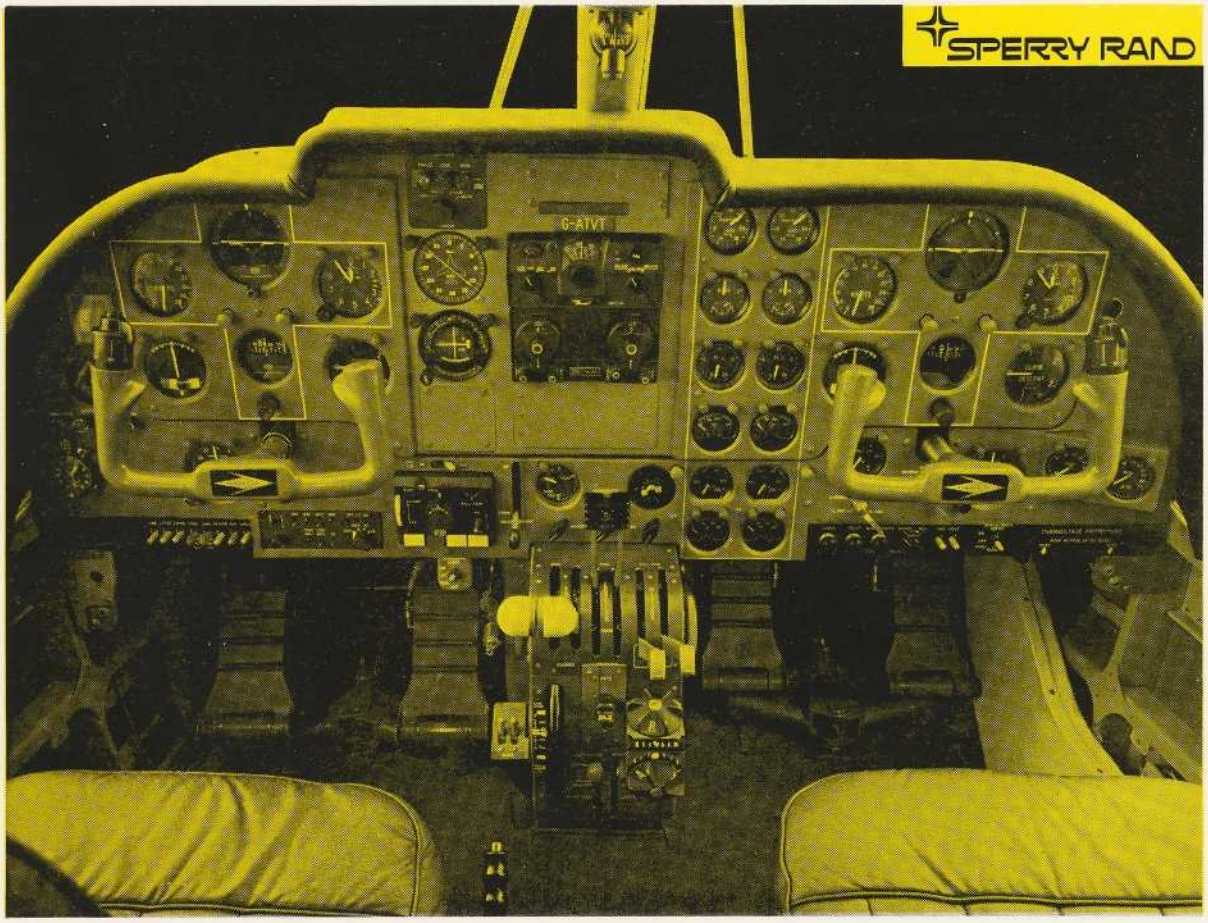
BEAGLE
NEWS

Number 8



SPERRY IN THE BEAGLE B.206-S

SPL.45 Autopilots have been ordered
in quantity for the Beagle B.206-S
in addition to Sperry panel instruments.
The military Beagle Bassets
are similarly equipped with
Sperry instruments and autopilots.

SPERRY
GYROSCOPE DIVISION

AERO SYSTEMS GROUP
SPERRY GYROSCOPE DIVISION
BRACKNELL. BERKS: BRACKNELL 3222

BEAGLE NEWS

EDITOR: F. J. Jackson

CONTENTS Page

Front cover photograph

The Hunting Survey Beagle B.206-S over Southern England on its return from Libya.

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Shoreham Airport Shoreham-by-Sea Sussex England
Telephone: Shoreham-by-Sea 2301

Editorial

1968 "FARNBOROUGH", the single word now almost universally used in reference to the S.B.A.C. Aircraft Display and Flying Exhibition, is now upon us.

Once again visitors from all over the world will make the pilgrimage to the Hampshire airfield, where the natural terrain and superb organisation by the S.B.A.C. staff combine to provide ideal conditions for the presentation of the many and varied aircraft types.

