

BEAGLE NEWS



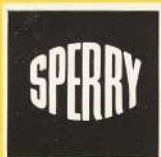
Number 6



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.



AERONAUTICAL GROUP

SPERRY GYROSCOPE COMPANY LTD., BRACKNELL, BERKS. PHONE: BRACKNELL 3222

BEAGLE NEWS

EDITOR: F. J. JACKSON

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Front cover photograph

*First flight of the new
Beagle Pup-100*

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BEAGLE AIRCRAFT LIMITED,
Shoreham Airport,
Shoreham-by-Sea,
Sussex.
Tel.: 2301.

The new Beagle



A two-seat aerobatic light aircraft which will sell in the £3,500 price bracket, the Pup is sleek and beautiful – an entirely new British design that originates a fresh concept in its field. It is a bold step forward that has already excited vivid interest in light aviation circles throughout the World and it may well become, like the immortal de Havilland Moth in the 1920s, a classic of its kind.

PUP

an outstanding aircraft in its class



The Pup is powered with a Crewe-built 100 h.p. Rolls-Royce Continental engine and has a designed cruising speed of 110 m.p.h. and a range of more than 500 miles. Construction is all-metal and the very attractively furnished cabin has a 2 + 2 seating arrangement with generous baggage capacity.

Enthusiastic crowds constantly surrounded the mock-up displayed at the last Farnborough Show and it is expected that even bigger crowds will eagerly view the prototype at the international Paris Air Show next month.

Flight trials will proceed with three prototype Pups during the coming months whilst another is undergoing structural testing, and Certification is aimed at with the first production aircraft toward the end of the year.

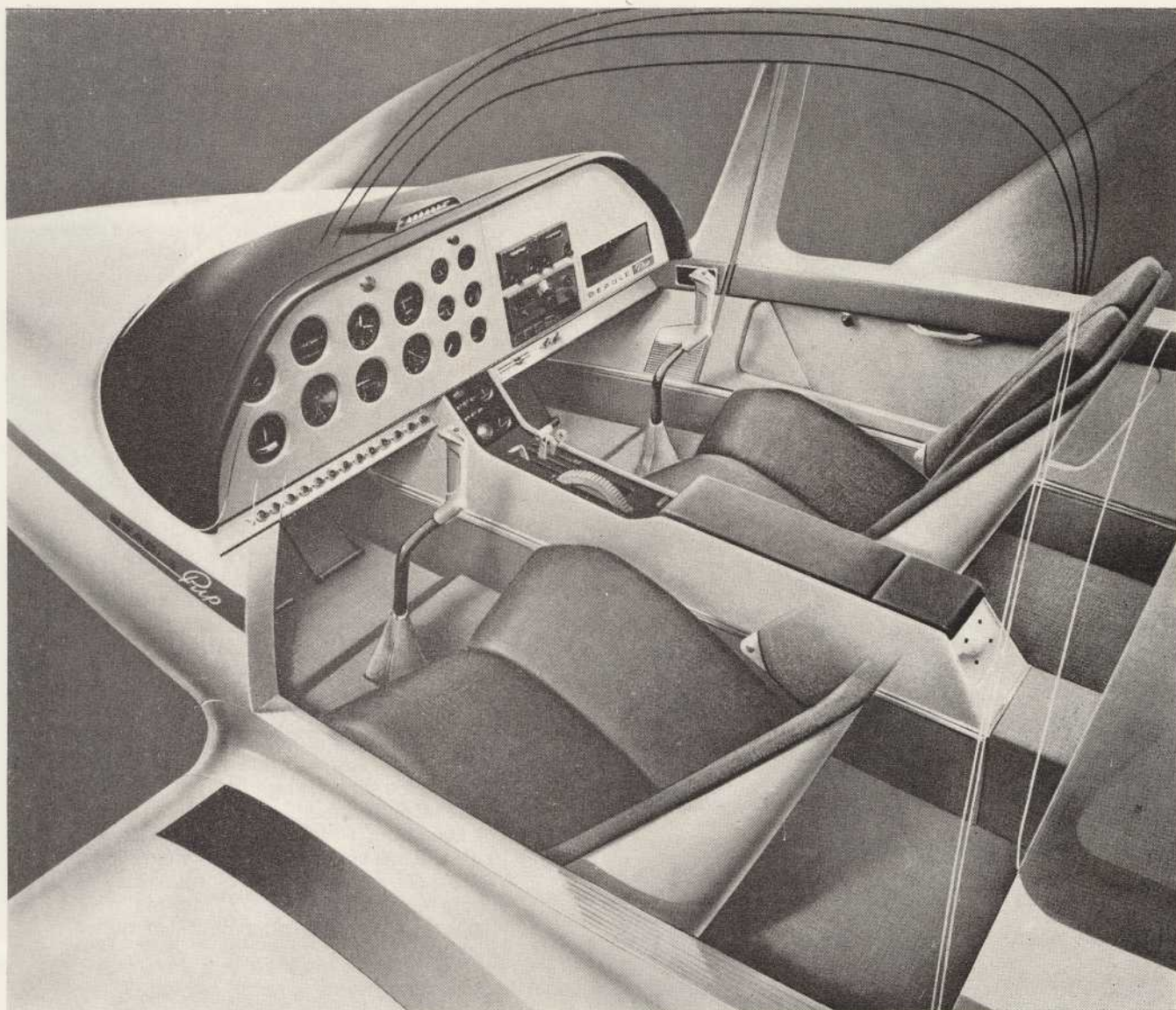
Interior Elegance

A NEW "HIGH" IN LIGHT AIRCRAFT STANDARDS

In the PUP, Beagle have achieved a standard of interior elegance rarely found elsewhere but in the most expensive of motor cars. A large door on each side of the aircraft provides easy access to the outstandingly well appointed cabin which, with an internal width of 45 inches (approximately 4 inches more than competitive aircraft), allows for luxurious individual seats.

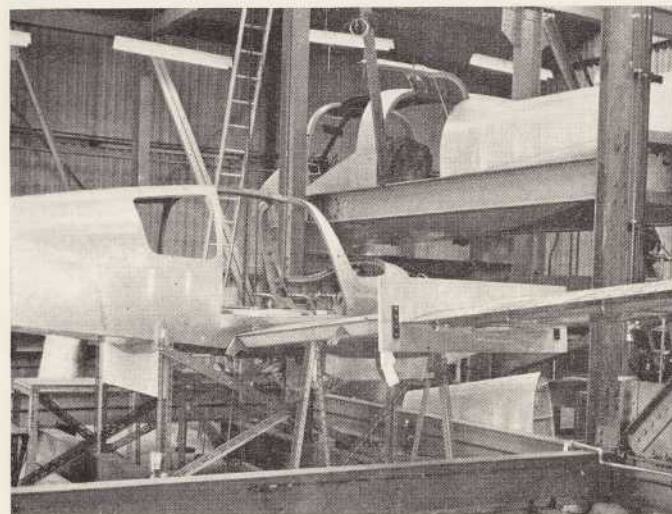
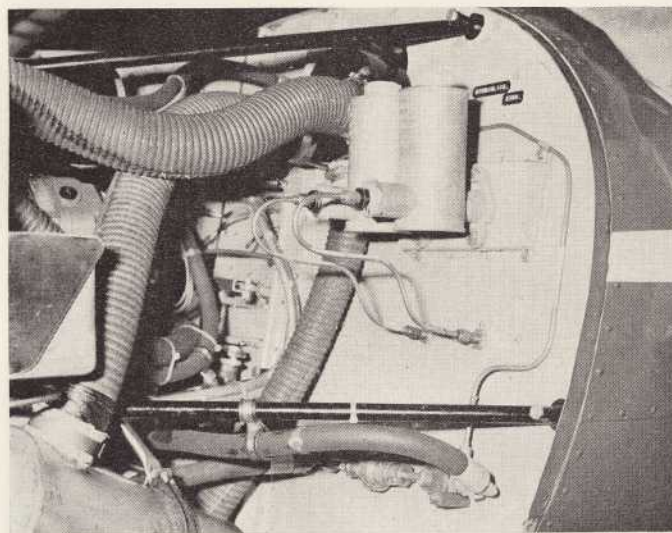
The seat backs are adjustable for 'rake' to suit the specific requirements of occupants. To add to the comfort of passengers, the PUP features a really efficient ventilation and heating system.





