contemporary aircraft of similar size, control is powerful and positive right down to the stall, and reasonably well harmonised with the elevators and rudder.

There is no significant pre-stall warning, although with zero flap the level stall is at such a nose-up attitude that it could hardly escape notice. At the actual stall, there is a sudden and marked easing of the pressure necessary to keep the stick right back, and simultaneously the nose drops fairly smartly. One or other wing may also drop, but this seems to be quite erratic, and probably depends upon whether the aircraft is skidding at all at the decisive second. Recovery is almost immediate as soon as the stick is eased forward. The flaps-up stall occurs in a fairly nose-up attitude; but apart from this, and that the stall with full flap is arrived at much more speedily, since speed is lost more easily with flaps full down, the characteristics of the stall are in each case pretty much the same. At an all-up weight of 1,950 lb. the stall occurred at 37 knots I.A.S. clean; 32 knots with half flap, and 30 knots I.A.S. with flaps full down.

In the circuit and approach to land the absence of trim changes or complicated checks makes the Husky very simple to handle and to place with great precision in the position required.

The recommended circuit speed is 55 knots – which permits the flaps to be lowered fully, and vital actions to be completed well in advance of the final approach. The circuit and approach call for very little judgement, and it is easy to position the aircraft at about 200 ft., with 55 knots on the clock, lined up so as to approach straight to the desired point of touch-down. This speed gives very adequate control for all occasions.

The actual landing requires perhaps a little more judgement than is necessary with some tricycle aeroplanes. It is desirable to have the stick fully back at the moment of touch-down, in which case the pilot will be rewarded with the softest and squashiest of three-point landings, and a short ground run, which may be made shorter still by firm application of wheel brakes.

A wheel landing and in consequence a longer ground run will result from failure to get the stick right back at the right moment; dropping the aircraft on to the mainwheels can result in traces of the familiar 'Auster trot', but, on the Husky this damps out quickly of its own accord, and presents no problems at all. Landed slowly, three points, and making full use of the excellent disc brakes the Husky can touch down and pull up in a distance of the order of 100 yards.

What it costs

The basic cost of the Husky for export is £4,100. In the U.K. the figure is £200 more, and the lower figure has been used in our estimate of running costs. No allowance has been made for the wages of a professional pilot, or for the maintenance of equipment, such as radio, not supplied with the aircraft in its basic form. The requirements and facilities of individual users will naturally vary, and they will be able to add the amount necessary to complete their own costing.

It would be a great mistake to regard the Husky as anything but a completely different aircraft from its apparently similar predecessors. The only member of the Beagle family with which it can be compared is the AOP Mark Eleven; it is, in fact a sort of Junior Mark Eleven with all the characteristics of reliability and ruggedness of its bigger variant, rather more refinement in the way of interior comfort, and selling at less than half the price. It is pleasant to fly, has excellent handling qualities, and in our view represents very good value for money.

Air Pictorial would like to express its gratitude to Mr. Hall and the Beagle staff at Rearsby who made G-ASBV available for this enjoyable and interesting air test.

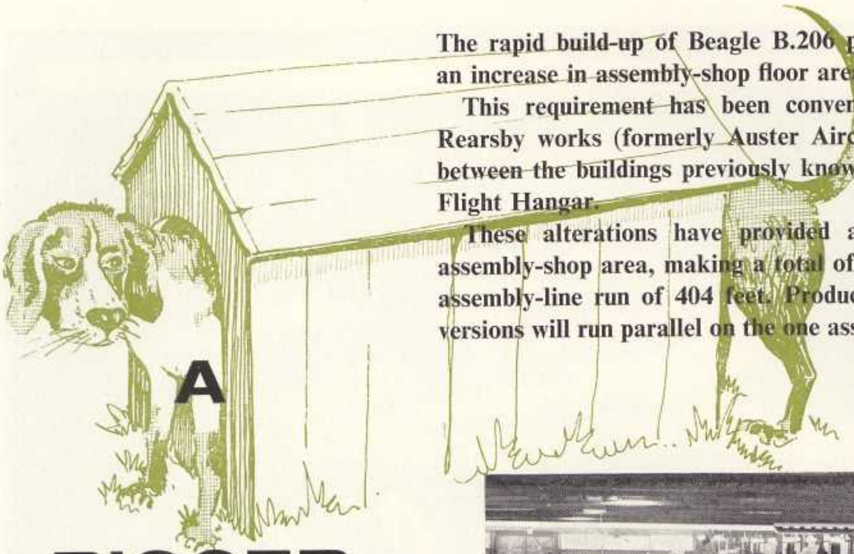
Estimate of Operating Costs (Based on U.K. costs)

Direct operating costs – per hour	£	s.	d.
Petrol and oil based on 8 g.p.h. at 5s. per gal. (includes oil)	2	0	0
Maintenance – 3 year C. of A. and all inspections	1	5	0
Engine overhaul – 800 hour life, based on £400 per overhaul		10	0
Total direct cost	£3	15	0

Indirect costs – per annum			
Hangarage at £6 per month	72	0	0
Insurance – at 5 per cent of basic cost	200	0	0
Depreciation – assuming aircraft written off over 10 years	400	0	0
Total annual indirect cost	£672	0	0

Table of costs			
Annual hours flown	200	400	800
Direct cost (£/hr.)	3·75	3·75	3·75
Indirect cost (£/hr.)	3·36	1·68	0·84
Total cost (£/hr.)	7·11	5·43	4·59

Ski installation has little effect upon performance and the change over from normal wheel undercarriage involves little work and can be carried out in a very short time. In ski form the Husky with its outstanding STOL performance is ideally suited for mountain rescue duties.



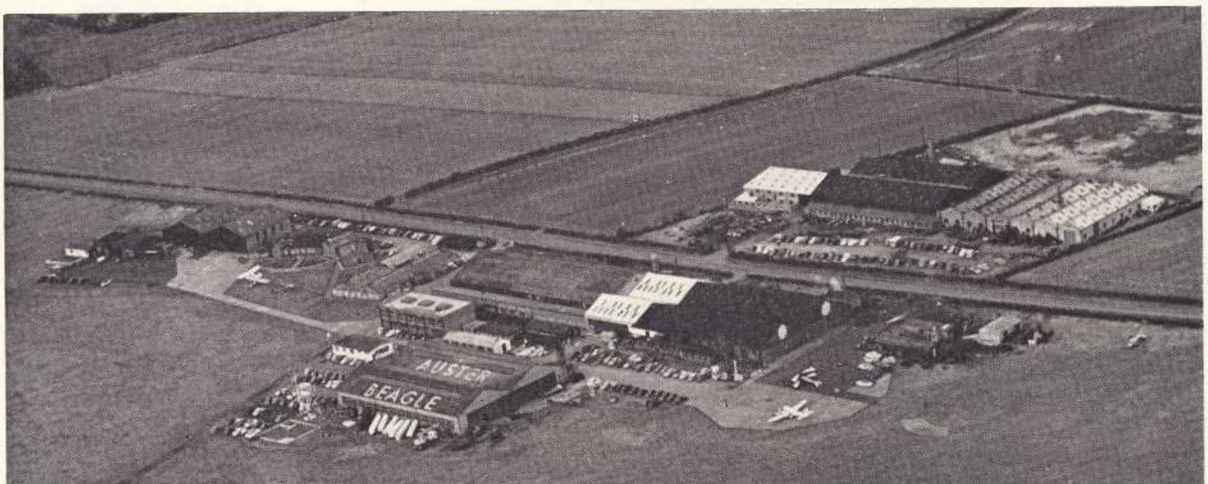
A BIGGER KENNEL

The rapid build-up of Beagle B.206 production, has made necessary an increase in assembly-shop floor area.

This requirement has been conveniently met at the Company's Rearsby works (formerly Auster Aircraft Ltd.) by bridging the gap between the buildings previously known as Number 6 Works and the Flight Hangar.

These alterations have provided an additional 7,200 sq. ft. of assembly-shop area, making a total of 52,200 sq. ft. and a continuous assembly-line run of 404 feet. Production of both military and civil versions will run parallel on the one assembly-line.

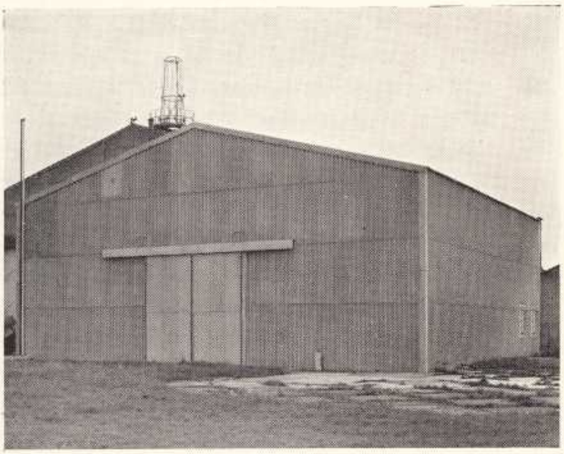
A view of part of the extended B.206 production line made available by the 'linking' of the two buildings described above.



In this aerial photograph of the Beagle production plant at Rearsby the building extensions are easily recognised by the unpainted roof area.