The Beagle contribution to this year's event will be provided by the B.206-S in both executive and survey roles. These aircraft will be supported by the new Beagle Pups which will make their Farnborough debut. The tremendous success of this new British aircraft is now common knowledge. The world-wide enthusiasm with which the Pup has been received reflects the long-awaited need for a modern low-cost training aircraft.

Today, with every Flying School and Club acutely aware of the need for even greater economies, the introduction of the Pup is indeed exciting.

With low initial and operating cost, simple maintenance and greater utilisation, the Pup will provide new life blood to many flying organisations now feeling the pinch of current economic pressures.

birth of the PUP

The Beagle Pup has introduced a new generation of light aeroplanes—new in looks, new in performance, new in character—and it may be of interest to review how this fresh approach to a worldwide requirement was generated.

First, market analysis had shown that there was a widespread demand for a single-engined two-seat training aircraft, and also for a single-engined four-seat touring aircraft. It was also apparent that for training and club aircraft the requirement was for good all-round flying and aerobatic characteristics, although it was noticeable that these criteria were valued more in the world market as a whole than in the U.S.A. in particular.

It was therefore decided that the new Beagle aircraft should be of a type that would specifically meet these market requirements and, at the same time, serve as the basic design for a range of future aircraft.

In defining the base aircraft it was obvious that the specification would need to differ materially from that of existing American light aeroplanes. The aircraft would need to meet the requirements both of BCAR Section K and FAR 23 in toto and without exception, and it would also need to be produced for the lowest possible initial price and have the lowest possible operating costs.

Research and analysis had established that the required characteristics were: all-metal low-wing monoplane; faultless flying qualities—good stability and manoeuvrability; first-class ground handling—steerable nosewheel and toebrakes; aerobatic capability and unlimited spinning within the semi-aerobatic category envelope; two-seat side by side configuration; good performance, particularly in rate of climb to provide quick ascent to training altitude; well-cooled easily handled engine; optimum reliability; ease of servicing and maintainability; wide cabin giving plenty of elbow room; ease of entry to both seats, preferable by door on each side; stick control rather than steering wheels.

The 100 h.p. Rolls-Royce Continental engine was chosen because it is built at Crewe and is both widely known and well supported throughout the world.

Quick calculation of rough power loading, wing loading and weight performance gave a gross weight of 1,600 lb. and an empty weight of 950 lb. The wing was then considered and it was

decided that with reasonable section characteristic and efficient flaps a suitable performance could be obtained from an area of about 120 sq. ft. A plank wing was the first thought but further study showed the overall advantages of a tapered wing which, in the event, requires no more man-hours to produce.

The section chosen was NACA 632615 with the lower cusp eliminated to improve torsional stiffness of flaps and ailerons. This section offered the structural advantage of a maximum thickness sufficiently far back to allow use of a single main spar, and the aerodynamic advantages of good stalling characteristics, a high basic C_L shift and, with a $2\frac{1}{2}$ deg. washout, we thought we should get a good nose-down pitch at the stall without tendency to drop a wing. We chose an aspect ratio of just over 8 and a taper ratio of 0·5 to give a reasonable span loading and, hence, good climb performance, whilst providing sufficient length to have large-span constant-chord flaps and ailerons.

In general configuration terms we attempted to keep the aircraft as short as possible, reducing both cost and weight. But this dictated a rather larger horizontal tail surface for stability reasons and, since most of the ribs would be the same, we adopted a parallel planform. From the earliest design doodles the fin and rudder have blended into the rear fuselage, the deep rudder and ventral fin being considered necessary for good spin recovery.

Spinning the Pup-100 presented no problems. On the Pup-150, however, due to the increased pitching inertia of the heavier engine, we did get occasional wing drops with the cg at the aft spinning limit of 27·5% SMC, and application of out-spin aileron promoted a flatter spin with slow recovery. We therefore drooped the leading edge of the outer wing to provide aileron effectiveness throughout the stall, and to increase the anti-spin damping moments we added fuselage strakes ahead of the tailplane roots, reduced the rudder chord at the top and increased it at the bottom. These modifications combined to produce rapid and faultless spin recovery, the rate being $\frac{3}{4}$ to 1 turn after 8 turns. Although not in themselves necessary for the Pup-150, these alterations were standardised for both types in the interests of uniformity in production.

An unusual and, perhaps, significant design decision—and one that has been widely criticised—was to use stretch-formed sheet for the fuselage and integral fin skinning. The Pup probably has more double curvature panelling than any other mass produced light aeroplane. The decision was taken for three reasons: (i) we had a stretch-form machine, (ii) the inherent stability of a three-dimensional panel reduces the need for internal stiffening and so reduces weight, (iii) the method makes for a cleaner finish and an aesthetically more pleasing and aerodynamically more efficient shape.