FUNCTIONAL LAYOUT OF INSTRUMENTS AND CONTROLS

In the design of the modern-styled panel, careful consideration has been given to the logical location of instruments. Every instrument can be easily read and controls come easily to hand. Provision has been made in the panel for $2\frac{1}{2}$ VHF, ADF, ILS/VOR. Provision is also made for duplication of instruments and controls, including toe-brake pedals, for the starboard seat occupant.



Throughout the design of the aircraft special attention has been given to ease of access and reliability of components. Every effort has been made to restrict servicing to a minimum by the fitting of non-lubricated bearings and the use of interchangeable parts.

Routine maintenance and servicing is made simple by such careful location of access panels, as will enable all inspection of control linkages, etc., to be made from the outside of the aircraft. The hydraulic reservoirs are readily accessible in the engine bay. Both nose and mainwheels are of the same size and tyres are interchangeable for the PUP-100 and PUP-150. Similar bearings are used for all flying control surfaces, thus resulting in simpler servicing and economy in spares holdings.

With the fitting of the Rolls-Royce Continental O-200A engine in the PUP-100, the operator has at his disposal the unsurpassed service facilities provided by Rolls-Royce, which offer at their Crewe factory in the United Kingdom, a full engine overhaul service and an engine exchange scheme. The advantage of the engine exchange scheme is that by replacing a time-expired unit with a fully-overhauled exchange engine, the time for which the aircraft is out of service is greatly reduced. Outside the United Kingdom, a world-wide network of both Rolls-Royce and Continental distributors exists to serve operators of the PUP. In addition, over two hundred Rolls-Royce service engineers are available to advise on engine maintenance.

The Lycoming O-360 engine installed in the PUP-180 has been in service for many years. Well proven in every corner of the World, this engine has excellent power/economy characteristics and an outstanding record of reliability.

(top and centre) To ensure economic operation of the PUP special attention has been paid to ease of access, reliability and interchangeability of components.

(bottom) The PUP is subjected to a comprehensive test programme, to ensure compliance with the relevant Civil Airworthiness Requirements.

Foreign Air Attachés accepted an invitation by Beagle Aircraft to visit Shoreham Airport on May 3rd.

Picture shows: A group of the Air Attachés being shown the "mock up" of the Beagle PUP by Mr. Peter W. Brooks, Deputy Managing Director of Beagle Aircraft.



McCAULEY PROPS

PUT "BITE" IN BEAGLE B206-S

McCauley 3-blade constant speed, full feathering propellers enable the Beagle B206-S to bite through the air at speeds up to 256 MPH. McCauley is proud to supply vital components for the "Beagle Pack." Throughout the world, more personal and business aircraft are equipped with McCauley propellers than any other kind.

McCauley Industrial Corp., Dayton, Ohio, USA
—the birthplace of aviation.



production test flying



TREVOR HOWARD
Senior Test Pilot (Rearsby).

EVERY new Beagle B.206 aircraft is subjected to a comprehensive schedule of flight tests before delivery. These tests involve about five hours flying time and take approximately two weeks to complete, dependent upon the range of optional equipment fitted to each individual aircraft.

Stability and Control

Every B.206 is flown at a range of loadings from the most forward practical centre of gravity to the extended aft centre of gravity positions. This is done to prove the correct handling and stability behaviour and that the correct trimability range is available. The extended aft centre of gravity being one per cent of the wing chord behind the normal aft limit.

Performance

Performance measurements are carried out at the maximum landing weight to establish compliance with the Certificate

of Airworthiness requirements. These tests are usually completed for convenience, at the extended aft C of G loading, accurately measuring the single engine rate of climb on each engine in turn, over a period of not less than five minutes on each engine. The stalling speeds and behaviour are recorded with each flap position. Level speeds at 75 per cent and maximum power are also measured, at approximately 2,000 ft. In addition, all aircraft are dived to a speed 10 per cent above the normal 'never exceed' speed as a matter of course.

For the supercharged B.206-S the procedure is slightly changed to incorporate a measured 'all engines operative' climb to 16,000 ft. to establish the performance rate of climb at altitude and to prove the functioning and adjustment of the turbo-charger automatic controls.

Systems checks

During the course of these test flights all the aircraft's equipment is functioned and special tests are made on systems such as undercarriage and flaps, measuring the operating times to establish compliance with the Airworthiness requirements. Undercarriage uplock checks are made and the emergency lowering system operated.

Feathering and unfeathering of each engine is carried out and timed. Electrical systems are checked under maximum and minimum load conditions. The load transfer system is functioned and generator failures simulated to prove the emergency facilities.

Fuel systems are functioned in both normal and crossfeed positions and the boost pumps are checked in normal and emergency settings for each engine.

Most aircraft are equipped with autopilots and these are tested to check their normal functioning, emergency cut-outs and manual over-ride facilities.

Most aircraft are also fitted with de-icing equipment for the airframe (*inflatable rubber boots*), propellers and windscreens (*fluid*).



These items are functioned, timing the cycling operation of the de-icing boots and observing the correct flow patterns of the de-icing fluid on each propellerblade and windscreen panel. The list of normal equipment to be checked is lengthy and briefly includes the engine driven vacuum system, flight instruments, engine instruments and controls, cabin heating, ventilating and oxygen equipment, cabin and instrument lighting, navigation and landing lights, anti-collision lights, pitot heaters, windscreen wipers, hydraulic system power pack, wheel brakes – normal and emergency operation, nosewheel steering, airstairs operation, radio, etc.

Radio Tests

The scale of radio equipment fitted can be up to full airline standards according to the customer's requirements and may include such items as a Decca Navigator and flight log ; VHF omni range (VOR) ; Distance Measuring Equipment (DME) ; Instrument Landing System (ILS) with glide slope facilities and marker beacon receivers. Radio Compass (ADF) ; High Frequency (HF) communication radio, plus the normal VHF communication radio which is often duplicated.

This equipment is flight tested with the appropriate ground stations, for each navigation and approach aid, and with the Pailton Test Centre for the communications radios.

Additional quality checks are also made at regular intervals on a proportion of the aircraft to ensure water tightness and freedom from carbon monoxide contamination in the cabin.

Thus, when these tests have been completed successfully and final adjustments made, the aircraft and test results are examined by the Air Registration Board's surveyor. The aircraft is then issued with a Certificate of Airworthiness, ready for delivery to the customer.