Structural testing at Beagle

Visitors to Shoreham Airport will have noticed the appearance this year of a rather unsightly square asbestos building (Fig. 1) on the western edge of the apron, on the airfield side of the main Beagle works. This building, 50 ft. × 50 ft., houses the structural test facility, which takes the form of a Tee-shaped test frame built up from the earlier Rearsby frame suitably enlarged to accommodate any airframe up to B.206 size.



The Beagle test facility building.

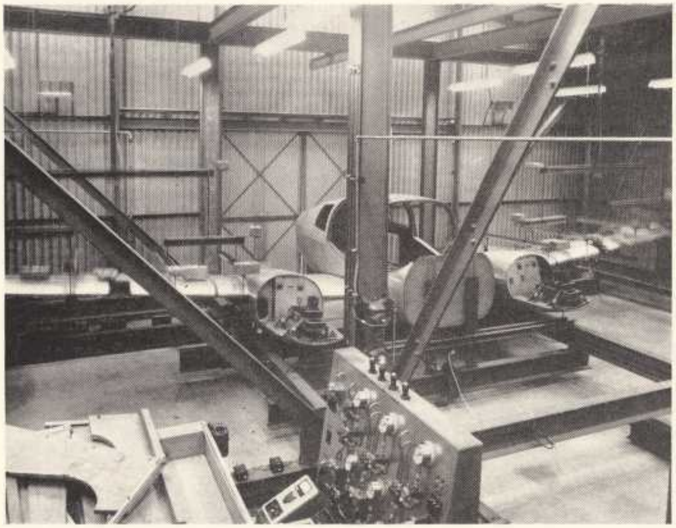
This building represents the outcome of long winded negotiations with various external bodies such as the Airport Committee and the Town and Country Planning Authorities as well as a lot of heartsearching within the confines of the Beagle Organisation itself. The test facility is under the control of Mr. E. Hann who devotes his strict attention to the facility's first major task, the fatigue test of the B.206 full scale test specimen (FTS to the initiated).

At the risk of losing the very few readers who will have survived the ill framed introductory part of this article, let me explain that aircraft never travel through perfectly smooth air, and are being continuously subjected during flight to load variations which are superimposed to the uniform loads arising during steady level flight. To these gust encounters must be added the effects of pilot induced manoeuvres and of landing and taxy bumps. It is this continuous incidence of incremental loading which is the source of the fatigue damage which has been so much at the centre of structural preoccupations during the past few years and which burst upon the public scene with such force as a result of the Comet disasters during the early fifties.

Whilst the metallurgical mechanism of metal fatigue is still not clearly understood, the underlying principles may readily be illustrated by the simple example of a thin strip of metal, say light alloy or mild steel. Such a strip will readily survive bending through an angle of 90° or even 180°. However, if it is then straightened again and rebent it will soon break. Now, the number of bending operations required to produce such a failure will depend on such factors at the nature of the metal, the thickness of the strip, the radius about which it is being bent, its thickness, etc. It will suffice to say that these various factors can readily be reduced to (i) the nature of the metal, (ii) the mean stress of the strip, (iii) the alternating stress level of the strip.

Under item (i) we should say that aluminium alloys are generally fairly poor as far as fatigue characteristics are concerned as anyone who has ever owned an aluminium bodied motor car will know. Some of the harder higher strength aluminium alloys are so fatigue prone as to be utterly unacceptable in aircraft structures. The moderate strength copper bearing aluminium alloys such as BS L.72 are generally best and hence provide the bulk of aircraft structural materials.

Items (ii) and (iii) may be discussed under one heading, since evidently reductions of mean stress levels will reduce the alternating stress levels and vice-versa. All we need say on the subject of stresses is that whilst it is fundamental to achieve low nominal design stresses, it is equally essential to avoid stress concentrations, and many an advantage of low stress has been frittered away by poor detail design. However, the number of load reversals that can be carried by an average aircraft structure (i.e. its life) is related to the mean and alternating stress levels by a simple empirical curve, the Heywood curve.



Application of simulated flight loads to the B.206 full scale test specimen.

Reverting to the components of incremental loading it will be appreciated that the amount of turbulence through which the aircraft travels depends to a large extent on the weather conditions of the day, the geographical location of the flight (over land or sea, over hilly or even country, etc.) whilst the severity of pilot induced manoeuvres depend on the nature of the flight, the role of the aircraft and in some measure on the bilious and/or mental state of the pilot. Hence it can be seen that the task of computing the amount of load to which the airframe is subjected during every flight could present us with a somewhat gargantuan task. Luckily, statistics of atmospheric turbulence ably gathered by some of the country's foremost technicians at the R.A.E. Farnborough, over a period of years using accelerometer records obtained during world wide operations, have rendered this task somewhat easier and enable us to simulate the amount of load experienced during an average flight by a very simple sequence of uniform load alternations superimposed onto the mean steady level flight loads. In the case of the B.206, this sequence consists of 9 encounters of gusts of $\pm$17 ft/sec. intensity, superimposed onto the mean level flight loads, followed by a single taxy and landing bump of 1·5g intensity. This sequence represents a flight of 1 hour duration at a height of 3000 ft.

Considerable thought was given earlier this year to the method of applying these loads to the test specimen (Fig. 2). It was found best to apply the airloads and the engine overhang and undercarriage loads by separate hydraulic jacks, upper and lower limits of the loads in the various jacks being controlled by blow-off valves whilst the cycling of the loads is controlled by a number of solenoid-operated valves which are energised electrically from a simple timing unit. In this way it is possible to carry out a complete 1 hour flight sequence in 90 seconds, enabling 960 hours of flight to be simulated in one day. The control panel on which the various types of valve and the timer are mounted is shown in Fig. 3. Hydraulic power is provided by a 7·5 h.p. electric motor driving two hydraulic pumps, one to the airload and undercarriage load circuits and a second to the engine load circuit.

Since the rig is designed to operate continuously through day and night without attention, cut-out switches have been installed at the wing tips and at the individual jacks, so that the slightest hint of failure and/or jack overtravel interrupts all elec-

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MORE TERRIERS

The photograph opposite shows the handing over of the first of two Terriers recently ordered by Don Everall Aviation Ltd. for the Wolverhampton Flying Club. In the photograph are (left to right) Mr. H. T. Howard (*Beagle*), Mr. D. P. Everall (*Club Secretary*), Mr. E. B. Holden (*Wolverhampton Airport Manager*) and Mr. I. Cripps (*Wolverhampton Flying Club*).

BEAGLE PERSONALITIES

No. 2—J. W. C. (Pee Wee) JUDGE

Mr. 'Pee-Wee' Judge, Beagle Chief Test Pilot.

'PEE-WEE' Judge is our Chief Test Pilot. When told of the intention to feature him in this series, he replied: 'how uninteresting'.

We start with his *really active* service with the Royal Air Force, flying Hurricanes and Spitfires of No. 33 Squadron in the Middle East, with Fighter Command and with the 2nd T.A.F. in Europe. Later transferring to Typhoons of 245 Squadron again with the 2nd T.A.F.

After the end of the war 'Pee-Wee' continued his service as a Ferry pilot and finally as a test pilot in India.

On leaving the Service he was for a time a free lance Ferry pilot delivering aircraft to the Middle East, Pakistan and India until joining the Supermarine division of Vickers Armstrongs Ltd., as a test pilot in 1950 to fly Spitfire, Seafire, Attacker, Swift and Scimitar aircraft.

Then followed a period with Rolls-Royce Ltd., to which Company he was attached as a test pilot for one year on the Tyne-Ambassador and Conway-Vulcan programmes before joining Beagle as test pilot at Shoreham in 1961. His appointment as Chief Test Pilot of the Beagle Group was made in 1962.

In his spare moments 'Pee-Wee' served as an Auxiliary in No. 615 (County of Surrey) Squadron, Royal Auxiliary Air Force from 1948 until the disbandment of the Auxiliary Squadrons in 1957 and since then has participated in sporting flying events as a member of the Tiger Club.

He holds the Queen's Commendation for Valuable Service in the Air.

Not really uninteresting !—Ed.

COMPANY AIRCRAFT GET BUSINESS OFF THE GROUND

A growing number of British firms are finding that an airborne office is as essential as the machine tools on the factory floor.

BY GEOFFREY LUCY

Reprinted by permission of The Reader's Digest Association Limited (British Edition) June 1964.

AT nine o'clock the other morning Joseph Bamford, the world's most successful maker of hydraulic earth-moving machinery, stepped into his company aeroplane and took off from Birmingham airport for Paris. Throughout the 110-minute flight he went over company plans with his design director, Alec. Kelly. Before noon Bamford was in the heart of Paris, conferring with one of his distributors; by nightfall he was being welcomed at Geneva airport by his Swiss representative.

During the next five days Bamford and Kelly did business in four countries. They flew from Geneva to Basle, into France to Lyons, Clermont-Ferrand, Nantes, Tours, Auxerre, back to Geneva, across Switzerland to Zürich, over the German frontier to Düsseldorf and into Holland to visit the Bamford factory at Maastricht. They were back at their Rocester headquarters in Staffordshire by lunchtime on the sixth day, having covered 2,637 miles in only 15 hours of travelling.

