Anson file

PROPOSAL FOR REMOVAL OF AVRO ANSON AIRCRAFT FROM THE REGISTER

D.G.C.A.

Introduction:

The following paragraphs give a history in outline of the Avfo Anson aircraft, the particular aircraft in current use in Australia and the use to which they are put and makes a case for the removal of the type from the Australian Register of Aircraft.

2. The Anson's Historical Development.

The Anson has its origin in 1933 when a low wing commercial monoplane designated the Avro 652, was designed and built by A.V. Roe to the order of British Imperial Airways.

The aircraft was of the same composite type of construction as the MK.I Anson of today, having a wooden box spar, plywood covered wing and a fabric covered tubular steel welded fuselage.

It was built to meet the design requirements of the then current issue of Air Publication 970.

A military version of the Avro 652, designated the 652A or military Anson MK.I went into service with the R.A.F. as a reconnaissance aircraft in 1936. The MK.I was structurally similar in all respects to the Avro 652.

Early in World War II the MK.I Anson was diverted from its operational role to that of advanced trainer. It was selected as the standard twin engine trainer for the Empire Air Training Scheme and large numbers were built by A.V. Roe in England and by Federal Aviation, through sub-contractors in Canada. Numerous variants were introduced to fill the roles of gunnery trainers, navigation trainers and W/T trainers.

Some very late English built Marks were fitted with metal wings and tailplanes, higher powered engines and power operated flaps and undercarriage. These formed the basis of the CXIX commercial transport offered by A.V. Roe shortly after the war. One of these aircraft is currently operating in New Guinea and is not involved in the general problem associated with the MK.I's.

Anson production ceased in May, 1952 and ~~it is of interest to note that~~ from 1933 to that date 10,020 Ansons had been constructed. Of these 8,138 were built by A.V. Roe in Britian and 2,852 under the auspices of Federal Aviation in Canada.

In the immediate post-war years the R.A.A.F. offered large numbers of MK.I Ansons for public disposal. These aircraft were virtually the same as the MK.I delivered to the R.A.F. in 1936. They reflected many obsolescent design features and were not particularly well suited to commercial operations. However, they were low in price and better types were not immediately available, they therefore commanded a ready sale to operators and intending operators.

3. Structural Problems in Australian Operations.

During the course of their civil operations in Australia the MK.I Ansons have exhibited, in full measure, the deterioration inherent in the plywood covered box spar type of wing construction.

The defects took the form of separation of spar web joints and spar lamination due to the use of unsuitable formulations of urea formaldehyde glue, and accelerated deterioration of both glue and timber, due to rot, fungus and moisture encountered in humid areas.

The problem of suitable glues was brought under control by an extensive inspection and modification campaign, but occasional cases of minor separation from this cause still occur.

The accelerated deterioration and effects of humidity have been safeguarded against by the introdudtion of a rigorous inspection at each renewal of a Certificate of Airworthiness. However, this inspection can do no more than provide an indication of the condition in critical areas, it is quite impracticable to open up the wing sufficiently to permit a one hundred per cent examination of the structure.

Further, for the inspection to be effective it must be performed by someone highly experienced in wood and glue constructions. With the advent of metal aircraft such people are rapidly disappearing from the aviation industry.

In any case the inspection will only pick up deterioration when some indication such as water staining, fungus or separation of the edge of the glue line is present and this constitutes one of our greatest problems.

There is an abundance of reliable experimental evidence that, even under favourable conditions, glued joints may lose up to 60% of their strength over a period of ten years due to a process of polymerisation in the glue itself.

There is no reliable non-destructive method of testing for the progress of this type of deterioration which becomes apparent only when separation of the joint occurs. To complicate the issue, the rate of deterioration is not uniform and can be strongly influenced by variations in the formulation of the glue and the efficiency of the glueing techniques employed.

4. The Current Domestic Situation:

Because of repeated failures in the glued joints of the aircraft we saw fit some three years ago to demand very intensive inspections to be made and as a result a number of aircraft were written off as being beyond economical repair. For those remaining we issued an order covering the following three points:-

(a) No more of the type could be brought onto the Register;

(b) No such aircraft then registered in the private category could be transferred to any other category of operations;

(c) Any aircraft registered in regular public transport, charter or aerial work operations could not be transferred from the operator in whose name they were registered to any other operator, the only transfer permitted being into the private category.

The results of the inspections and the order regarding registration has had good results and the number on the register fell rapidly. However, there are still 23 on the register though only 10 have current certificates of airworthiness.