F.A.A. certification for B.206-S

The United States of America
DEPARTMENT OF TRANSPORTATION
Federal Aviation Administration
AIRCRAFT
Type Certificate
EXPORT
Number AL1157

This certificate, issued to Beagle Aircraft Limited, Shoreham-by-Sea, Sussex, England, certifies that the type design for the following product with the operating limitations and conditions therefor as specified in the Federal Aviation Regulations and the Type Certificate Data Sheet meets the airworthiness requirements of Part 21 of the Federal Aviation Regulations

Model B,206 Series 1

Model B,206 Series 2

This certificate and the Type Certificate Data Sheet which is a part hereof shall remain in effect until surrendered, suspended, revoked, or a termination date is otherwise established by the Administrator of the Federal Aviation Administration.

Date of application: January 22, 1965.

Date of issuance: Series 1: November 7, 1966
Series 2: April 18, 1967

By *Signature* of the Administrator

(Signature)

Walter B. Haldeman

(Title)

Chief, Aircraft Certification Staff

This certificate may be transferred if endorsed as provided on the reverse hereof.

When this certificate and/or the Type Certificate Data Sheet is punishable by a fine of not exceeding \$1,000, or imprisonment for not exceeding 3 years, or both.

Form FAA-311 (9-55)

they also prefer the Beagle

**AIRWAYS TRAINING LIMITED
LONDON (GATWICK) AIRPORT SOUTH**

Dear Sirs,

The first course of candidates have just completed their Instrument Rating Training using the Beagle 206 aircraft. All candidates on this course passed the Instrument Rating Test on their first attempt.

I feel that these most satisfactory results are due in no small measure to the fine flying characteristics of the Beagle 206 aircraft.

The flying times needed to achieve the requisite standard have been cut by some 30% compared with those required using American Training Aircraft.

I feel that the performance of your aircraft when used in this extremely important training role is worthy of my congratulations to all in your Company who have been associated with its introduction to our fleet.

Yours sincerely,

K. Sinclair, M.B.E.

CHIEF PILOT.

**COMPANIA ARGENTINA
DE AERO TAXI S.C.**

BUENOS AIRES

... We are extremely pleased with the performance of our first B.206-S and feel sure that, provided you maintain the high standard of quality and reliability this demonstration aeroplane is showing, potential buyers here will prefer your product to the traditional lines of American origin.

Otto Tolderlund
Managing-Partner



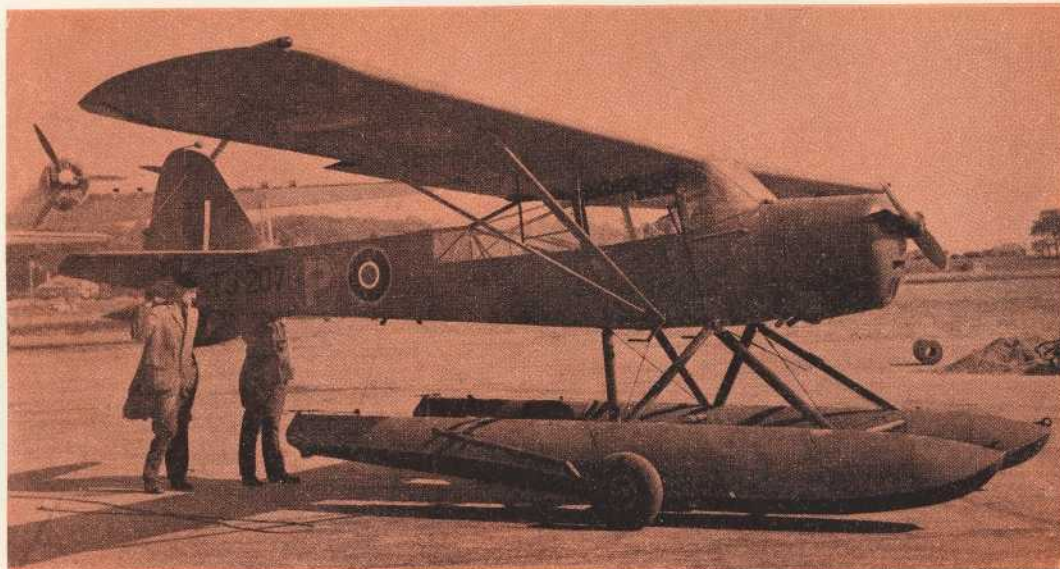
Get this new
FREE
 map of Shell-
 Mex and B.P.
 Aviation Dealers

Before you take off, plan your refuelling points with the help of this free map. It shows all the points throughout the British Isles where you can fill up with the fuels and oils that are famous throughout the flying world.

Whether you are a private owner, a club flyer, an executive aircraft or helicopter pilot, an aerial spray contractor or an air-taxi operator, you will find this new map quite invaluable. Get it free from any Authorised Shell-Mex and B.P. Aviation Dealer – and remember that at most of the refuelling points shown you can use your Shell or BP Carnet to buy your petrol and oil on credit.

SHELL-MEX AND B.P. LTD
 Operators in the U.K. of the Shell
 and the BP Aviation Services





AUSTER AIRCRAFT twenty five years

The Auster 5, known also as the Taylorcraft Model J, was developed directly from its predecessor the Auster 4. It was practically the same as the Auster 4 but a blind flying panel was fitted to enable it to be officially used as a communications aircraft. The trimmer was also moved from its position underneath the tailplane and introduced as a trim tab on the port elevator. Production commenced in May 1944 and built up to an average of about 14 aircraft a week.

The new type of aircraft had only just started to come off the production line when a great tragedy struck the firm. On May 14 a military display was held in the Abbey Park, Leicester, as a part of Leicester's 'Salute the Soldier Week', one of the many wartime propaganda campaigns held to help the National Savings Movement. One of the items in this display was a competition between the Pioneer Corps and the Home Guard on an assault course, and during this two Austers flew over and gave a demonstration of Army

(Far left) Auster 5 TJ 207 float-plane at Beaumaris (Photo: Crown copyright).

(left) The engine cowl for the Model L.

(below) The prototype Auster 6 TJ 707 with the original internally sprung tailwheel installation.

(Photo: Crown Copyright).



(above) Auster 5 TJ 366 on skis at Rearsby.

(right) Mr A. L. Wykes, Managing Director.



Co-operation flying and general aerobatics. They were flown by A. L. Wykes and Jeff Edwards, who was Taylorcraft's Chief Test Pilot. During the aerobatics A.L. made a series of steep turns but then, from onlookers' reports, it appears that he completely stalled at the top of a turn but there was not sufficient height to recover. The aircraft dived into the ground at the back of the railway embankment and A.L. was killed instantly.

Production of the Auster 5 continued throughout the remainder of 1944, and in July, after the initial snags had been cleared up, a mobile assembly line was introduced for fuselage assembly. The speed of the line, which was electrically powered, was adjusted to a speed that produced four fuselages a day and it had its first production run on July 14. This was probably the first and only time that light aircraft in this country had ever been built on a basis resembling car mass-production. More Auster 5 aircraft were produced than any other single type of

Auster, and the Auster 5 thus became the standard airframe from which the post-war aircraft were developed – except the Auster A2/45, Auster 9 and the Agricola.

Another event which occurred in 1944 was the introduction of the ambulance version of the Auster and this modification was later carried out on many Auster 4 and 5 aircraft as and when it was required. The first aircraft so modified was tried out on June 16 at Rearsby before representatives of the M.A.P. Carrying a crew of two and a 6 ft. 2 in. man on a stretcher the aircraft took off in 60 yards. The time for loading was 7½ seconds and unloading 9½ seconds.