In the event, excellent fuselage stiffness has been achieved and in high speed dives the aircraft is entirely free from vibration and distortions. The fuselage structure is of entirely conventional semi-monocoque form with riveted skins, frames and few stringers. The stretch-formed panels are mainly 24 swg., increasing to 20 swg. in the centre section and decreasing to 26 swg. in the cabin roof. The frames and stringers are mainly 24 swg.

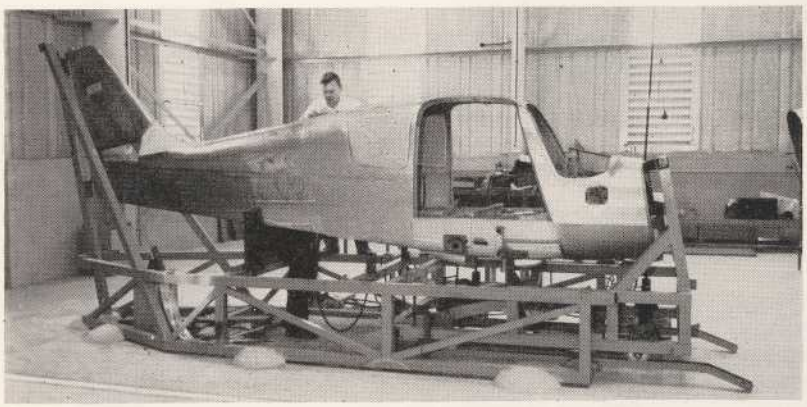
For cost and weight reasons we chose a fixed landing gear and we investigated rubber in torsion, flat steel and glass reinforced plastics: all had disadvantages of greater or less degree and we opted for an oleo-pneumatic system as being the lightest, most rugged and the one most likely to give excellent performance on the rough fields which abound in the U.K. and so many other countries. All wheels are interchangeable and tubed tyres were decided upon to obviate the deflation sometimes experienced with low-pressure tubeless tyres.

Finally, the control surfaces: the simplest type of metal construction was chosen for these, but (for maximum safety) with multiple hinge points—four on each aileron and three each on the others. Friction in the control circuits has been kept low by the use of ball bearings in all hinges, pulleys and bell-crank assemblies; and in the interests of simple servicing all hinge bearings and housings are interchangeable between all control surfaces.

We were as thoughtful and skilful in designing the Pup as we knew how to be, but luck was on our side too. We did our sums right individually, but it happened that together they have a harmony that makes the total better than the sum of the component parts, and it is this quality that makes the Pup the extraordinarily good little aeroplane that it is.

building the PUP

In our last issue we told readers of the new Pup Assembly building, then under construction at Shoreham. Recently completed, this new 30,000 square foot building is already making a



significant contribution to expanding Pup Production.

A small selection of photographs shown on these pages give an indication of the rapid build-up in production. During the coming months production will continue to expand to meet the increasing demand for this extraordinarily good aeroplane. Orders confirmed and in negotiation currently account for more than 600 aircraft, of which total rather more than 60% are for export.

specification

	PUP-100		PUP-150	
Seats	Two		Two : two-plus-two : three	
Engine	Rolls-Royce Continental 0-200-A		Lycoming 0-320-A2B	
Propeller	Fixed-pitch, metal		Fixed-pitch, metal	
Max. power	100h.p.	101·4c.v.	150h.p.	152c.v.
Wing span	31ft. 0in.	9·44m.	31ft. 0in.	9·44m.
Length	22ft. 11in.	6·99m.	23ft. 2in.	7·06m.
Wing area	120sq.ft.	11·15mq.	120sq.ft.	11·15mq.
Wing loading	13·33lb/sq.ft.	65·11kg/mq.	16·04lb/sq.ft.	78·30kg/mq.
Power loading	16lb/h.p.	7·26kg/c.v.	12·83lb/b.h.p.	5·74kg/c.v.
Empty weight	1042lb.	473kg.	1139lb.	517kg.
Max. weight	1600lb.	726kg.	1925lb.	873kg.
Useful load	558lb.	253kg.	786lb.	356kg.

performance	PUP-100		PUP-150	
Take-off ground run	720ft.	220m.	890ft.	270m.
Distance to clear 50ft.	1260ft.	384m.	1480ft.	451m.
Rate of climb ISA, SL	575ft/min.	2·92m/sec.	800ft/min.	406m/sec.
Service ceiling (100ft./min.)	11200ft.	3415m.	14700ft.	4480m.
Max. speed (SL)	127m.p.h. 110kts.	204km/hr.	138m.p.h. 120kts.	222km/hr.
Cruise speed (ISA, 75% power) (7000ft. PUP-100) (7500ft. PUP-150)	118m.p.h. 103kts.	191km/hr.	131m.p.h. 114kts.	211km/hr.
Max. range 4000ft.*	569st.m.	917km.	440st.m.	709km.
24 Imp gal.	495n.m.		383n.m.	
Landing distance from 50 feet	1060ft.	320m.	1410ft.	430m.

