Avro 652 Anson

Avro 652 Anson français en formation

En 1935, Roy Chadwick conçut un avion de transport léger pour 6 passagers, l'Avro 652. Celui-ci vola le 7 janvier 1935 et ne fut construit qu'à deux exemplaires, pour Imperial Airways. Ils seront d'ailleurs réquisitionnés par la Fleet Air Arm en 1941 et utilisés jusqu'en mars 1942. Avro proposa rapidement une version militarisée de l'Avro 652, dans un rôle de patrouille maritime. Cet appareil, l'Avro 652A, vola pour la première fois le 24 mars 1935. Il fut baptisé Anson en référence à Georges Anson, un amiral du 18e siècle. La spécification 18/35 concernant un bimoteur de reconnaissance côtière fut alors taillée sur mesure autour de cet appareil. Il fut le premier avion monoplan de la RAF à disposer d'un train d'atterrissage rétractable. Cependant, il ne fallait pas moins de 140 tours de manivelle pour rentrer intégralement le train, ainsi les premiers exemplaires volaient sans rentrer le train. Cela abaissait la vitesse de 50 km/h. Son fuselage était métallique et ses ailes en bois. 174 Anson I furent alors commandés. Cette version disposait d'une tourelle dorsale avec une unique mitrailleuse Lewis 0.303, 2 bombes de 45 kg en soute et 8 bombes de 9 kg sous voilure ou des grenades, fumigènes et fusées éclairantes. Il entra en service le 6 mars 1936 au sein du 48e escadron de la RAF (Coastal Command). Il fut vendu avant-guerre à l'Australie (1028 exemplaires de 1936 à 1955), l'Egypte (20 Anson I dès 1938), à l'Estonie (1 Anson I de 1936 à 1940), à la Finlande (3 Anson I de 1936 à 1947), à la Grèce (48 Anson I de 1939 à 1959 : 4 Anson XII seront en service de 1945 à 1946), et à l'Irlande (9 Anson I de 1937 à 1946, suivis par 3 Anson C.19 de 1946 à 1962). En 1940, il fit partie d'un programme destiné à fournir tout le Commonwealth en avions d'entraînement. Lors de la déclaration de guerre, l'Anson I équipait 26 escadrons, 10 au sein du Coastal Command et 16 au sein du Bomber Command. Mais il était dépassé dans ces 2 rôles et remplacé respectivement par l'Hudson et le Whitley. Un Anson attaqua par erreur l'HMS Snapper, mais la faiblesse de son armement fit qu'il n'endommagea que des feux de position.

Avro 652 Anson C.19 irlandais

Plus remarquable, 3 Anson furent attaqués par 9 Bf 109 lors de l'évacuation de Dunkerque : 2 Bf 109 furent abattus et un troisième endommagé, sans aucune perte pour les Anson. Cependant, le rôle pour lequel l'Anson fut le plus employé fut l'entraînement au pilotage d'avions multimoteurs. Il faut savoir que le pilotage d'un multimoteurs diffère considérablement de celui d'un monomoteur, ne serait-ce qu'au niveau de la gestion des pannes. Il servit non seulement à l'entraînement au pilotage de bombardiers, mais aussi à la navigation, au bombardement et à l'utilisation des mitrailleuses. Pendant la seconde guerre mondiale, il fut vendu à l'Afrique du Sud (698 Anson I et 52 Anson IV), au Canada (1528 exemplaires au sein de la force aérienne et de la marine de 1940 à 1952), à la France (233 Anson I au sein de l'Armée de l'air, 259 au sein de l'Aéronavale de 1943 à 1951), à l'Inde (7 exemplaires de 1942 à 1945), à l'Irak (33 Anson I de 1940 à 1953), à l'Iran (48 exemplaires de 1943 à 1951), aux Pays-Bas (17 Anson I vendus à la marine en 1940, suivis par 26 Anson I vendus à la force aérienne en 1946 et utilisés jusqu'en 1953) et à la Turquie (6 Anson I de 1940 à 1946). Après la guerre, il continuera à servir tant dans ce rôle que dans celui de transport et de liaison. La RAF retira ses derniers Anson le 28 juin 1968. Il continua à être produit, en particulier pour un usage civil. Des Anson seront vendus à des opérateurs civils au Bahrein, au Brésil, à Cuba et au Royaume-Uni. Il fut vendu après guerre à l'Afghanistan, à la Belgique (15 Anson I et 2 Anson Mk 12 de 1946 à 1954), à l'Ethiopie (2 Anson 19 de 1946 à 1949)), à Israël (9 exemplaires de 1949 à 1956), à la Norvège (11 exemplaires de 1946 à 1951), au Paraguay (1 Mk V ex-argentin acquis en 1947), au Portugal (10 Anson I de 1947 à 1956), à la Rhodésie (5 Anson I, 3 T.19 et 3 T.20), à la Syrie (6 exemplaires), à la Tchécoslovaquie (3 exemplaires de 1945 à 1948) et à la Yougoslavie (5 Anson I à partir de 1951). Il fut aussi vendu à l'Arabie Saoudite (1 Anson I) et à l'Argentine. 11020 exemplaires furent ainsi produits jusqu'en mars 1952, ce qui en fait le deuxième bimoteur britannique le plus produit après le Wellington. Il fut surnommé "Faithfull Annie" par ses équipages. Aujourd'hui, cinq exemplaires sont en état de vol : le dernier fut restauré pendant 10 ans en Nouvelle-Zélande avant de reprendre l'air le 18 juillet 2012.