Later on in the year another drastic modification took place on the basic aircraft. An Auster 5, TJ 207, was fitted with a pair of floats. The idea behind the floatplane conversion was that it might be of use in the Far Eastern area of operations. In the Experimental Department of No 7 Works the aircraft was fitted with a set of floats taken from a DH

Queen Bee aircraft. It was then taken to an NFS static water tank in Rearsby for floatation tests, and on November 17 it was dispatched to the works of Saunders-Roe Ltd, at Beaumaris, Anglesea, and test flown there for the first time on the 21st. Following Ministry trials at Helensburgh on the Clyde two more aircraft were built, but by the time they had been ordered, built and delivered the progress of the war in the Pacific had made the type redundant. The aircraft were also somewhat underpowered and unable to take off with full AOP loads in anything other than calm water.

With the end of the war in sight, in Europe at least, the Design Office at Taylorcraft began to think ahead to what the firm should produce for the post-war pilot and flying club. Initial moves were made by A.L. before he was killed. The aircraft under discussion at that time was in one way a complete break with tradition as it was a low-winged aircraft, but in fact it was a basic Auster airframe with the wings moved to locate on the bottom longeron and the lift struts attached to the top longeron. The fairings along the fuselage were greatly revised, and spats were to have been fitted. After the death of A.L. however it was pushed into the background by urgent wartime commitments.

However, Taylorcraft's did make a return to the civil market in 1944, even if it was only in a very small way. In August two Auster 5 aircraft were taken from the production line and, still camouflaged, were registered G-AGLK and G-AGLL and supplied to the reformed Ministry of Civil Aviation for use in commercial licence testing work at Gatwick. Also produced in 1944 was an Auster 5 fitted with a DH Gipsy Major 1 engine and this aircraft, TJ 187, was used as the firm's hack aircraft.

In September 1944 the Allies launched their offensive to cross the Rhine into Holland. Whilst two of the crossings, those at Grave and Nijmegen, were

successful and were subsequently broadened and developed into a corridor, the air crossing at Arnhem, to the North of the other two, was a failure and was later evacuated. As a direct result of this the advance into Northern Europe was held up, and then before it had properly developed again the severe winter of 1944-5 set in and virtually stopped all forms of transport. By January even Austers were finding it difficult to take-off. Hence Taylorcraft was asked to provide some skis to enable the Austers to operate from snow covered airfields. The skis were designed, manufactured and tested by Taylorcraft and were flown to France where they arrived only seven days after the request was received at Rearsby.

The Auster 5 aircraft continued in production into 1945 and further modifications were carried out on the aircraft to enable Austers to do extra tasks. One modification was the fitting of equipment to pick up mail and messages, first tried out on TJ 645, and another was a cable laying version which carried enough wire to lay a continuous cable for four miles. With all these extra roles for which the Auster 5 was being adapted, it became obvious that further redesign was needed on the basic aircraft to enable all these roles to be completely successful. The design of the new Auster, the Model K later known as the Auster 6, was started towards the end of 1944 and construction of the new model commenced in the Experimental Department in January 1945. The differences from the Auster 5 were the greatest yet between any of the Auster Models. The Lycoming engine was replaced by a DH Gipsy Major 7 of 145 h.p., increasing the power by 15 h.p., and the split flaps were replaced by external flaps giving it a completely different appearance from any other Auster before or since. TJ 707, the prototype, was completed at the end of April and the first flight was on May 1, 1945, but production did not start until late in the year.



CHAPTER 6

Peace again, and a change of name

During 1945 as the end of the war came in sight production of the Auster 5 ended after a total of 790 had been built, and the Design Office once more turned its thoughts to the type of aircraft the firm could produce for the civil market. The first object was to obtain an engine suitable for economical operation, and the one chosen was the Blackburn Cirrus Minor 2. This was first fitted into an

Auster 5 aircraft by Blackburn Aircraft Ltd for use as a test-bed. All the military equipment was deleted and the aircraft was registered G-AGOH. The next stage of the development was carried out by rebuilding a Plus Model D. In April the remains of G-AFWN were taken out of storage and the fuselage frame was put back into the main jig and modified up to Auster 5 standard. Then the internal cabin was fitted with two seats at the front and a sideways facing bucket seat in the rear of the cabin. The perspex in the rear windows was restyled to conform with

G-AGOH flying over the outskirts of Hull. (Photo: Hawker Siddeley Aviation).

the fuselage tubes and a one-piece perspex windscreen was introduced. This latter item had been originally introduced on the experimental two-seater aircraft G-AGPS, an aircraft which resembled the original Plus Model C. No model number was ever given to 'GPS' and it was used as the firm's hack machine, and later by the Auster Flying Club.

The new aircraft developed from the Auster 5 was called the 'Taylorcraft Auster 5 Series J/1 Autocrat', later shortened to 'Auster J/1 Autocrat'. The model number J/1 indicated the first major alteration to the Model J. Autocrat production commenced soon after the Auster 5 production had ended and towards the end of 1945 the first few were ready for delivering, the first one G-AGTO being delivered to Mr T. W. Shipside at Tollerton in December. The first 50 J/1 aircraft were sold for £850 each, at a profit.

In November 1945 the last Typhoon was delivered to the RAF, and with this ended the repair by Taylorcraft of other manufacturers' aircraft apart from a small contract to repair Kirby Cadet gliders – these were commenced in May 1945 and ended in April 1946. The total number of aircraft repaired during the war was 368 Hurricanes, 281 Typhoons, 339 Tiger Moths, 235 Austers, 1 Hornet Moth and 11 Kirby Cadets. Parts were also manufactured for Hurricanes, Spitfires, Oxfords, Albermarles, Tiger Moths and the Hawker Audax.

On January 1, 1946 civil aviation commenced again with official blessing, and Taylorcraft found themselves supplying Autocrats against a flood of orders from post-war pilots all eager to get into the air again, many of them having had air experience in the A.O.P. Austers during the war. Many Autocrats were 'sold' by the Post-War Sales Scheme. This was started in 1943 and people who were interested in owning a light aircraft when the war was over put down a deposit of £25 and their names were

placed on a list. After the war if the 'purchaser' changed his mind and did not want his aircraft he was refunded £20, but if the firm had not been able to produce the promised aircraft all the £25 would have been refunded. As it turned out, after three years or more the 'purchaser' suddenly received a letter which said 'Your aircraft will be ready for delivery next week. Please confirm order and send £850 less £25 deposit'. Amongst others this happy experience happened to Lt Cdr J. J. Dykes, RN who took delivery of G-AGXB. He had 'ordered' his Autocrat one morning in 1943 when he was ferrying a Spitfire from Lee-on-Solent to Scotland, and had to divert off course due to bad visibility and just dropped into Rearsby to wait for the fog to lift!

With the firm settled once more into the production of civil aircraft it was realised that the name of Auster was better known around the world than the name of Taylorcraft. As a result of this, and also taking into consideration the fact that the aircraft which were then being produced were quite different from the Taylorcraft aircraft that were being produced in America, it was decided to change the name of the company from Taylorcraft Aeroplanes (England) Ltd. Accordingly, on March 8, 1946, the name of Auster Aircraft Ltd was adopted.

Autocrats were then produced to a world market, and at the same time Auster 1's that had been declared redundant by the RAF were being converted to civil aircraft and were sold as Plus Model D's. Many of these ex military aircraft had had very few flying hours having been stored for several years by the Air Force as they had been replaced in service by the Auster 3.