*With fuel capacity of 34 Imp gals. range of the PUP-150 only is increased to 633st.m. (550n.m.) (1019km.)

standard equipment

POWER PLANT

PUP-100 Rolls-Royce Continental 0-200-A (100 b.h.p.)
Fixed pitch metal propeller (70 inches diameter)
PUP-150 Lycoming 0-320-A2B (150 b.h.p.)
Fixed pitch metal propeller (74 inches diameter)
Spinner
Starter motor
Oil cooler
Air filter

ELECTRICS

Radio shielding
12V-25 amp hour battery
(complete with circuit breaker and switches)
Electric flap-actuator

FUEL SYSTEM

Wing fuel tanks (total 24 Imp. Galls.)
Fuel drains and filter
Engine-driven pump
Electric booster pump (single speed)

AIRCRAFT FEATURES

Wing jack points
Nose jack points
5·00 × 5 tyres on all wheels
Disc brakes
Oleo pneumatic tricycle undercarriage
Picketing rings
Combined steering arm and tail-support strut

INSTRUMENTS

Air speed indicator
Altimeter
Cylinder head temperature gauge
Fuel pressure gauge
Engine tachometer
Oil pressure gauge
Oil temperature gauge
Fuel contents gauge
Ammeter

CONTROLS AND CABIN FEATURES

Single differential toe brakes (port side)
Parking brake
Dual controls – control columns and adjustable pendant rudder pedals
Elevator trimmer
Cabin heater and vents
Mixture control
Throttle control
Ashtrays (two)
Door and ignition lock
Adjustable seats
Windscreen demister
Centre arm rest and map holder
Full shoulder harness (two)
Floor and side trim
Sound proofing
Thermal insulation
Direct-vision window – port side
Carburetter hot-air control
Fire extinguisher – hand

PUPS in service

flairavia

The Flairavia Flying Club of Biggin Hill was proud to take delivery of one of the first two Pup 100's during May 1968. Appropriately enough the first Pup to be delivered was handed over to the Club's Principal, Mr. D. J. Porter, by the Managing Director of Beagle Aircraft, Mr. K. Myer, at a special ceremony held at Biggin Hill on May 26th. The occasion was of double significance as it also marked the inauguration of a link between Flairavia and the Guinea Pig Club, the Beagle Pup being named 'Guinea Pig' as a tribute to the members of that Club. The Guinea Pig Club was formed to serve disabled Air Force personnel of all the Allied Air Forces, and all those who have been patients at the Queen Victoria Hospital in East Grinstead. Flairavia, being based at Biggin Hill, endeavours to maintain the tradition of the airfield's illustrious past, and was proud to demonstrate to those members of the Guinea Pig Club that, although our flying skill might not be as great as that of their day, our equipment is better.

Since 'Guinea Pig' was delivered the aircraft has been used for a wide range of duties, from 'Ab Initio' training to Commercial Charter work,

and has consistently been the highest utilised aircraft of Flairavia's fleet of ten. The greatest number of hours have been spent on student training, a role in which the Pup excels. Because of its docile flying characteristics, it instils into students a feeling of confidence which in most cases has reduced quite considerably their time up to going solo. The ease of flying the Pup has been further demonstrated by the relatively short time in which Club pilots have 'checked out' on it.

Flairavia is one of the few clubs which has available two aerobatic rated instructors and in consequence has retained its D.H.C.1 Chipmunk in its fleet for the benefit of those members who wish to do aerobatics. This aircraft has, however, almost become redundant because the Pup offers such a degree of comfort and manoeuvreability that aerobatic minded pilots are choosing the Pup in preference to the Chipmunk.

Despite the heavy demand for the Pup amongst students it has been possible to make it available for Commercial Charter work on one or two occasions. The first such charter was made to the 'Observer' to enable one of their photographers to record the start of the 'Trans-Atlantic' Single-Handed Yacht race at Plymouth. The spacious cabin of the Pup, with its generous areas of Plexiglass window were a particular asset during this charter, and the resulting photographs are in themselves adequate proof of the aircraft's suitability for this type of work.

It would be hard to pinpoint any particular aspect of the Pup, which has made it such a success at Biggin Hill—almost every pilot who flies 'Guinea Pig' finds something new to extol. The ladies like the sheer beauty of the Pup's lines, and the easy entry which is afforded by the two large doors on either side of the cabin. The men appreciate the sensible cabin layout, the central console and the stick type control column.