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5. The following Table I shows the position in relation to each of these aircraft:-

Registration	Owner	C. of A Position	Annual Utilization in hours	Work engaged upon	Remarks
AGA	Sepal Pty.Ltd. Subsidiary of Adastra	Expired 8/3/61 undergoing extensive overhaul for renewal.	300	Photographic Survey	
ASM	Marshall Airways	Expires 8/9/61	150	Joy flights and Charter	This Operator regards his Ansons as the main aircraft of his fleet.
AZX	Marshall Airways	Expires 2/3/62	150	do	do During weekends the two Ansons may carry 40 to 50 passengers.
BAB	Brain & Brown	Expired 13/7/60			
BAF	Aero Cartographic	Expired 4/11/60 but metal wings now being fitted.			
BBI	Gillham Airways	Expired 20/7/60			
BEL	Lewis Kalgoorlie	Expires 8/7/61	100	Photographic	
BEV	Gillham Airways	Expired 17/11/58			
BIZ	Carsair	Expired 30/5/59			
BKU	Papuan Air Transport	Expired 9/5/59			
BLF	Sepal Pty.Ltd. Subsidiary of Adastra.	Expires 19/12/61	300	Geophysical & Photographic Survey	
BIG	Lonergan	Expired 7/4/58		Private	
BSF	Brain& Brown	Expires 1/12/61	500	Freight run Melbourne to King Island	
BXC	Bell Bros.	Expired 21/11/60			Superseded by A Cessna 182

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Registration	Owner	C. of A. Position	Annual Utilization in hours	Work Engaged Upon	Remarks
EFR	Papuan Air Transport	Expired 13/10/59			
EWZ	Oddgard W.A. Boring Co.	Expires 27/5/61	50	Private	Carries owner around on Boring contracts.
FIA	Flinders Island Airlines	Expires 15/12/61	750	Carriage of news-papers and aerial photography	
FIC	do	Expires 1/7/61	750	do	
MMC	Papuan Air Transport	Expired 12/10/58			
MMH	MacRobertson Miller	Expires 6/9/61	160	Photography	Was used in Charter ops. but has not carried pass-engers for over 6 months.
RAS	Robbys Aerial Services	Expired 28/9/59			
WAB	Woods Airways	Expires 7/12/61	260	RPT and Charter	Carries about 4,500 passen-gers per year.
WAC	Woods Airways	Expired 2/12/58			

It will be seen from the above Table the only aircraft in current use are:-

AGA and BLF on photographic and geophysical work with Sepal (Adastra)
ASM and AZX on joyriding and charter work with Marshall
BEL on phogography with Lewis
BSF on a freight run with Brain and Brown
FIA and FIC on a freight run with Flinders Island Airways.
MMH on photography with MacRobertson-Miller
WAB on regular public transport and charter with Woods Airways.

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6. Performance:

The aircraft has no performance with one engine inoperative with the result that loss of an engine during take-off could be and has been disasterous while loss of an engine at height means that the glide can be stretched which does allow some choice as to where the aircraft can be put down. As the chance of failure of an engine in the two engined case is greater than in the single engined case and as performance wise the Avro Anson is only a single engined aircraft it follows that the risk of an accident occurring with the Anson is greater than with a single engined aircraft having a comparatively similar engine.

The following Table II sets down the accidents to Avro Anson Aircraft which have occurred here over the last 10 years and which can be attributed to the loss of an engine and this table clearly indicates the poor performance of the type with engine out of action.

ACCIDENTS INVOLVING PERFORMANCE OF AVRO ANSON AIRCRAFT

1951 - APRIL, 1961

File No.	Date	Operator	Aircraft	Location
410/4/68	14.7.51	Butler Air Transport	VH-BAB	Swansea, N.S.W.

The aircraft was destroyed in a forced landing in the sea ¾ mile off-shore following failure of the port engine. The pilot and all ten passengers were uninjured.

410/4/78	13.1.52	Overland Air Services	VH-BFI	Padstow, N.S.W.

The aircraft collided with trees, crashed and was destroyed by fire when forced to descend over unsuitable terrain following failure of the starboard engine. The pilot and one passenger were killed and the other passenger was seriously injured.

510/3/50	17.1.53	Adastra Aerial Survey	VH-BKZ	Moorabbin, Vic.

The aircraft was substantially damaged when it was unable to climb away following failure of the port engine due to fuel starvation just after becoming airborne.

510/3/41	3.4.53	Adastra Airways	VH-BNS	Moorabbin, Vic.

The aircraft was substantially damaged in collision with fences when the pilot abandoned a take-off following alleged, unconfirmed failure of an engine just after becoming airborne. The three crew members and one passenger were uninjured.

6/155/431	20.9.55	Brain and Brown	VH-BAB	Rosebud, Vic.

The aircraft was substantially damaged in a forced landing on unsuitable terrain when unable to maintain height following a failure of an engine. The two crew members were uninjured.

6/257/354	1.10.57	E.H. Loneragan	VH-BLD	Mudgee, N.S.W.

The aircraft sustained minor damage in collision with the fence of a field in which a forced landing was being attempted following failure of the port engine. The pilot was uninjured.

6/160/48	10.2.60	Flinders Island Airlines	VH-FIB	Loch, Vic.

The aircraft crashed out of control from a low height and was destroyed by fire following attempts to jettison the cargo when the starboard propeller was observed to be windmilling. Both crew members were killed.

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File No.	Date	Operator	Aircraft	Location
6/661/58	23.3.61	Air-Culture Pty.Ltd.	VH-BIX (Avro C19)	Near Lancelin Is., W.A.

The aircraft sustained minor damage in a forced landing following failure of the starboard engine. The pilot was uninjured.