On the design side attempts were being made again to produce a two seater aircraft similar to the pre-war Plus Model C, and as a first step several Auster 1's were temporarily converted to have a 55 h.p. Lycoming engine in place

of the Cirrus Minor. After trials with these aircraft the Design Office proceeded to modify the basic Auster 5 airframe to a two seater and the result was the Model J/2 Arrow. It was in effect a production version of the un-named two seater G-AGPS, but was powered by a 75 h.p. Continental engine and had, in the opinion of many, the best lines of any Auster ever produced. In an attempt to get nearer still to the pre-war standard a 65 h.p. Continental was fitted into a J/2 airframe. This aircraft was called the Model J/3 Atom but flight trials showed it to be underpowered and so only the prototype was produced. Production of the Arrow started towards the end of 1946 and first deliveries were made in December. The Arrow was only put into limited production, however, for in 1946 England had severe limitations on anything imported from America, so the majority of the Arrows were produced for the export market, as the import restrictions did not apply if the engine was only imported for re-export. In order to satisfy the two seat needs of the home market a standard J/2 airframe on the production line was fitted with a Blackburn Cirrus Minor 1 engine. The resulting aircraft had a much better performance than the Arrow, and it was given the model number J/4. It was put into production alongside the Arrow and first deliveries were made at the end of the year.

One event which took place in 1946 on the military side is interesting. This consisted of a series of trials in March to launch a light aircraft from a LST ship. The first stage of these trials at Farnborough consisted of Auster 5 TJ 537 flying off a 165 ft track in the form of three 'U' shaped channel sections, one for each wheel, fixed to the ground. The second stage, trials on an actual ship, never took place as far as is known, but one can imagine an Auster precariously mounted on an LST rolling around in a heavy swell somewhere in the North Sea, with a slightly ill pilot only too anxious to take off!



(top) The first batch of Autocrats awaiting delivery dates.
(top centre) Model J/2 Arrow G-AJXZ.
(centre) Model J/3 Atom G-AHSY.
(bottom) Model J/4 G-AIZP.

Rolls-Royce conversion



After a two and a half year period in which Club members designed, built and tested the complete engine, propeller and aircraft electrical system installation, a Continental-powered Auster light aircraft has recently entered service with the Rolls-Royce Merlin Flying Club at Hucknall. The two-seat aeroplane, now known as an Auster J4-100, is powered by a four-cylinder Continental O-200 of 100 b.h.p.

The Merlin Flying Club is approved by the Air Registration Board for aircraft repair and overhaul and so, in co-operation with Beagle Aircraft Limited and the Rolls-Royce Light Aircraft Engine Department which supplied the engine, the Club designers produced a revised mounting and undertook the necessary stress work for the O-200 installation.

The first test flight was made early this

year by Mr H. C. Rogers, Rolls-Royce chief test pilot, and following a period of development flying the A.R.B. issued a full passenger-carrying Certificate of Airworthiness.

In addition to replacing the original engine with an O-200, members of the Club, who currently number 75, of whom 20 have private pilot's licences, completely dismantled the Auster – registration number G-AIPH – recovering, re-spraying and undertaking any repairs found necessary. In fact, they have restored the aircraft to 'as new' condition.

The Continental O-200 which powers the Merlin Flying Club Auster is identical to the Rolls-Royce Continental O-200 currently being produced for ten types of European light aircraft. The Rolls-Royce Continental O-200 will also power the new Beagle Pup.



Mobil Terminal



for Beagling

This is the Mobil Aviation Terminal at Gatwick; fully-equipped and ready to serve Beagle aircraft with Mobiloil Aero branded oils—the aviation lubricants recommended for the Beagle's engines by their manufacturers, Lycoming and Rolls-Royce Continental.

Wherever you fly, whatever your aircraft, world-wide Mobil Aviation Service provides the lubricants you need — with speed and reliability.

Mobil world-wide aviation service

south american saga

by R. L. PORTEOUS

It was warm and summery at Shoreham when Ian Aslett and I took off in a shiny new B.206-S, G-ATTL. Argentina seemed a long way off but, as we headed North towards Prestwick, our departure point for the Atlantic crossing.

Somewhat surprisingly we found the temperature of Scotland to be almost 30° below those prevailing at Shoreham and we shivered, perhaps prematurely, when we were told that Iceland was closed due to bad weather.

After a day's delay, the weather reports were better and we set out from Prestwick, climbing immediately into the rainy overcast which denied us a farewell view of the glorious North West Highlands.

An hour or so of flight above the weather brought a break in the clouds and we found the sunlit North Atlantic to be as blue as the Mediterranean. Back bearings were maintained for a long time from the powerful transmitter in the Outer Hebrides and our progress was nicely plotted by cross reference to the Faroe Islands, whose NDB came up weakly but consistently.

Iceland's powerful beacon eventually came in and we felt ourselves home and (figuratively) dry. Iceland itself was, however, hidden by an amorphous low overcast and we had to resort to a rainy VOR letdown at Keflavik, which is

situated in a bleak and barren wilderness of rocks and moss.

Fuelling and formalities presented no great problem but we were surprised to find that the correct grade of oil for our engines was unobtainable there and we were advised to fly to Reykjavik, some 30 miles off our intended track.

Reykjavik is a whitewashed spick-and-span little capital, not unattractive, especially in relation to its forbidding surroundings. Nevertheless the oil company representative was far from helpful. First of all he said that the correct grade of oil was unobtainable, then he recanted and disappeared towards the town to return some while later with a supply of nondescript-looking oil in an open container. We had no option but to accept this, no matter what our misgivings, and we resolved to watch our temperatures and pressures very carefully until the oil could be replaced in its entirety. Meanwhile we were glad to see our old friend Larus Oskarsson, the former Auster agent,

who seemed surprised and impressed by the size and comfort of the Beagle.

A fair headwind was forecast for the whole of the flight to Sondrestrom on the far side on Greenland but the landing forecast was not too bad and we headed Tango-Lima westwards across the ocean with a solid back bearing and a modicum of faith in the radar facilities said to be operated by the Americans across the vast Greenland Icecap. The powerful beacon of the Greenland coast seemed inordinately long in coming up and we had been flying for nearly an hour over unbroken cloud before we were firmly established. We never caught a glimpse of Greenland and calculations showed the headwind to be much stronger than had been forecast. However, we estimated that we would still arrive at Sondrestrom with a reasonable safety margin.

Our progress westwards over unbroken cloud seemed interminable and we were relieved when we were able to contact the American radar stations, Sob Story

Young Eskimos standing by Tango Lima at Sondrestrom-Greenland.



south american saga

and Sea Bass, who gave us a series of fixes leading us by the nose, as it were, towards Søndreström. All around and below us was an expanse of milky white. It was quite impossible to distinguish between cloud, haze and the unbroken surface of the Icecap. In due course we transferred to Søndreström radar, having raised their powerful NDB some 90 miles out. The American Air Force controller led us gently down over Søndreström Fjord where we found the low air to be completely clear, enabling us to see the runway from our final turn-in some 15 miles distant. The operator continued to give us a precision approach, for reasons of practice, and this was almost laughable in its extreme accuracy. He was in fact giving us corrections of a few feet, while we were still several miles out and, as far as my eye could judge, they were all precise to a hairline.

At Søndreström we arranged a complete oil change, having noticed a tendency to 'coring' on the side which had absorbed most of the dubious oil at Reykjavik. Meanwhile solid blizzards set in and we had to wait for them to pass on their way before carrying out the necessary test flying at temperature down to -34°C . On one of these flights in fine weather we had a magnificent view of the western edge of the Icecap where it spills over among the mountains which lie for 90 miles between it and the Davis Strait. Surely there can be nothing like it in the rest of the world.