Operationally the Pup has proved to be far more reliable than is normally expected of a new aircraft type and the arrangements whereby Flairavia agreed to cooperate with the Beagle Company in smoothing out teething troubles have almost proved unnecessary. Nevertheless, the minor faults which have occurred have been quickly dealt with by Beagle and it is thanks to this that the high utilisation has been possible.

'Guinea Pig' did not remain unique at Biggin Hill for long, as the second machine, G-AWDX, was delivered during July. These two aircraft will form the nucleus of what is hoped in time will become an "All British, All Beagle" fleet of single engined aircraft. The delivery of the first Pup 150 is an eagerly awaited event amongst Flairavia's members, who look forward to proving to their satisfaction that the 150 is at least as good as the 100.

The Guinea Pig gets a Goldfish!

Flairavia celebrated its first solo with a Beagle Pup trained student on 12th August: the student, Mr. Darroch Robertson, of Stable House, Ravenshill, Chislehurst, Kent, a member of the Goldfish Club, achieved his solo in a mere seven hours! Darroch's comment on going solo 'this success is entirely due to the Pup and my instructor, Paul Shires'.

Darroch qualified as a member of the Goldfish Club whilst serving as an observer in the Fleet Air Arm, when the Sea Vixen in which he was flying went over the bows of an aircraft carrier.

He is now an engineer with British Insulated Callender Cables, the supplier of aircraft wiring cables to Beagle Aircraft. Darroch also served eight months in submarines before joining the Fleet Air Arm.

Such has been the demand from established P.P.L.s that Flairavia's Pup, the Guinea Pig, has now been joined by a second aircraft to start training students from scratch on the Pup. Flairavia instructors are now finding that the Pup is a more than adequate training aircraft for *abinitio* students and equally good for training aerobatic manoeuvres to the more experienced.

shoreham school of flying

Shoreham School of Flying was the first organisation in the world to take delivery of a Beagle Pup 100. The School, which is the most advanced in the South, took delivery of the aircraft from Mr. Peter Masefield, Chairman of Beagle Aircraft Ltd.

The School now has four Beagle Pups, and by the summer of 1969, it plans to increase this number to 12, one of which will be the higher-powered Pup-150.

Mr. William 'Doc' Watson, who has just joined the School as Chief Flying Instructor after more than 5,500 hours flying with the Royal Air Force—2,500 as an instructor—says that the Pup is the finest basic trainer he has ever flown.

His comments are "backed up" by Mr. Frank Hewitt, Chairman of Shoreham School of Flying, who says that pupils are learning to fly much quicker on the Pup than any other aircraft previously used by the School.

Another company in the Shoreham Aviation Group, Shoreham Aviation Ltd., has recently taken delivery of a Beagle B.206 to be employed on taxi and charter operations.

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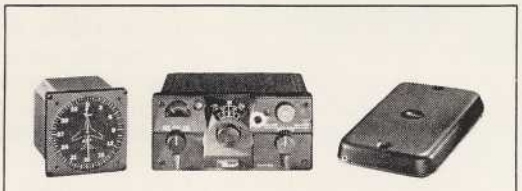
ap

FOCUS

Top left:—Picturesque Belvoir Castle provides a pleasing setting for this Rearsby-built Pup-100. Top right:—Selected to represent Britain in the 20 kilometre walk at the Olympic Games in Mexico, Arthur Jones, a panelbeater at Beagle Aircraft Limited, Shoreham, sets out on a training session on the airfield. Above:—Members of the Swedish Air Board are introduced to the Pup during their recent visit to Shoreham. Right:—National Air Races, Kings Cup Meeting at Tollerton, Nottingham. Concours de Elegance won by Beagle B.206-S G-ATZP. Mr. P. G. Masefield, Chairman, accepted the elegant trophy on behalf of Beagle Aircraft Limited.

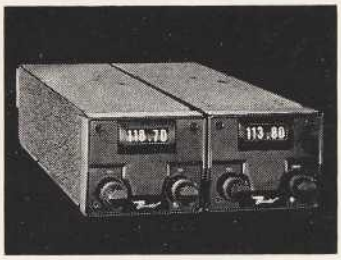
Beagle specify Bendix Avionics for the Beagle Pup

BENDIX ADF-T-12C



Extremely lightweight – complete system weighs only 6½ lbs. Completely transistorised circuitry for long life and low maintenance costs. Very low power consumption. System consists of three units only, receiver, loop and indicator. The only General Aviation ADF which will drive a Radio Magnetic Indicator Radio Pointer.

VHF COM TRANSCEIVER/VHF NAV RECEIVER BENDIX CNS-220



Separate COM Transceiver and Nav Receiver packages . . . for greater panel layout flexibility. No separate power supply . . . integral power supply in each unit allows installation of each unit individually in cockpit panel. Priced for the man who wants the most for the least. Completely Solid State. Glide slope receiver as an option, when required it is installed inside navigation receiver.