Overland their tour would have taken an exhausting fortnight. By commercial airlines they would have had to fit their work to the fixed timetables, instead of arranging their own timetables to suit their work; and they would have been forced to use slow road or rail links to reach the towns not served by commercial carriers. Says Joseph Bamford, 'Our company aeroplane is not a gimmick or a status symbol – it's a basic piece of equipment, as essential to our business as the machine tools on the factory floor'.

British industrialists are becoming increasingly aware of the advantages of the company plane. Executives can cut travelling times by half or more. Salesmen can beat their rivals to potential customers. Directors can complete negotiations at leisure instead of hurrying away to catch the last train or airliner home. Many industrialists have found that a company plane has the effect of a greater sales or technical force without increasing the number of employees. The head of a leading electrical company estimates that they would need three times as many senior executives and engineers if they had to rely on road, rail and commercial-air transport.

About 150 British firms now operate company planes, and the number increases each week. In addition, several charter firms own fleets of light aircraft which they hire out to industry at hourly rates or on long-term contracts.

Business aircraft are already changing the map of industry. Pasolds Ltd., who make children's clothes, have found aircraft so time-saving that the company has actually grown up around airfields. Says Eric Pasold, 'The first question we ask when we're planning to build a new factory is – where is the nearest airfield? We chose Coatbridge for our latest plant because it's close enough to Glasgow and Edinburgh airports for us to commute to work in our Beechcraft'. Some time ago, when Pasolds' directors were deciding whether to take over Chilprufe Ltd., the balance was tilted in favour of purchasing

The Beagle B.206 Britain's seven/eight seat executive aircraft. This aircraft can be supplied with a variety of seating arrangements to suit the requirements of operators.

by one fact: the Chilprufe factory is only ten minutes from Leicester airport.

Small enterprises have also discovered the value of air travel. Stanley and Roger Dickson, partners in a Sheffield advertising agency, fly all over Britain in a two-seater Emeraude. 'We find this little plane indispensable,' says Roger Dickson, who pilots the aircraft, 'and its cost compares reasonably with running a Jaguar.'

Aeroplanes suitable for company use cost from about £1,750 for a second-hand 110-m.p.h. two-seater, to approximately £1 million for the fully-equipped business version of the BAC One-Eleven airliner. The average light, twin-engined five-seater costs about £30,000 with full equipment; taxation allowances enable the cost to be written off against profits in five years.

Ownership of a plane increases the profits of some companies so spectacularly that the machine quickly pays for itself. J. C. Bamford's British-built Dove 8, which cost £60,000 with its sophisticated airliner equipment, earned its keep in its first week. A recently-appointed distributor in Southern Europe was experiencing a technical problem with a new type of excavator, and was reluctant to accept a shipment due to sail from Liverpool within two days. Joseph Bamford spent most of the day on the telephone, trying to sort things out. Having failed to convince his man, he took off that day in the Dove. Two hours after he arrived at the astonished distributor's office the problem had been resolved, and the two men were cordially shaking hands. The distributor was so impressed by such service that he not only agreed to accept the shipment but ordered another, worth £135,000.

Construction firms, which often have to work in areas remote from railway stations and airports, have been using business aircraft for years. Sir Robert McAlpine & Sons Ltd. has a fleet of six planes to carry key executives to temporary landing strips on sites all over Britain. Some of these are specially designed short take-off and landing aircraft that can put down in large car parks or fields. The company has a £100,000 hangar at Luton airport and spreads the overhead of fleet operations by offering a door-to-door 'flying taxi' service for businessmen.

McAlpine also maintains aircraft belonging to other business users, including Lord Verulam of Enfield Rolling Mills and Lord Robens of the National Coal Board. It services the small planes used by racing motorists, such as Innes Ireland and Jack Brabham, to carry them to Europe's racing circuits.

Ferranti Ltd., which makes aircraft equipment, is understandably air-minded. Two four-engined Heron aircraft enable Ferranti executives and engineers to extend their field of operation throughout Europe and still enjoy a balanced home life. 'I find it surprising,' says Sebastian de Ferranti, 'that so many businessmen who could use this modern means of transport fail to do so.' Some business aircraft fly to fixed timetables almost as regularly as commercial airliners. Ind Coope – with breweries in London, Burton, Alloa in Scotland, and Wrexham in Wales – links them with two Doves running on daily schedules so punctual that airfield control rooms refer to them as 'Ind Coope Airways.' The prestige value of a company aircraft is high. 'Arrive by commercial airline,' says one British industrialist, 'and you may have to sit for an hour in a waiting-room before you see the man you want. Fly in your own aircraft, and the boss himself will probably drive to the airfield to meet you.'

Geoffrey Woods, Managing Director of Woods of Colchester Ltd., who exports a third of the production of the firm's electric fan factory, is his own chief salesman. He owns a six-seater, 200-m.p.h. Aero Commander in which he covers the whole of Europe and Africa. He also uses the plane to carry potential customers to his factory. 'Not many people can resist,' he says, 'when we offer to pick them up in France or Germany in the morning, fly them to Colchester, and have them back home by six.' More than 300 engineers, architects and other specialists have been flown to Colchester from all over the Continent to see the special Woods test rig which demonstrates how powerful fans can be silenced to a whisper. 'If we had no aeroplane we'd never get customers into our factory. Now we have no trouble – and they arrive in a receptive mood,' explains Woods.

How safe are business aircraft? In the Western world there are about 34,000 of them, flying more than six million hours a year – only two million hours fewer than all the world's airliners. Yet in 1961 only two business aircraft crashed. Compared with road travel, business flying is much safer. In 1961, one in every 35 vehicles on British roads had an accident; in the same year not a single life was lost in a company plane. Professional pilots of business aircraft have to attain the same high standards as airline pilots; their tests include yearly flying checks and a strict Air Ministry medical examination every six months. Many are former airline pilots with years of scheduled flying behind them. As company pilots they fly up to 140,000 miles a year for salaries of between £1,500 and £3,000.

The typical aircraft used in business aviation is a light twin-engined machine with four to eight seats; it has a range of about 1,000 miles and a cruising speed of 200 m.p.h. Many have reclining airline seats, folding writing tables, toilets, individual lighting and ventilation, and are quiet enough for conferences in mid-air. Some British industrialists buy American or Continental aircraft because of the lack of suitable British machines, but now our own manufacturers have shown signs of waking up to a potentially lucrative world market. Businessmen can now order Peter Masefield's Beagle 206, a comfortable 210-m.p.h. seven-seater, costing £45,000 fully equipped to airline standard of radio; or the Hawker Siddeley 125, a luxurious 500-m.p.h. miniature jet airliner selling for about £200,000.

How economic is it to run a business aeroplane? That depends on how it is used. Ferranti's hard-worked 12-seater Heron costs only 6½d. per passenger seat mile – almost half the price of first-class airline travel. A Dove which flies 400 hours a year costs about £32 an hour, in which time it can carry seven people from London to Rotterdam: their tourist-class airline fares would be £65. The indirect saving is even more important. Most firms with aircraft believe that as a £3,000-a-year executive is worth £4 a working hour, any means of conserving his time is profitable. 'The speed and flexibility of our aircraft more than justify the operating cost,' says an Ind Coope executive.

Many businessmen reject the idea of a company plane because they believe that Europe's climate is not suitable for year-round operation. It is true that a small, privately-flown aircraft cannot be relied upon for regular winter flights; but a professionally-flown twin-engined plane with radio and navigational aids of airline standard is rarely grounded by bad weather. Says Captain Michael Sutton, a former de Haviland test pilot who is now a company pilot, 'In three years I've flown 205,000 miles to 119 different airfields in 22 countries – an average of one flight a day – and I've been stopped by bad weather only twice'.

In the future, as Britain depends more and more on trade with the Continent, the prizes will go to the flying businessman who 'manufactures time' and beats his rivals by arriving first with sales and service. At home, business flying may help to stem the drift to the south. There are already about 170 British airfields available to company aircraft, and the Ministry of Aviation has asked 300 Chambers of Commerce to explore the possibilities of building local airstrips. If more landing facilities can be provided in Wales, Scotland and north-eastern England, many firms now cooped up in the crowded south will seize the opportunity to expand to areas where men need work, land is plentiful, and London is within easy commuting distance – by air.

STEP ABOARD the Beagle B.206 – ease of entry is ensured by the provision of a wide 'limousine type' door (46 in. × 36 in. high) together with the hydraulically operated 'air-stairs'.

Thank you Mr Smith

The letter below is reproduced exactly as received and without comment.

Maidenhead Organ Studio LIMITED

Managing Director: W.C. Smith
Manager: R. Rogers
Service Engineer: J. Birks

: **HAMMOND & COMPTON ORGANS** :

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(adjacent Boyne Hill Garage)
MAIDENHEAD,
BERKSHIRE

Telephone:
MAIDENHEAD 21331/20117

Telegraphic Address:
ANCHOR, MAIDENHEAD

Our Ref: WCS/WDB

6th November, 1964.