Our next destination was Frobisher in Baffin Land, in the Arctic North East of Canada. We found flight information hard to come by and relied greatly on our charts which showed an airfield equipped with an NDB. In addition an NDB was shown at Cape Dyer on the Baffin Coast of the Davis Strait and we anticipated using this for back bearings on track to Frobisher. We were soon once more flying over unbroken cloud and after an hour so so, made weak contact with Cape Dyer radar although we could not raise their NDB. This, they told us, was iced up in the prevailing weather conditions of zero ceiling and freezing snow. They were able to give us a weak radar vector but we did not dare to rely on it because of the conditions below and the proximity of mountains.

When we had flown for about three hours without a land sighting of any sort we noticed an upper cloud formation which made me think that the wind at our level was probably from the port bow instead of the starboard beam as had been forecast. Acting on little more than a hunch I altered course appreciably to port and this later proved to have been a very lucky decision.

Soon we were able to raise Frobisher on VHF, our HF set being unserviceable at this time, but found to our consternation that they were unable to give us bearings, all their goniometric equipment having been withdrawn by the Americans some time previously. I therefore decided to descend to safety height in the hope of finding the cloud layered and broken enough to allow a land sighting. However, all that we could see in the gloom below were black rocks and icy patches speeding dimly past through the flurrying snow, and accordingly climbed up again into the sunshine at 14,000 ft. We could still raise nothing on our ADF and Frobisher VHF strength seemed neither to have increased nor decreased.

We were well past ETA when we noticed what appeared to be a sharp line or ridge in the cloud some miles to starboard and we accordingly flew over to investigate. To our intense surprise the cloud ended abruptly and fell sheer to the ground like a gigantic cliff.

Ahead of us was a pool of clear air, some 50 miles in diameter, through which the late night sun shone on miles of featureless rock and pools of ice and packed snow. Nowhere in sight was there a patch of ground on which even a Husky could have been put down. Far away to the left was a tongue of frozen water, larger than the other pools of ice, peeping shyly out from the blanket of snow clouds, like the toe of a bashful maiden from beneath a Victorian skirt. Frobisher radio suggested the name of a lake (which I never was able to find on my map) but, the more I looked at it, the more the V-shaped tongue of ice, with a small rock island in its apex, seemed by its alignment to correspond to the tip of Frobisher Bay, the huge 200 miles-long fjord at the head of which lies Frobisher airstrip.

This indeed it turned out to be, the

airstrip coming into view barely a mile outside the curtain of cloud and snow.

We were soon made wise after the event. VHF/DF facilities had been withdrawn by the Americans. The weak Frobisher beacon could often not be raised from the North. 'Micky Mouse' transistorised light weight ADF equipment had long since been discarded as lethal in these regions. June was the worst month in the Arctic, warmer moister air from the South being condensed as cloud and snow over vast areas of frozen sea and rock. Local 'Bush' aircraft (a misnomer, since no trees or bushes exist until some 500 miles further South in Labrador), operate strictly on a 'no see no fly' basis, etc., etc., etc. . . . If ever there was a case of learning the hard way — this was it.

While we were at Frobisher an Apache was grounded for almost a week, waiting to take two passengers to Resolution Island, little more than 200 miles away at the mouth of the fjord, but we were able to test the excellence of the Beagle service organisation. An alternator went unserviceable on a Saturday. That evening we telephoned to Shoreham and a replacement was in our hands by the Monday afternoon by the medium of a Pacific Western DC6 out of Gatwick. Even this impressive performance did not prevent our missing the only real break in the weather for almost a fortnight.

When we finally escaped from the Arctic down into Labrador and Northern Quebec, the flight was uneventful. The huge iron deposits and mines at Knob Lake sent our magnesian compasses spinning in wild circles, but our ADF needles remained faithfully locked on to the beacon and commercial broadcast station there. After the northern wastes, the little Labrador mining township seemed like a metropolis, with its houses, streets, cars and shops. Never had we been so glad to see civilisation.

From Labrador to Montreal is a fairly long haul, but cloud cover was not continuous and there were forests and lakes which could sometimes be identified from our excellent maps. We were seldom out of ADF range of either a radio beacon or a local settlement broadcast station, and the anxieties of the Arctic seemed far away, as indeed they

were.

The lush lands of border Canada; Montreal, Ottawa, Toronto, Goderich and the Lake country is impressive. Prosperous-looking small towns abound, with their airfields, and navigation aids are strong and well spaced. We were most impressed by Sky Harbour, run by John Hopkinson near Goderich, on the shores of Lake Huron. This thriving fixed base facility for private and business aircraft has a large and catholic sales turnover and specialises in really excellent external paint finishes. There can be few better ways of seeing the Niagara Falls than from the pilots' seats of the Beagle 206, with its wonderful downward and panoramic view. The flamboyance of the Canadian side contrasts with the workaday aspect of the American, which we found strangely paradoxical.

Flying as pilot in the States was a new experience. I had previously done much passenger flying in airlines there and had always been impressed by the apparently smooth handling of dense traffic. I had also been shown round a busy air traffic control centre, which had strengthened my admiration. Even then, the slick efficiency and commonsense helpfulness of the ATC network was refreshing. I am afraid that most other countries have much to learn in this respect. I can think of airports not too far from home who would be doing well to handle half the traffic in twice the time as seemed to be normal at La Guardia. Admittedly there was an internal airline strike, with its consequent stimulation of general aircraft movement, but only once did I detect a ripple of disturbance in the fast-moving stream of patter, which then ran 'Beechcraft XYZ, are you still behind Constellation ABC? If not, climb ta Hell outa here and get yourself resequenced!'

New York in a July heatwave is an empty and tedious phenomenon and a week of visits and negotiations there passed slowly. One day we were able to fly the President and senior executives of a well-known company from New York to Baltimore for a conference, returning the same evening. It was noticeable that these people spent most of the trip each way talking business and exchanging papers, the 1-2-2 inward-facing seating arrangement of Tango-

Lima's wide, quiet, partitioned passenger cabin lending itself ideally to this. The President remarked that the Beagle was the first comparable aircraft in which he had found this to be really practicable, and greatly praised its quietness and the well-damped smoothness of its 'ride'.

Southwards through Virginia, Tennessee, Mississippi, Alabama and Georgia to Florida was little more than a lazy joyride, with Tango-Lima's excellent autopilot doing all the work as we luxuriated from one VOR beacon to another, stopping occasionally to make our number with some of the better-known aircraft dealers. One of these, pre-eminent in American business aviation, after flying Tango-Lima, remarked of its closest competitor '... it just isn't in the same league as this ship'. It was most heartening to see how Tango-Lima made friends among such hard-bitten folk, many of whom had started by being a trifle cynical.

There was a warm and friendly welcome by David Lindsay and Berkeley Barron of Transflorida at Sarasota. Their Cavalier-Mustangs continue to combine nostalgia with modern business utility to a unique degree. Where else can one buy comfortable well-equipped two-seaters which cruise at 400 mph for about £12,000?

Across Florida we flew through and under some ferocious thunderstorms to Piper's splendid, modern Cherokee plant at Vero Beach, we found charming people and an excellent product, and must ensure that we remain even more charming and our product even better. Although I have lived and flown much in the tropics, I have never seen thunderheads build up as quickly as they do in midsummer Florida. With the Atlantic on one side in conflict with the much warmer Gulf on the other, and with a big lake and marshy flatlands in the centre of the peninsula, there must be a mighty mixing of local air masses of huge temperature differential, under the scorching near-tropical sun.