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B.206-S

"A GOOD SURVEY AIRCRAFT"

Report on Beagle B 206-S in Libya

A Beagle B 206-S equipped with a Wild RC 8 camera and Williamson sight recently completed an exacting air survey in Libya, and demonstrated very convincingly that among dual-role aircraft it is an exceptionally efficient machine for this duty.

Beagle had the benefit of the enormous experience of Hunting Surveys Ltd. in designing the installation scheme for the air survey equipment, and the aircraft was thereupon chartered and operated by Hunting for the survey operation.

For map scale purposes air surveys are flown at discrete altitudes ranging from 1,500 ft. up to 25,000 ft. plus, and it is of the essence that the survey aircraft shall be a steady platform at all the required flight conditions. This virtue, together with the related harmony of control and low vibration level, is possessed by the 206-S in marked degree. It is also of particular point that its turbosupercharged engines give the 206-S the ability to operate at heights up

for air survey

to 28,000 ft., and its stability at altitudes above 20,000 ft. make it an outstanding aircraft for survey work.

In the Libyan operation the base was Benina (Benghazi) and the forward base was Sarir, some 300 miles away in the desert to the south-east. Sarir is an oil installation and it became viable as a forward base only when a hardish strip in the sand was discovered, about eight miles away, from which the aircraft could be operated. Fuel was brought in 44 gallon drums by Land Rover together with jerrycans of water with which the sand was damped against whirlstorming before engines were started for take-off. The ground temperature was upwards of 110 deg. F. and maintenance had to be done at night.

From Sarir to the farthest of the survey areas was about 1½ hours' flying time, and the endurance capability of the 206-S made possible a minimum 'on survey' flying time of about 2½ hours. The survey flying itself presented problems because the featureless nature of the desert terrain made 'start points' for the survey runs difficult to determine. (The new small

Decca doppler equipment is to be fitted to eliminate these problems.

Whilst the major proportion of the survey task was in connexion with oil exploration, a survey was also made of Tripoli for the Libyan Government as an aid to road development and rehousing schemes, and of the area between Tobruk and El Adem which included the Libyan Royal Palace.

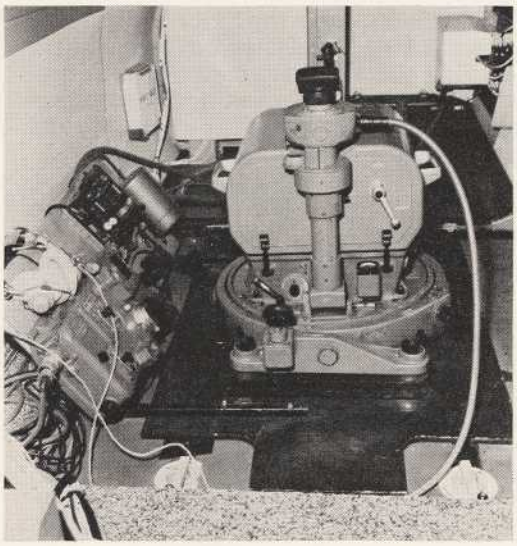
The total flying hours were a little over 200, of which some 180 were spent in Libya.

In this particular installation the camera was fitted behind the rear spar in the commodiously wide cabin of the 206-S, the sight being mounted in front of the right hand seat, with the dual-control column removed. An optically flat glass screen was fitted to the camera port in the floor to conserve cabin heat, and it worked very well. A tapping was taken from the heating system to the screen to preclude condensation.

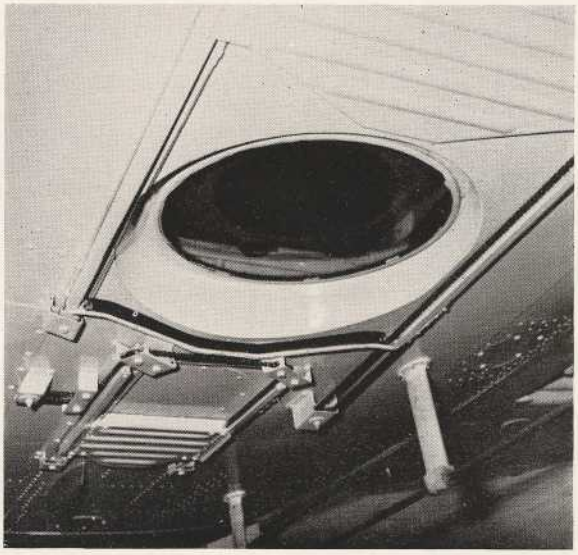
It is relevant to record that an RC 9 camera together with its sight has been fitted as a trial installation to the 206-S, and the aircraft is equipped for two-camera operation. It is also considered that it would be an advantage to have a light-meter aperture in the floor. For operations outside Europe HF radio is fitted. An associated fixed aerial has the advantage over the conventional trailing aerial, in that it does not intrude on the pilot's concentration.