A.P.H. Harman, Esq.,
Beagle Aircraft Ltd.,
Rearsby Aerodrome,
Rearsby, Leicester.

Dear Mr. Harman,

My Airedale, G-ARZS, was returned to me yesterday following your annual check and the fitting of a marker beacon receiver.

I would like you to know that I am delighted with the performance of the aeroplane and what a tremendous difference it has made since your Staff have applied their expertee to the machine. Not only has the engine much enhanced performance but the aeroplane flies so very much better than before you had it. It is surprising how an aeroplane will deteriorate in a year's use but you will be gratified to know that it is only your check that has brought the aeroplane back to what is obviously it's original performance.

My Co-Pilot was Eric Davies, a VC.10 Pilot, and he was also most impressed with the improvement you have made. He remarked that he had recently been flying American low-wing aeroplanes, and he noted how much more stable was the Airedale and how responsive were the ailerons than your American competitors. This was quite unsolicited and I am sure he has no idea that I am writing to you, but I feel you will value his opinion as an expert and professional Pilot.

I wear my Beagle tie with pride.

Kind regards,

Yours sincerely,

Walter Smith.

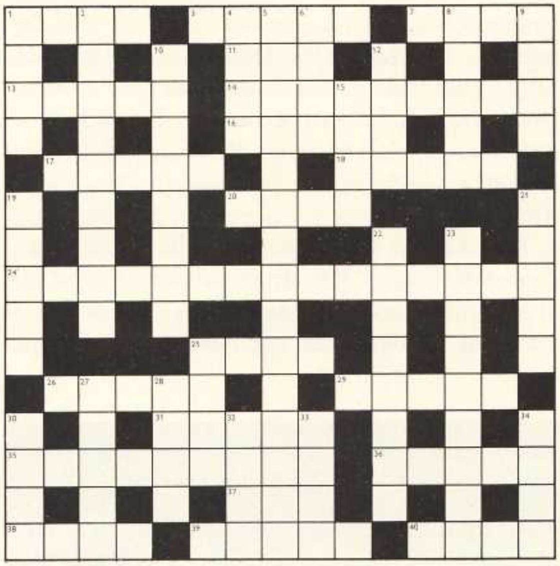
BEAGLE NEWS CROSSWORD

ACROSS

1 Used in weaving commercial webs (4)
3 Take from negative foot or finger (5)
7 So be it (4)
11 You're good if you hole in it (3)
13 Anger! roam about or shoot on it (5)
14 Its decorated with a seabird in the centre (9)
16 Salts or downs (5)
17 Go into this with the space boys (5)
18 Metal trial (5)
20 A fad (4)
24 When the second half is the first, not such a calamity if stolen (2 words 7, 8)
25 Edge (4)
26 Skirmish (5)
29 Next to the bulls-eye (5)
31 Stave for a girl (5)
35 Another course? or perhaps just a cooling drink (9)
36 Spoken in Norway (5)
37 Prophet (3)
38 Inclination to follow (4)
39 Sealskins in this canoe (5)
40 Worshipped image (4)

DOWN

1 Crossed by 1 across (4)
2 Sworn eels (9)
4 Used for the Indian vanishing trick (4)
5 I apply in art plus 4 down unsuitably (15)
6 They are cast and the nest upset (4)
8 Its mad to have one (5)
9 The point from which leaves spring (4)
10 Educational establishment (8)
12 Stones of value (4)
15 Frog you may find in a hole on your plate (4)
19 Do yours – thats fair – do this to someone else – thats mean! (5)
21 The one to cash the order (5)
22 There are two kinds of yarn you can be doing this with (8)
23 Free inside liked better (9)
25 Superstition says one must tell them anything important (4)
27 Leprechaun in Ireland (5)
28 The odds at 50-50 (4)
30 Cheat the cradle (4)
32 Tree which produces vegetable butter (4)
33 Academician within musical air (4)
34 Late duck (4)

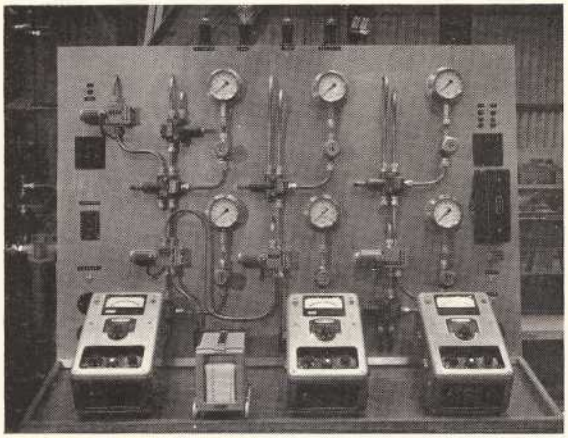


We do not suggest that ladies should always 'take a back seat', but in this instance their selection of such accommodation serves to emphasise the exceptionally wide cabin of the Beagle B.206. Four girls of average size can be seated quite comfortably on the rear seat.

Cont. from page 10

trical supply to the hydraulic power source and discontinues the test. Furthermore a chart recorder continuously records the load intensity at any selected jack during the loading cycles. The low initial cost and the unfailing reliability of the installation have been a source of wonderment not only to visitors from R.A.E., A.R.B., and Ministry of Aviation, but also to the writer himself.

This fatigue test represents the most recent demonstration of the structural integrity of the B.206 and marks the conclusion of a stringent series of development and static strength tests

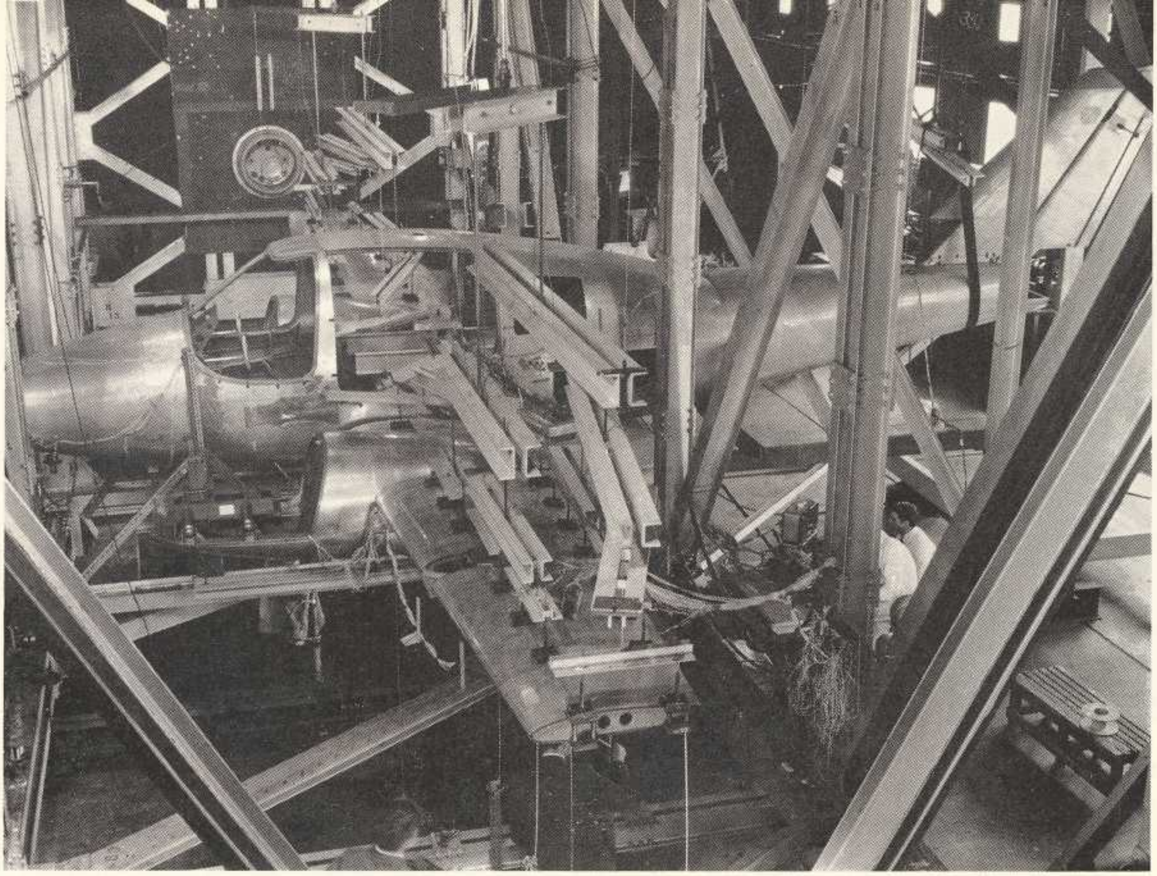


The control panel showing the various types of 'blow-off' valves.

which were started as long ago as 1961. These included an exhaustive series of tests at Boulton Paul Aircraft Wolverhampton during which a full scale test specimen was subjected to every major flight and ground loading condition which was ever likely to be met in service. It is to the credit of the original design that only very few alterations were found to be necessary in order that the ultimate design loads could be carried; naturally, we all had a few surprises, especially when some unexpected modes of failure were encountered as a result of the generally thin gauges used in the construction of the airframe. However, these failures were soon understood so that it was possible to find remedies without weight penalty and without undue disruption of the testing programme. It is to the credit of all concerned, especially of our stalwart friends in the structural test department at B.P.A., that eleven major test cases involving at times the application of loads simultaneously to the fuselage, wings and undercarriage units were completed between April and September 1963. Only the initiated will appreciate the amount of effort expended in the rigging of such tests, especially since every major test requires its own set of fully balanced loading beams, specimen anchorages, etc. The complexity of the rigging is clearly illustrated on Fig. 4, an illustration which was reproduced in the technical press at the time of the tests.