After the slick bustle of America, the Bahamas and the Caribbean islands seemed quiet and slow indeed. No wonder that more and more victims of the rat race seek rest in these lazy paradises, now being opened up in the jet age to massive tourism. So, too, are

the smaller islands, such as the Grenadine chain and Tobago, attracting the attention of the tourist industry. More and more airstrips and hotels are being built and small feeder-line aircraft have a big future there. At present, however, communications are very limited. It is normally easier to telephone New York or London than to contact the island next door, let alone the neighbouring South American countries, which might well be on the other side of the Moon.

Tango-Lima continued to perform with Rolls-Royce regularity. The long sea crossings, such as that between South Caicos and Antigua, held no terrors, as the radio beacons and commercial broadcast stations were strong and the weather mainly fine, although a short distance away, south of the Cuba-Haiti-Dominica land mass, a Caribbean storm was causing even United States M.A.T.S. aircraft to divert.

Piarco control and normal navigational aids operate effectively right down the Islands and the marine scenery around some of these, with its startlingly blue-green coral lagoons, is spectacular. Good nature, courtesy and efficiency were lacking on only one of these island airports, which shall remain nameless. Indeed, the reverse was shown in this one instance to such a marked degree by a pompous little official and the contrast with the charm normally found hereabouts was so great that we must have been unlucky.

Trinidad, which lies directly on the jet route between the U.S.A., Brazil and Argentina is a warm and hospitable little country, more advanced industrially and socially than are the other, smaller islands. Race relations are excellent and the key to men's hearts and confidences seems to be an interest in, and knowledge of, cricket, even though the Mecca of the game has now shifted to Barbados.

While there, adjustments had to be made to our autopilot and radio. We found, in British West Indian Airways at Piarco, one of the best equipped and most helpful maintenance setups which we have encountered anywhere. Would that half of their equivalents were half as good.

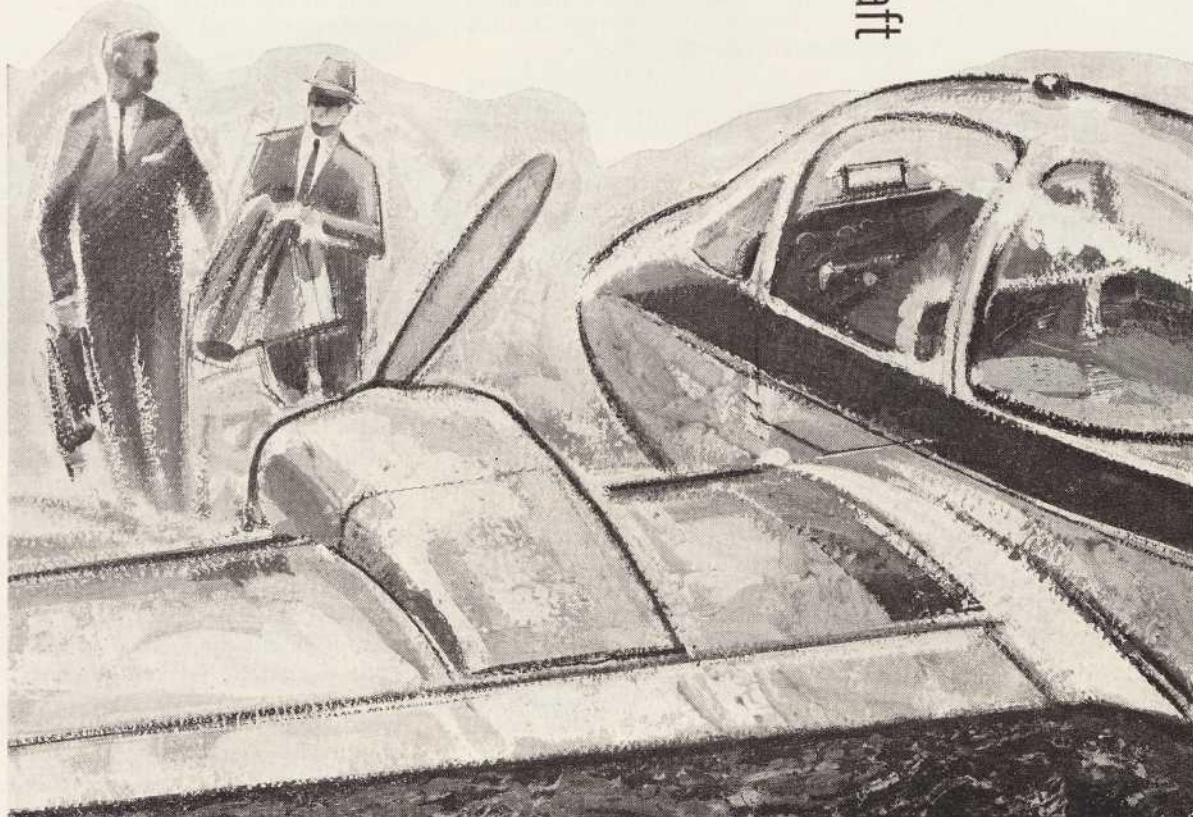
From Trinidad to Georgetown and Paramaribo involves flying over the

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blackest, densest jungle I have seen anywhere. The country round the Orinoco delta looks decidedly inhospitable, and we were glad of the steady hum of our two big Rolls-Continental engines and of the knowledge of Tango-Lima's good single-engine performance. Most of these flights were at 12-15,000 ft. and it was comforting to feel that we could stay right up there, if necessary, even on one motor.

We had an interesting dawn arrival at Zandery in Surinam. Although they were giving an 'actual' of clear skies and 20 miles visibility, we could see that the whole terrain for miles around was covered by seven-eighths of very low stratus, apparently at tree-top height; in other words, fog.

When virtually overhead we were able to locate the runway by seeing the vortices ploughed in the stratus by a large American transport as it lumbered into the clear air above. However, in response to our repeated challenges, Zandery tower continued to give us its splendid, clear 'actual' and we began to wonder whether we had arrived in time for the Hatter's tea-party.

Soon, through one of the remaining small gaps in the fog, we spied a small corner of the threshold stripes and followed our nose down towards it, to land with much relief in 'fifty feet - five hundred yards' conditions. There was, of course, no ILS there.

The Indian controller, from whose ample windows the tree-tops could be seen to be shrouded in fog, could not understand why I seemed to be incensed. He showed me his two-hour-old teleprinter strip and affirmed that he had been reading it clearly and accurately. It was more than his job was worth, he said, to deviate from it in any way.

The Amazon delta was one of the surprises of the trip. We had imagined endless vistas of dark, swampy jungle, as in the Orinoco area, but the reality was less harsh. There was much comparatively open bushveld, across which tracks and paths were clearly discernible, these sometimes leading to small huts or homesteads, beside which cattle could be seen grazing.

We entered the vast, loose-knit empire that is called Brazil through Belém,

capital of the state of Pará and a boom city of the rubber age in the twenties. To us, who for some weeks had not seen a town bigger than Port of Spain, Georgetown or Paramaribo, this city of nearly a million inhabitants seemed a splendid metropolis, with the afternoon sun slanting richly over block upon block of impressive modern-looking quasi-sky-scrapers stretching parallel to the wide, lazy southernmost branch of the Amazon.

Our experiences at the airport were less than happy, however. We had made the cardinal error of arriving on a Sunday, with little more than taxi-fare in Brazilian currency, over and above our travellers cheques. Moreover, our cable to the airline who were supposed to be handling us had gone astray and we arrived unheralded and (we began to suspect) unwanted.