The captain of the aircraft on the Libyan survey was Capt. Jürg Püntener, who was accompanied by Hunting's chief navigator, Mr. H. F. Lewis, and camera operator Norman Baldridge. Beagle's service engineer on the trip was A. W. Cooper, a man with a great deal of air survey experience.

Capt. Püntener had this to say of the B 206-S: "I found the aircraft most suitable for this type of work. The high rate of climb of the aircraft at all up weight allows you to reach the required survey level with a minimum delay in time. Also I found that due to the good cruise performance and the very pleasant flying characteristics (noise level, cabin ventilation, etc.) the crew reaches a distant survey area and is then able to do hours of survey work with a minimum of fatigue. Although the aircraft is extremely easy to manoeuvre in all flight conditions, I found its stability when flying on a survey line remarkable over the whole range of required speeds. Also for low level photography with the airspeed reduced to 100 kt. the aircraft was stable, the controls effective, and



the attitude only slightly nose-up with the view over the nose still good. On the whole I found that, from the pilot's point of view, the B 206-S had all the qualities I expected from a good survey aircraft."



Flying with "Beagle"

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background to beagle

Two civil projects were then developed from existing aircraft and both of these were completed up to prototype stage and then placed into production. The first of these was a development of the Model J/5. The latter, although it was produced as a four seater aircraft, was rather cramped in the rear seats for two large persons and the head-room had not been all that was wished for. The new aircraft, which was called the Model J/5B Autocar, showed a great improvement in both of these respects as the basic fuselage frame was widened over the rear of the cabin and the outer top contours of the cabin were raised considerably by the addition of wooden formers along the top of the tubular framework. This gave a completely different appearance to the aircraft from all previous Austers, especially as the fin and rudder had also been enlarged. This latter item had been developed primarily for the other new type to appear in 1949 and this was the Aiglet, or Model J/1B. This type was developed from the Autocrat for New Zealand crop-spraying duties. The Aiglet was in fact a lighter, cheaper, crop-spraying version of the J/5, but in due course there were also ordinary four seat passenger Aiglets and crop-spraying J/5's, and in later years crop-spraying versions of most Auster types were produced.

After making a batch of Auster 7 aircraft orders were received for a further batch of Auster A.O.P. 6 and T.7 aircraft, but two of

CHAPTER 7

A Model B3 Target on the launching ramp. (Photo:– F. Watkin).

these were fitted with extra radio equipment, D.H. Gipsy Major 8 engines, and with skis and floats interchangeable with the ordinary undercarriage. The two aircraft VX126 and 127 were built for the Anglo-Scandinavian Expedition to the Antarctic and were shipped later in the year.

The Design Office, apart from dealing with the new types placed into production during 1949, also carried out some design work to the Air Ministry specification T16/48 for a two seat basic training aircraft. The Auster project design, Model A9, resembled many of the other Auster projects for light aircraft but was powered by a 180 h.p. Blackburn Bombardier 702. Although the project was submitted to the Air Ministry it was not successful, and the development contracts were awarded to the Percival P.56 and the Handley Page HPR.2. The P.56 was later developed into the Provost basic trainer for the R.A.F.

Design work was also much in evidence during 1950. Whilst the production line was busy making Aiglets, J/5's, Autocars, Auster 6 and 7 aircraft, design thoughts were mainly concentrated on a development of the A.O.P. Auster but some attention was given to a special model of the Autocar for racing and also to improvements of ex-military Auster 5 conversion aircraft. The first Auster 5 variant was the 5C but this was merely a civil conversion of the Gipsy Major engined Auster 5 TJ187. This special version of the Auster 5 had been built in 1945 and used for some time by the firm as a 'hack' machine. Afterwards this aircraft was sold to Group Captain A. H. Wheeler who entered it in the 1950 Kings Cup Air Race at Wolverhampton and managed to obtain an average speed of 132·5 m.p.h. out of the aircraft to gain third place.

As many private owners expressed a preference for Gipsy Major engines,

The Model B4 XA177. (Photo:– Beagle).

BACKGROUND TO BEAGLE

Austers' converted several Auster 5 aircraft to Gipsy Major engines. These aircraft were christened the Auster 5D and had the larger Aiglet type fin and rudder, and were therefore very similar to the J/1B Aiglet apart from cabin details. In the next few years many civil Auster 5's were converted to the 5D standard.

Later in 1950 a special version of the Autocar was built and was entered in the 'Daily Express' South Coast Air Race by Auster's Chief Test Pilot, Ranald Porteous. This aircraft, known as the Model J/5E, had a 155 h.p. Cirrus Major 3 engine in place of the normal Gipsy Major 1 and also had the wing span reduced to 30' 5". Unfortunately, the aircraft had to retire from the race due to engine overheating.