The relative ease with which this major test programme was carried out demonstrates the soundness of the earlier development programme undertaken in the early design days back in 1961 and 1962. By the time serious construction of the B.206Y had started every major stringer-skin panel configuration used in the aircraft had been fully tested on the universal testing machine at Birmingham University, and moreover a test box representative of the wing structure inboard of the engine nacelle and incorporating the correct root-end fittings, spars and covers was soon to become available. It is my view that this test box probably represented the most worthwhile expenditure of the complete programme. The first test which was carried out well before the first flight of B.206Y demonstrated that the diffusion of load from the root attachment bolts was not obeying the simple empirical laws adopted for the design of this vital part of the wing; indeed, these loads were proving most reluctant to leave the front and rear spars at all and to diffuse into the wing stringer skin covers. As a result the spar booms immediately outboard of the steel root-end fittings were being seriously overstressed and the box failed at 92% of its original design load. As a result of this experience, the root-end fittings on the front spar were lengthened considerably and the box was then rebuilt and tested again successfully.

We have now seen how complicated and expensive an exercise the structural certification of aircraft in the class of B.206 has become, but also



The B.206 full scale test specimen in the Test 'Rig' at Bolton Paul Aircraft Limited. (Photograph by courtesy of Boulton Paul Aircraft).

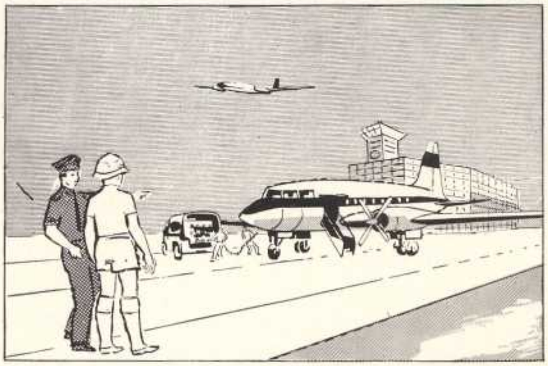
how a well thought out development programme early in the design life of a new project can effect decisive savings of time and expenditure at the prototype flying stage and during the full scale structural tests. These lessons together with some more which have been learnt the hard way on the behaviour of stressed skin structures built up from extremely thin gauges are not being forgotten and are in fact being carried through into current Beagle projects.

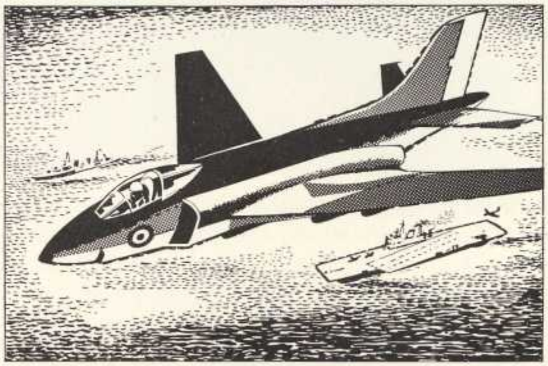
Already it has been demonstrated that in terms of flying qualities and aerodynamic efficiency the newer Beagle aircraft are unquestionably ahead of their American and European rivals. But the 'make or break' battle is no doubt going to be fought on production costs and here it will be absolutely vital to the whole Beagle concept to achieve a significant break-through on airframe costs. New methods of construction such as glass-fibre laminates etc. have been tried and found lacking, and the writer's confidence in conventional aluminium alloys with their proven mechanical characteristics of strength and reliability and their known ease of forming remains unshakable. Considerable thought is at present being given to the ultimate simplification of structural configurations and to the adaptation of all components to the newer production techniques: the problem really lies in adapting motor car building methods to aircraft forming techniques so that a compromise may be effected between the high tooling costs of motor manufacture and the lower production rates of aircraft. Such are the thoughts which are at present being tossed around down at Shoreham, and there is no doubt that the future may well hold a few surprises for some of our longer-established rivals.

G. C. J. LARROUCAU

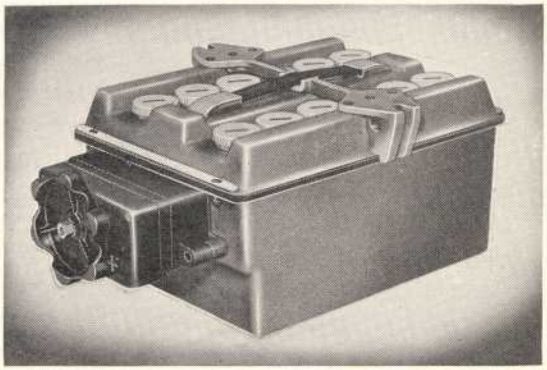
WHATEVER THE AIRCRAFT

WHATEVER THE CONDITIONS





YOU CAN RELY ON



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Miss Anita Lynch, Miss Beagle 1964

Not About Aeroplanes

November 11th was a special day for employees of Beagle's Rearsby works, when some 350 Social Club members and their guests, attended their annual dance at the Bell Hotel, Leicester.

The highlight of the evening was the 'Miss Beagle' competition, organised by Ray Morris and Bernard Crayfourd. This was the first time a Beauty Contest had been held and the Judges, Mrs. M. Russell, Dr. J. A. Ward and Mr. M. W. J. Reid, had a difficult task selecting the winner from fourteen contestants.

The winner was sixteen year old Miss Anita Lynch, of the Central Progress Department. Second and third places were awarded to Miss Angela Watkinson and Miss Pat Tinkler respectively. Angela is employed in the Accounts Department and Pat is engaged on assembly work in the Automotive Division. The prizes were awarded by Mr. E. Kettle, Beagle Personnel Manager.

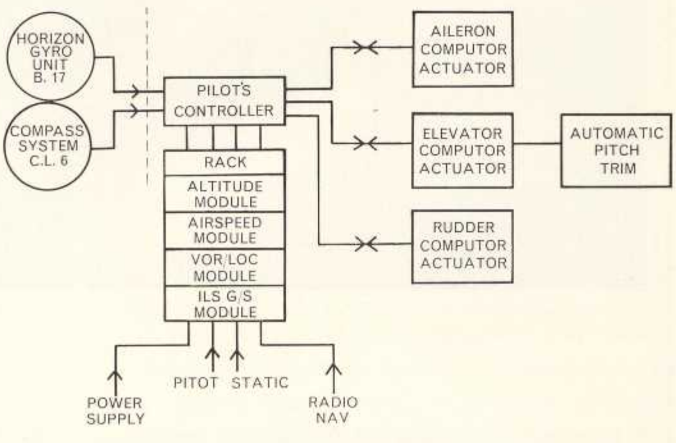
AUTOMATIC FLIGHT CONTROL for EXECUTIVE AIRCRAFT

by Sqn. Ldr. B. J. L. Greenland, A.F.C.
Sperry Gyroscope Company Ltd.

The increasing demands of air traffic control, the continuous trend towards more and more controlled air space, and expanding communications responsibilities are making the pilot's task increasingly burdensome. It follows that pilots and owners of single and twin-engined executive aircraft, who generally have to operate with minimum crews, must be looking for an automatic pilot which will provide effective relief and contribute to flight safety at economical cost. Quite apart from questions of safety, the modern executive pilot must consider operating under the extremely busy air traffic conditions which prevail, notably in the United Kingdom and Western Europe. When flying in these areas, particularly during the winter months, the pilot will almost certainly have to abide by normal air traffic regulations, carrying out the correct airways and Control Zone procedures; this involves the pilot in a heavy volume of communications with air traffic control, scanning through various radio documents and studying charts of let-down procedures; while all this is going on he still has to maintain the aircraft on the correct course at the correct altitude. Obviously his task is considerably simplified if the aircraft is fitted with an autopilot.

Both blind-flying instruments and autopilot cost money and the operator will first want to consider whether or not the investment is worthwhile. To fit an aircraft with the basic essentials for flight safety will cost, perhaps, 5% of the total cost of the aircraft—an expenditure which should be more than recouped from the extra utilization the owner will obtain from an aircraft fitted with this type of equipment; the avoidance of frustration and the ability to adhere to the flight plan are other advantages. With business executive aircraft it is particularly important of course to be able to land at the chosen destination without risk of diversion to another airfield, maybe, two hundred miles away.