7. 7. Proposed Action :

Having regard to the history of this aircraft and the small use made of it in the Australian scene, I consider it is time we put a definite life on the type. It will be seen that Marshall and Woods are the only people who use the aircraft in passenger operations. Of these Marshall's operations are themore hazardous as he uses his aircraft for joyriding and the frequency of take-offs which takes place in this form of operations means the probability of an engine failure occurring at take-off becomes fairly high. Of course with Woods there is ever present the possibility of a landing in the sea as occurred with Butler at Swansea in 1951.

I consider we should prohibit the carriage of passengers in this type of aircraft as from 1st January, 1962. It is to be noted that Marshall regards his Ansons as the main aircraft of his fleet, but I consider this should not be allowed to sway our judgement, particularly because of the hazards which exist with the type of operation he conducts as mentioned above.

As regards the other aircraft, I consider we should ban the operation of the aircraft on Bass Strait or any large over water run for obvious reasons, this also to take effect as from 1st January, 1962. Finally, I consider any such aircraft remaining on the Register as at the 1st July, 1962 be struck off the Register and their Certificates of Airworthiness cancelled.

8. Recommendation :

I recommend you approve the lines of action put forward in the above proposals.

19th May, 1961

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(C. S. Wiggins)
Assistant Director-General (Operations)

Stencil

Encl 21

15 All Anson Owners & Operators

6 Regions

1 CALO.

1 CAA.

LRE/MW/LEGAL

10/7/61

P.R.D.

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Dear Sir,

In 1958 a policy was established to limit the utilisation of Avro Anson as part of a long range plan to eventually phase out this type of aircraft. At that time measures were initiated to ensure that:-

(i) No more of this type of aircraft could be imported or brought on to the Register.

(ii) No such aircraft on the Register in the private category could be transferred to Airline, Charter or Aerial Work Operations; and

(iii) Any such aircraft then employed on Airline, Charter or Aerial Work Operations could not thereafter be transferred to any other operating classification; that is, on transfer they could only revert to private operations or be de-registered.

The guiding purpose which dictated the necessity for such action stemmed from consideration of the general structural deterioration of the glued ply construction used in the wings and tailplanes of this aircraft type.

Since then my Department has undertaken a critical examination of the various other aspects associated with the operation and maintenance of these aircraft with a view to establishing the next phase in the overall plan of retirement.

I have decided to make it a condition of every Certificate of Airworthiness of an Avro Anson aircraft on the Australian register that after 1st January, 1962, the aircraft shall not be used for the carriage of passengers in any class of operations and shall not engage in any flying operations involving flights over water. An Air Navigation Order notifying these conditions will be promulgated shortly.

Each and every approval given in pursuance of the power conferred by regulation 249 of the Air Navigation Regulations whether by me or by any person acting in pursuance of powers delegated by me for the flight of Anson aircraft over water is hereby revoked.

In future a Certificate of Airworthiness of an Anson aircraft employed in any type of operations will not be issued for a period extending beyond 30th June, 1962, and any Certificates of Airworthiness expressed to be in force beyond that date will be cancelled as from that date.

Yours faithfully,

(D.G. Anderson)
Director-General of Civil Aviation.

FOR PRESS:

MK. 1 ANSONS TO BE GROUNDED

All Mark 1 Anson aircraft operating in Australia will be grounded and removed from the Aircraft Register on July 1st, 1962.

As a preliminary step, Mk. 1 Ansons will not be permitted to carry passengers or operate over water flights from January 1st, 1962.

The Director-General of Civil Aviation, Mr. D. G. Anderson, announced this today.

Only nine Mk. 1 Ansons are still flying in Australia - three in W.A., three in Victoria and three in N.S.W. They are used mainly for freight runs and charter work.

Woods Airways of Western Australia still uses a Mk. 1 Anson on its 26-mile passenger service between Perth and Rottnest Island.

Mr. Anderson said, "I regret to see the passing of what was in its day a fine aircraft. It was designed in 1933 and its 28-year-old wooden wing construction with glued joints is not good enough in this modern age. The glued joints of the Mk. 1 Anson wing can deteriorate with age, and the aircraft has a poor performance if one of its two engines fails".

(All airliners now operating in Australia, including the DC-3, are of all-metal construction).

Mr. Anderson said that three years ago the Department of Civil Aviation had demanded more intensive and more frequent inspections of Mk. 1 Ansons. These inspections would hold the airworthiness position of the aircraft for the time being.

The Department also directed at that time that no more Ansons should be brought onto the Aircraft Register, and that no privately owned Anson could be transferred to passenger or charter work. This had resulted in a sharp decline in the number operating in Australia. Only nine were still flying.

"Because of the Mk. 1 Anson's age, its particular airworthiness problems, its poor engine-out performance, and the availability of better aircraft, we have now decided to phase it out of operation", Mr. Anderson said.

This decision may cause some hardship to two or three operators who will have to obtain more modern aircraft to continue. However, the decision to retire these aircraft is essential in the interests of public safety".

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CANBERRA.

JULY 18, 1961.

Issued by:

Public Relations Officer,
Department of Civil Aviation.