As mentioned before, the main problem facing the Design Office was a successor to the Auster 6, and in August 1950 another prototype appeared, the Model S. This was very similar to the Auster 6 but had a Bombardier engine, the larger fin and rudder, and standard Auster wings with split flaps, with large low-pressure mainwheels. After normal manufacturers' tests at Rearsby the Model S was handed over to the A.A. & E.E. at Boscombe Down in 1951 for testing.

The Model S was, however, only one half of the study by Austers of current Army requirements and the other half appeared in 1951. This was the Model B4, which had a completely revised fuselage of 'pod and boom' layout with large doors just behind the cockpit. The reason for this layout was to accommodate two stretchers, one above the other, alongside the pilot. For easy loading the rear doors were removable, hence the 'pod and boom' system. In place of the stretchers three seats could be fitted, or, for carrying freight the whole floorspace was available. The cabin was twelve inches wider than the standard Auster, and 100 cubic feet of load could be carried. All other main components were interchangeable with the Model S. These two aircraft together represented Austers' answer to current 1951 Army requirements and they were tested at Boscombe Down during the next two years but were not taken up by the Army.

Although the A.O.P. requirements for the Army naturally received the greatest amount of attention one of the many other Army requirements the Design Office investigated was that for a radio controlled target for use in training anti-aircraft gunners. The design was based very closely on the American OQ-3 target and was known as the Model B3. The fuselage of the target consisted of a welded steel tube framework and so was well within Austers' capabilities. No undercarriage was used as the target was launched from a 37 ft. long ramp, the ramp too being of welded tubular construction.

Further design work also took place in 1951 on the civil aircraft side and resulted in Auster's first fully aerobatic aeroplane. Designed primarily as a training aircraft it also became very popular as a touring aircraft in the hands of private owners. It was developed from the Model J/5 by strengthening the airframe and reducing the wing span from the standard 36 ft. to 32 ft., and the result was a very lively aircraft. It was given the Model number J/5F and later named the Aiglet Trainer, although why it was called the training version of the J/1B Aiglet has never been understood! It was first shown to the public at the Air Display organised by the Auster Flying Club on the 2nd June 1951, and was later shown to a wider audience at the 1951 S.B.A.C. Farnborough Display. It was placed into production at the end of the year and first deliveries were made to customers in January 1952.

In 1951 Austers were in active service yet again, this time in Korea. The decision to send United Nations troops to Korea brought Auster 6 and 7 aircraft into action for the first time, with No. 1903 Indepen-

dent A.O.P. Squadron and No. 1913 Light Liaison Flight, R.A.F., and these were the only R.A.F. units serving in Korea. The Austers were used as before in artillary spotting and for communications.

On the 1952 production line there were five different models, the Auster 7, Aiglet, J/5, Aiglet Trainer and the Autocar. This latter aircraft occupied most of the production activities during the year although many Aiglets were produced for export, many of them going to Australia. Many of the Autocars used overseas were equipped for crop spraying and dusting, but it was found that more power would be an advantage. In temperate climates the 130 h.p. of the J/5B was quite sufficient and gave a good performance, but in tropical conditions this was not enough, and so the experience gained from the J/5E Racer was put into practical use and the Cirrus Major 3 was fitted into a standard Autocar airframe. This new aircraft, the Model J/5G, was named the Cirrus Autocar and immediately found a ready market, most of them amongst crop-spraying and dusting operators overseas.

The Cirrus Major 3 engine was also fitted into the Aiglet Trainer resulting in the Model J/5K. A very lively aircraft was thus produced but only one J/5K was made, which performed for many years at the S.B.A.C. Air Display in the hands of Ranald Porteous.

With so many Austers being delivered to overseas customers for agricultural use the Design Office turned its attention to designing an aircraft for purely agricultural use. The new design, the Model B6, used many standard Auster parts but the fuselage was a completely new design to requirements received from New Zealand for a single seat aircraft to carry 1,120 lbs. of Super-phosphate. The aircraft evolved was to be powered by a 185 h.p. Continental engine and the hopper was located between the pilot and the engine. As a result of this, in order to give a good vision forwards and downwards and to keep the C. of G. in the right place, the pilot was located aft of the wing and this necessitated a parasol wing layout. Standard Auster wings were to be fitted onto a new centre-section which had a large cut-out in the trailing edge to give additional vision to the pilot who had a bubble cockpit cover for protection. However, there was one large snag with the whole design concept and this was the difficulty of filling the hopper which was situated immediately underneath the wing. As the design became more stabilised it was realised that there was no easy way around this snag and so it was decided to drop the whole design and start again.

F-DABM a J/5G Cirrus Autocar, with spray gear. (Photo:– Beagle).

Beagle Pup on a local flight over Arundel Castle, Sussex.