SPL.45 AUTOPILOT SYSTEM



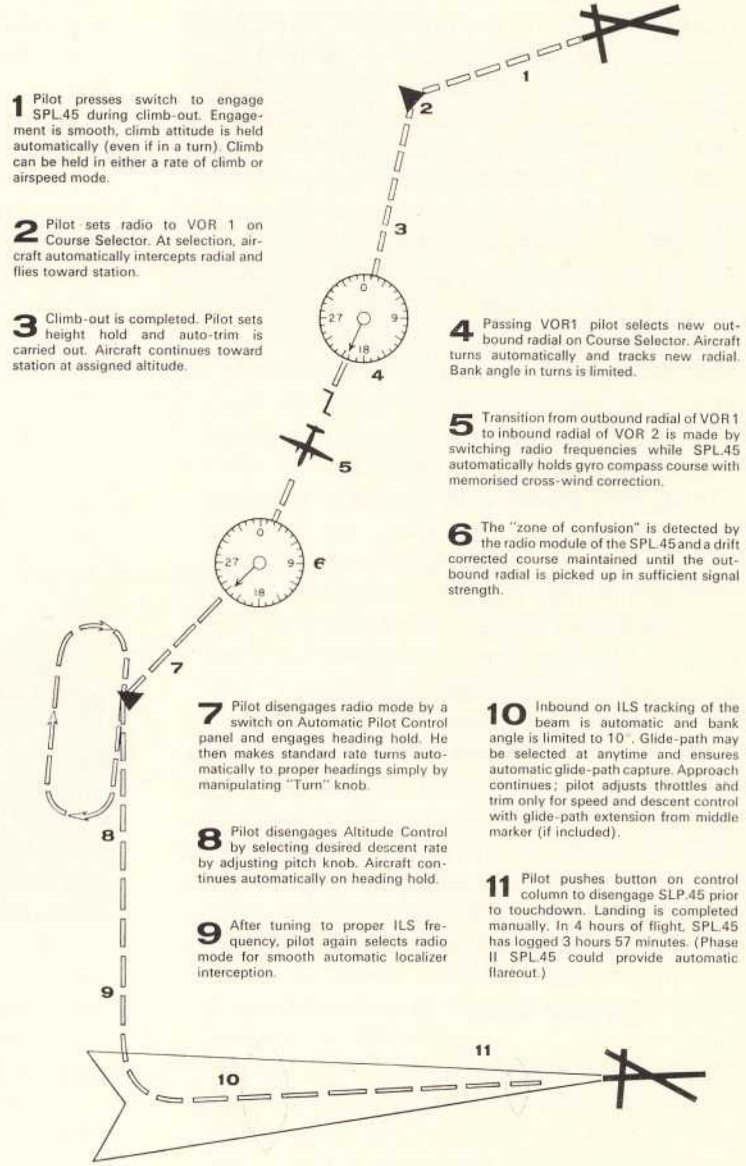
If the 'executive' pilot has by now come to the conclusion that he needs these facilities, he must decide on the type and degree of complexity. At first sight a logical answer to this question might appear to be a sophisticated flight instrument and autopilot fit similar to an international airliner, such as the Trident or VC.10. This would take account of the fact that if the pilot is going to carry out airline procedures he will require airline equipment; however, cost and weight considerations rule out such a fully sophisticated system in a relatively small executive aircraft.

Sperry believe that they have solved the problem without compromising basic essentials in their new range of lightweight autopilots, the SP-3 and the SPL-45, the latter being constructed in modular fashion for maximum flexibility. The owner may thus specify the degree of sophistication required and he can 'cut his coat to suit his cloth' choosing either the SP-3 specified for the R.A.F. Beagle Bassets, or more probably the SPL-45 auto-pilot now being introduced.

The Sperry SP-3 Autopilot is basically a three-axes system that gives heading hold, height hold, turns on to selected headings and also a manoeuvre capability. This autopilot is the standard fit in a large number of American light aircraft. However, owners in the United Kingdom and Western Europe are likely to be more interested in the Sperry SPL-45 which, whilst giving the same basic facilities as the SP-3, can be extended by means of extra modules to build up to a fully sophisticated category 2 autopilot; it offers facilities similar to those available in a modern airliner. A category 2 autopilot is in fact designed to permit automatic approach to extremely low limits.

It is appreciated that the average pilot may not always need airline facilities, but experience has shown that a very large number of pilots feel they must be able to fly automatically on VOR or ILS. Business operators, particularly, will find it essential if they are to obtain the utilisation they need to operate their aircraft economically—a point which is apparent from the accompanying graph showing how flying hours costs fall rapidly with increased aircraft utilisation. It goes without saying that full aircraft utilisation depends on being able to fly in fair weather or foul, for which a full set of flying instruments and an autopilot are a practical necessity.

The question now is what precisely should the owner fit to his executive aircraft? The Sperry SPL-45 Autopilot is the obvious choice for the



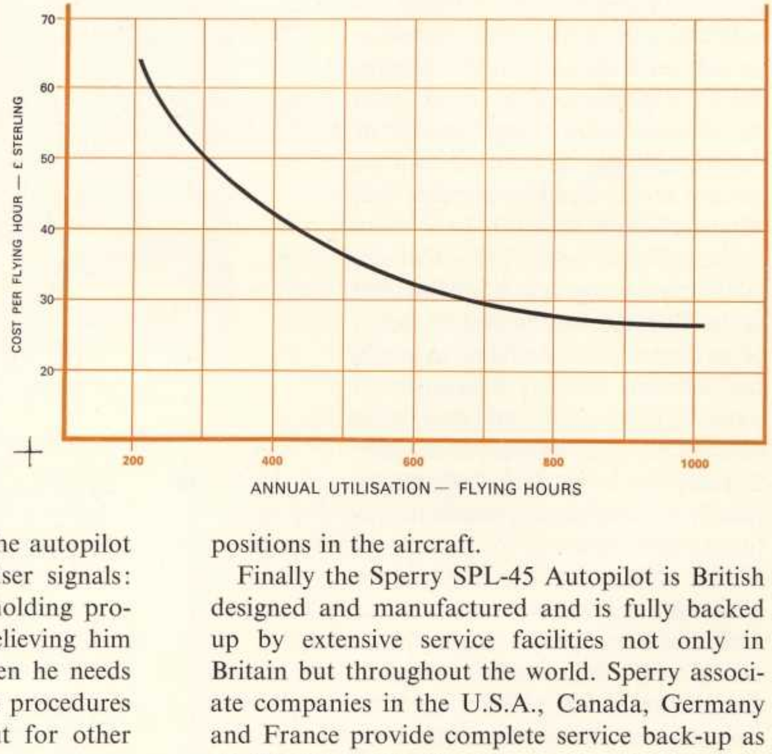
owner who wishes to install an automatic flight control system in his aircraft. The simplest fit consists of a three-axes autopilot which will comprise three computer actuators, one each for the pitch, roll and yaw axes of the aircraft, together with a pilot's controller. This new autopilot accepts inputs from the aircraft compass system and horizon gyro unit and enables the aircraft to be flown automatically; as previously indicated, it also offers automatic heading hold, enables turns to be made on to a preselected heading, and provides manoeuvre capability by means of switches and control knobs on the pilot's controller. A simple fit of this nature is ideal for easing the pilot's load on a long flight.

However, if the pilot decides that he requires advanced and sophisticated facilities, the SPL-45 can provide the necessary flexibility; it is extremely simple to increase the capability as and when desired, by adding a small rack and appropriate plug-in modules; these might include an altitude unit, an airspeed unit, a lateral radio coupler and a glide path coupler. The altitude unit provides the autopilot with a height lock capability, the airspeed module affording an airspeed lock facility. The average pilot will probably find an altitude lock extremely useful in that once it is engaged he can rely on the aircraft maintaining the correct flight level.

The lateral radio coupler enables the autopilot to follow either VOR or ILS localiser signals: this means the pilot can carry out holding procedures entirely on the autopilot, relieving him of a considerable load at a time when he needs to pay close attention to navigational procedures and to maintaining a good look-out for other aircraft.

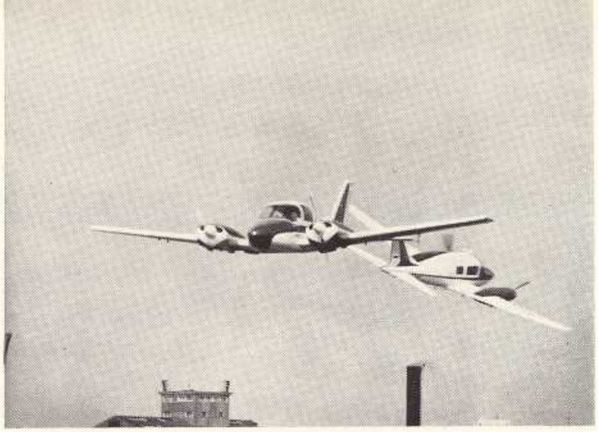
The glide path coupler gives the autopilot the facility of automatic approach and enables the aircraft to be brought down to the minimum safe altitude permitted. The cross-country flight path diagram illustrates, typically, the procedures involved in using the SPL-45 auto-pilot.

How then does the SPL-45 type of 'fit' relate to the requirements of the Beagle B.206. As with any other aircraft the question is primarily one of cost, weight, space and, in the long run, service-backing. Cost normally depends on the facilities specified, price being highly competitive when measured against performance offered; weight has been kept particularly low, the simplest fit weighing less than 25 lb., while space is hardly a problem as units can be located in convenient



positions in the aircraft.