Despite our tired pleas to be allowed to seek a bed in the town where we could cash our travellers cheques and return to pay our dues in the normal way on the morrow, we were held for nearly three hours in the airport buildings by a host of 'officials', with nothing in the way of uniform or badge to identify them, whose sole object seemed to be to find out how much cash in dollars, etc., we had on us, and to lighten us of it, in settlement of various improbable fees, notably taxis to the airport at an exorbitant rate. Nor would these people accept that ours was a 'private' trip, Tango-Lima being registered in the name of Beagle, rather than an individual. In these circumstances, said our tormentors ominously, special application would have to be made for authority to make a 'commercial' flight through Brazil; - and the granting of this might take many days, or even weeks.

Our spirits were at a low ebb as we booked in to our dull but not unpleasant hotel in the centre of the city, but they revived on a chance meeting with some charming and helpful fellow-countrymen of the Bank of London and South America, who took us to an 'atmosphere' restaurant on the banks of the Amazon and thereafter relayed details of our predicament to the British Consulate, who sprang into action willingly and effectively.

While at Belém we saw the biggest, clearest-cut and most 'textbook' tornado

that either of us had ever witnessed. Its massive snakelike trunk writhed powerfully some 5,000 ft. from a black thundercloud to the near banks of the Amazon, luckily just off-shore from buildings and small ships at their moorings. A keen look revealed its rapid internal gyration and it was easy to visualise the fate of any flying thing rash enough to venture too close. It would have made the photograph of a lifetime but, sadly, my cameras were locked up in Tango-Lima at the airport, some four miles away.

By contrast with our unhappy experience in Belém, we found the Brazilians elsewhere both charming and helpful. At Fortaleza, a fine-looking city of some 800,000 inhabitants, situated on the north-east coast facing the blue South Atlantic and flanked by vast white sandy beaches, we were taken in hand by the Brazilian Air Force, who looked after us superbly, and problems were minimal at Salvador and Rio. What a picturesque and impressive city Salvador (Bahia) is. Its modern quarter of sunlit skyscrapers stands commandingly and Manhattan-like on a tongue of land between the ocean and the huge harbour, surrounded by many miles of sprawling suburbs. Looking at these huge cities, with their ancient-and-modern aspects, one is reminded of the powerful growth of a self-generating economy, which has in modern times grafted itself on to a relatively old and once stagnant country, as yet so little known to the Anglo-Saxon. Bahia itself has nearly 500 years of history behind it.

Flying conditions southward to Rio were good, apart from an inter-tropical frontal belt, some 200 miles wide, south of Salvador. Luckily, visual conditions prevailed until we made a landfall near Canaveiros, and we were able to detect and correct an error of nearly 15° in the outbound alignment of Salvador VOR transmitter. We later found that this was well known, but nobody had thought to warn us.

Conditions at Rio were perfect and the evening sun slanted down upon that vast and beautiful city nestling among its grotesque mountains, to which postcards and tourist views never do justice.

After a day or two in Rio it was time to

move on southward. A visit to Sao Paulo, largest skyscraper metropolis in the Southern Hemisphere, and probably the second largest in the world, could unfortunately not be justified and we made a flight plan to Montevideo, with a fuelling stop at Porto Alegre, southernmost of Brazil's big cities, some 800 miles away. The weather was not good, heavy low cloud and rain prevailing and a headwind of some 25 knots being forecast for the whole journey. However, both Rio and Sao Paulo have excellent letdown facilities and Curitiba, not far off track about half way, was shown to have a VOR right on its airport.

Accordingly, we took off and slid upwards into the murk at a few hundred feet above Rio Harbour, not to emerge until we had topped 10,000 ft. and were established on an ADF back track from an island off Copacabana.

Facilities in that metropolitan part of Brazil are virtually of European standard and Tango-Lima sailed along above the weather with no navigational problems. However, as beacons and cross-fixes succeeded each other on our charts, it became plain that we were making very slow progress and that the headwind must have been some 60 knots, rather than the 25 forecast. Our computer made it increasingly plain that we would not reach Porto Alegre with IFR reserves, very necessary in this case as the terminal forecast was marginal and no other suitably equipped alternate existed for many hundreds of miles. We were just about to propose a diversion to Sao Paulo control, with whom we were still in fitful contact, when they forestalled us, instructing us to make for Curitiba, some 200 miles south of us and 50 miles inland between mountains. Curitiba were, they said, giving a cloud base of 1,200 ft. with slight rain and 10 km. visibility; — not bad for a VOR let-down.

About an hour later, however, when we had established VHF contact with Curitiba, despite some language difficulty, we were told that their weather had deteriorated to a cloudbase of 200 ft., continuous rain and 2 km. visibility. As we had by now been flying for some time in the unusual and depressing conditions of extremely heavy and continuous rain at 11,000 ft., this was disheartening news,

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especially as we now had barely enough fuel to return to Sao Paulo or Campinas, as well as to make a new climb to height.

Just then a friendly and encouraging American voice broke in, loud and clear, saying 'I've just left Curitiba. I think that, if you make a careful and accurate VOR letdown, you'll find you can locate the runway. Good luck!' Careful it was and accurate it proved to be, for we broke cloud at little more than tree-top height to see the runway directly through the rain almost dead ahead, and to splash with relief on to its now flooded surface. We were grateful to the Beagle development team who had endowed the 206(S) with such exceptionally good instrument handling characteristics.

Curitiba, like so many Brazilian cities, proved an impressive surprise. Instead of the sleepy country town which we had visualised, we found a teeming industrial metropolis of about the same size and population as Manchester, but of much more modern and imposing aspect, with its many blocks of tall buildings, the top halves of which were, however, hidden much of the time in the heavy, low overcast, from which the rain poured with tireless ferocity. The city lies at 3,000 ft. in a basin surrounded by mountains, from which the ubiquitous thunder reverberated endlessly for two whole days. Not even in Glasgow had either of us seen so many umbrellas and I was forced to buy the local product for about 16s. It is still giving good service and is, like much else in Brazil, sterling value.

On the third day, the enormous area of bad weather was said to have cleared Porto Alegre and we climbed once more into the low rainy overcast, to break out into sunlight at 9,000 ft. and to sail along serenely above the unbroken cloud with Florianopolis commercial radio already established on our ADF and promise of an end to the cloud some 200 miles ahead.

This came abruptly and we found ourselves on the coast, right on track and with almost a 100 miles of clear visibility ahead. So perfect did this weather remain for the whole 800 miles past Porto Alegre and Montevideo to Buenos Aires that we could have flown without even a compass, let alone nav aids. Indeed this was lucky as we were unable to raise any

of the distant (alleged) NDB-s, from which airways fixes were supposed to be obtained.

What a splendid finish to a long, long saga this was.

Before being handed over to her new owners, Compania Argentina de Aero-Taxi S.C., who are now Beagle distributors, Tango-Lima was honoured by an inspection by H.R.H. The Duke of Edinburgh, who remarked to the waiting pressmen how much he had admired the handling of one of its counterparts, when he had tried it in England.

As I finish these notes, a letter from Compania Argentina de Aero-Taxi has just been placed on my desk and I must quote from it, — 'I am pleased to report that our "Beagle No. 1" is a hit with our flight customers here . . . Our competitors have nothing to criticise and marketing conditions for new Beagles seem to confirm our earlier predictions.'

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(below) Tango Lima at Montevideo, Uruguay.

(bottom) Tango Lima at Saint Justo Airfield near Buenos Aires.





BEAGLE throughout the world





A PACK OF BEAGLES – The Beagle
fly-past at Farnborough.
(Photo: Copyright Flight International)