Finally the Sperry SPL-45 Autopilot is British designed and manufactured and is fully backed up by extensive service facilities not only in Britain but throughout the world. Sperry associate companies in the U.S.A., Canada, Germany and France provide complete service back-up as do Sperry agents throughout the whole of the free world.



The twins of the Beagle pack are not really of the Siamese variety as the two photographs above of the B.206 and B.242, taken at the 1964 S.B.A.C. show, would suggest.

Reproduced here are a photograph and extract from a letter received from a Swedish Beagle operator, Bo Nilsson of Sverigeflyg AB. There are few idle moments for his Airedale which now has added to its many tasks, the role of glider tug. A job it is obviously well capable of doing, as Bo Nilsson points out.

Dear Mr. Jackson,

Thank you very much for your letters dated December 30th and January 21st. . . . .

However, enclosed please find a photo showing Sverigeflyg's Airedale taking off whilst towing a two-seat glider. . . . We have made thorough towing tests with the aircraft and it has proved to be an excellent tug, in fact it has the best towing performance of any existing tug to-day. Towing a two-seat glider with two persons it has a take off run of 150 metres, an average rate of climb of 2,4 m/sec. and reaches 600 metres in 4 minutes. Towing a single seat glider it has a take-off run of 140 metres, an average rate of climb 3,2 m/sec. and reaches 600 metres in 3 minutes. The testings have been performed with a crew in the Airedale of 1 pilot and with fuel tanks from full to ¾ full.

Yours sincerely,

Bo Nilsson (Sgd)

BEAGLE SERVICE BULLETIN

ISSUE No. 2

Any questions on the subject matter of these Bulletins or on other subjects relating to the operation and maintenance of Beagle aircraft, should be addressed to the Service Department, Beagle Aircraft Ltd., Shoreham Airport, Sussex.

BULLETIN No. A.9

A61-1 AND A61-2 TERRIERS

Engine Mounting Attachment Bolts

There have been a small number of failures of the bolts used to secure the engine mounting to the fuselage structure. Bolts have also been found bent and damaged. The cause of these defects appears to be due to the bolts becoming slack in the holes and consequently fretting.

Therefore the four bolts securing the engine mounting to the fuselage are to be periodically removed for inspection. Aircraft being maintained to an Approved Maintenance Schedule are to have this inspection made at each Check V.

All other aircraft are to have this inspection made at the next renewal of the Certificate of Airworthiness (unless there is evidence that the bolts have been removed within the previous 5 years or 1000 hours flying). In deciding whether the bolts have previously been removed, it should be remembered that a Log Book entry showing that the engine mounting has been removed or changed does not mean that the attachment bolts have been taken out for inspection. Further inspections are to be made at periods not exceeding 5 years or 1000 hours flying, whichever occurs first.

The Air Registration Board have classified this inspection as 'Mandatory'. When carried out, the inspection should be recorded in the Aircraft Log Book making reference to this Service Bulletin.

BULLETIN No. A.10

A.109 AIREDALE

Fuel and Oil Vent Restriction Requirement for A.C. Lightweight Diaphragm Fuel Pumps (Modification No. A.182)

Compliance: This Modification has been classified as Mandatory by the Air Registration Board and must be embodied as soon as possible, and in any case not later than September 1st, 1964.

Lycoming Service Bulletin No. 289 dated April 20th, 1964, states that there have been several instances of oil seal failure in the lightweight aluminium A.C. diaphragm fuel pumps that resulted in engine lubricating oil being drained overboard through the fuel and oil vent lines. These pumps must be modified by adding a vent restriction to prevent loss of lubricating oil. The pump affected on the Lycoming 0-360-A1A engine used on the A.109 'Airedale' is AC.5623467 (Lycoming Part No. 74082). Aircraft fitted with the larger heavy white-metal type pump are specifically exempt from the requirements of this Service Bulletin. These older type pumps are further identified by their round bottom sump bowls in comparison to the flat plates used on lightweight aluminium fuel pumps.

To comply with this requirement the restriction consists of an approximate 0·04 in. dia. hole (No. 60 drill) by 0·25 in. in length drilled in brass, aluminium, silver alloy solder or similar material that is not subject to corrosion by fuel and oil.

Adaptor Part No. ST.P.1917 is available from Beagle Aircraft Ltd., which replaces Adaptor, Part No. CM.200/A, fitted to the vent in the upper chamber of the pump. This item is supplied free of charge to owners whose aircraft is within its guarantee period. For aircraft outside the guarantee the cost will be 12/6d inclusive of postage and packing.

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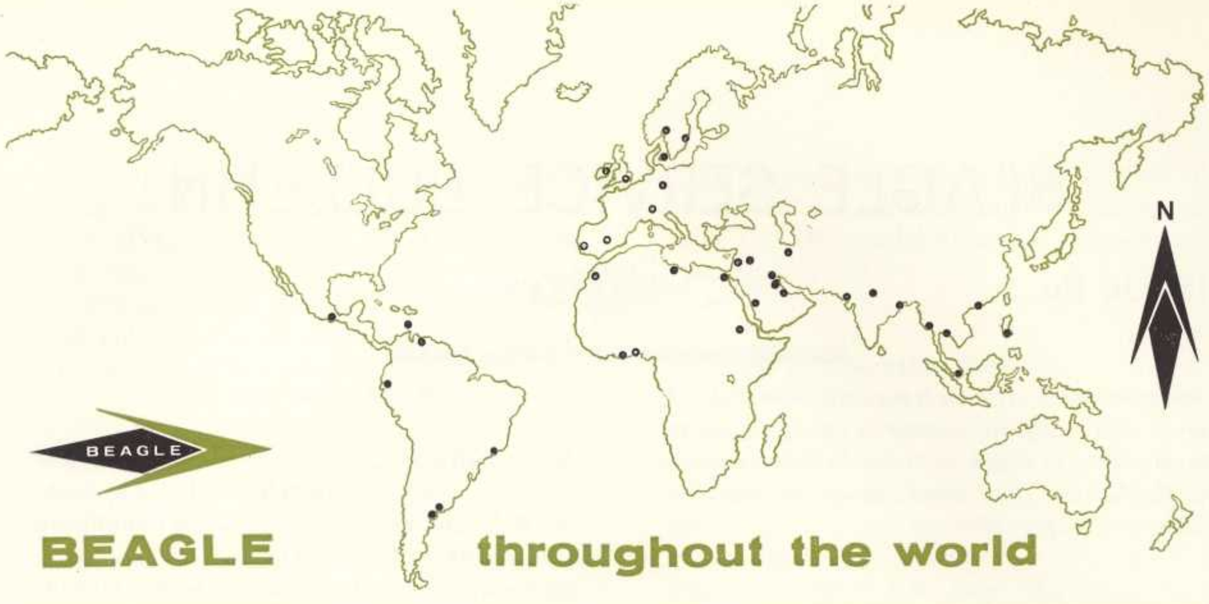

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Tel: Office 41 15 40 – 41 11 52

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There are two methods (a) or (b) in which a restriction may be installed in the existing adaptor fitting Part No. CM.200/A, should this be more convenient than replacing it. See Fig. 1.

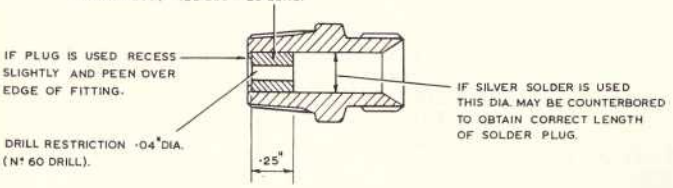

Fig. 1 CONNECTOR ADAPTOR PART No. CM. 200/A WITH ·04" DIA. RESTRICTION INSTALLED.

(a) Fill the hole in the fitting with silver solder and drill a 0·04 in. dia. hole (No. 60 drill) through the silver solder to form the restriction. If necessary, counterbore the solder filled area to maintain the length of the restriction to 0·25 in. Thoroughly clean the fitting and re-install it in the fuel pump.

(b) Press a 0·125 in. dia. × 0·25 in. long plug in the hole of the fitting. Peen the end of the fitting to secure the plug and drill a 0·04 in. dia. hole (No. 60 drill) through the plug to form the restriction. Bronze welding rod may be used to make the plug. Thoroughly clean the fitting and re-install it in the fuel pump.

Identify fuel system installation compliance with this Service Bulletin by yellow paint on top of the fuel pump as indicated in Fig. 2.

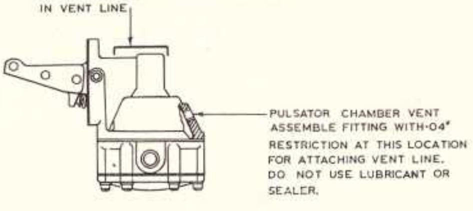

Fig. 2. AC. FUEL PUMP WITH VENT IN UPPER CHAMBER

Make entry in Engine Log Book to indicate compliance with this Service Bulletin.

Lycoming Service Bulletin No. 298 also states that 'Since provisions for servicing all lightweight type A.C. fuel pumps with Service Repair Kits are no longer available the factory recommends that new replacement fuel pumps be used at each engine overhaul'.

BULLETIN No. A.11

A.109 AIREDALE
(Lycoming Engine 0-360-A1A)
D5/180 HUSKY
(Lycoming Engine 0-360-A2A)
Generator Attachment Bolts
Compliance—At Owner's Discretion

Several instances have been reported of the generator rear attachment bolt shearing and becoming detached.

In one case, following the failure of this bolt, the front cast lug on the generator body and adjusting link failed, the generator then being completely detached from the engine.

The generator affected is Delco-Remy, Part No. 1101915 (Lycoming Part No. 71744), this unit is 12-volts, 50-amp, and is secured to Mounting Bracket, Lycoming Part No. 69542, with two $\frac{5}{16}$ in. dia. bolts; front bolt, Lycoming Part No. STD-1835; rear bolt, Lycoming Part No. STD-1834.

This defect has been reported to the engine manufacturer, but in the meantime it is considered essential that the possibility of this occurring be brought to the attention of all Owners.

In most cases where the rear bolt has sheared, damage has occurred to the generator mounting lugs and/or the holes have been elongated, thus rendering the generator unserviceable.

In order to obviate this failure, all operators are urged to change the suspect bolts as soon as possible, substituting bolts as quoted in Fig. 1.

The U.K. Air Registration Board have been consulted and have approved the action recommended in this bulletin.

The opportunity is taken to bring to the attention of Owners the Lycoming recommendation for the torque loading of the three bolts securing the generator mounting bracket to the engine, these details are given in Fig. 1.

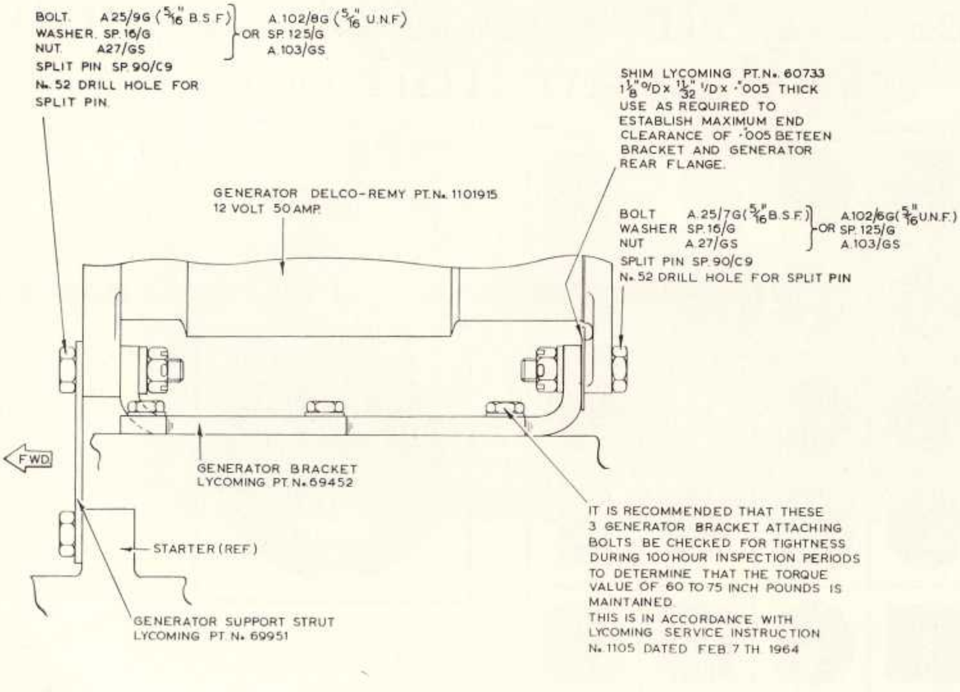

Fig. 1

SERVICE LETTER No. 2

J1B, J1N & 6A Aircraft Increase of A.U.W.

Beagle Mod. No. 4076 introduces Changes to Auster types J1B and J1N, which will allow the A.U.W. to be raised from 2000 lb. to 2100 lb. A new bungee cord combination is required on the undercarriage.

Details of the changes are given on Drawing No. AJE.658.

Beagle Mod. No. 4085 introduces a Change to the Auster type 6A which will allow the A.U.W. to be raised from 2200 lb. to 2350 lb. To achieve this the tailplane/fuselage gap must be sealed.

Details of this change are given on Drawing No. AK.53.

Copies of Drawings Nos. AJE.658 and AK.53 are obtainable from the Service Department.

W	O	O	F		P	R	I	N	T		A	M	E	N
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	O	R	B	I	T		P		A	S	S	A	Y	
S		L		N		T	R	A	D					P
T		E		A			O			S		P		A
I	N	S	U	R	E	D	P	R	O	P	E	R	T	Y
N		S		Y			R			I		E		E
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C		L		V	E	S	T	A		I		R		T
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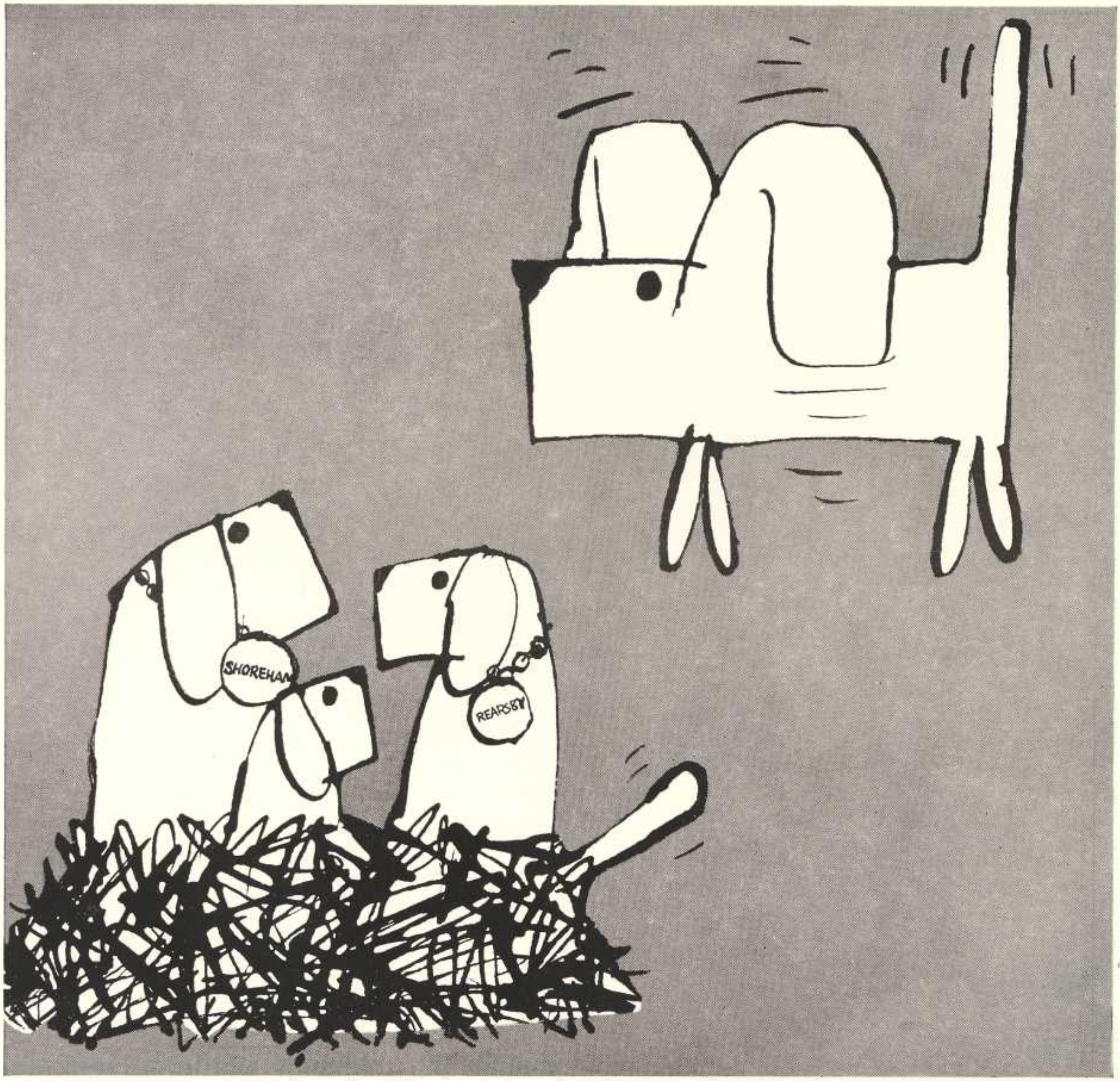

Beagle's Nests

Rearsby and Shoreham have Beagles like other towns have buses or parking meters. They roll out of the hangars at Rearsby and Shoreham to an eagerly waiting world of private and executive flyers. The international success of the Beagle aircraft has spread them over many countries and we like to feel that wherever Beagles go we will be with them in spirit.

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