Source : https://aviationsmilitaires.net/v3/kb/aircraft/show/1621/avro-652-anson

Version anglaise Wikipédia

The **Avro Anson** is a British twin-engine, multi-role aircraft built by the aircraft manufacturer Avro. Large numbers of the type served in a variety of roles for the Royal Air Force (RAF), Fleet Air Arm (FAA), Royal Canadian Air Force (RCAF), Royal Australian Air Force and numerous other air forces before, during, and after the Second World War. Initially known as the *Avro 652A*, the Anson was developed during the mid-1930s from the earlier Avro 652 airliner in response to a request for tenders issued by the British Air Ministry for a maritime reconnaissance aircraft. Having suitably impressed the Ministry, a single prototype was ordered, which conducted its maiden flight on 24 March 1935. Following an evaluation in which the Type 652A bettered the competing de Havilland DH.89, it was selected as the winner, leading to Air Ministry Specification 18/35 being written around the type and an initial order for 174 aircraft being ordered in July 1935. The Type 652A was promptly named after British Admiral George Anson. The type was placed into service with the Royal Air Force (RAF) and was initially used in the envisaged maritime reconnaissance operation alongside the larger flying boats. After the outbreak of the Second World War, the Anson was soon found to have become obsolete in front-line combat roles. Large numbers of the type were instead put to use as a multi-engine aircrew trainer, having been found to be suitable for the role, and became the mainstay of the British Commonwealth Air Training Plan. The type continued to be used in this role throughout and after the conflict, remaining in RAF service as a trainer and communications aircraft until 28 June 1968. During the post-war climate, the Anson was increasingly produced for the civil market, being used as a light transport and executive aircraft. By the end of production in 1952, a total of 8,138 Ansons had been constructed by Avro in nine variants; in addition, a further 2,882 aircraft were manufactured by Federal Aircraft Ltd in Canada from 1941. By the 21st century, the vast majority of Ansons had been retired from flying. However, a single Anson Mk. I, which had been originally manufactured during 1943, had been restored to airworthiness, having been refitted with later metal wings. On 18 July 2012, this restored aircraft performed its first flight.

Development

In 1933, the British Air Ministry proposed that the Royal Air Force (RAF) acquire a relatively cheap landplane for coastal maritime reconnaissance duties; the proposed aircraft would perform as a supplement to the more capable, but expensive, flying boats which the RAF had adopted for conducting maritime reconnaissance missions. The Air Ministry looked for designs from British manufacturers. Avro responded to the request with the *Avro 652A*, which was a modified version of their earlier Avro 652, a twin-engined, six-seat monoplane airliner. de Havilland offered a design based on their D.H.89A Dragon Rapide biplane. After evaluating the various submissions received, the Air Ministry decided to order from Avro and de Havilland respectively, single examples of the Type 652A and the de Havilland DH.89 for evaluation purposes late in 1934; an evaluation and the subsequent selection of a design for production to take place by May 1935.[1][2] On 24 March 1935, the Avro 652A conducted its maiden flight at Woodford Aerodrome, Greater Manchester. Between 11 and 17 May 1935, the prototype participated in a formal evaluation against the competing DH.89M by the RAF's Coastal Defence Development Unit at RAF Gosport, Hampshire. During these trials, the Avro aircraft proved to be superior and was accordingly selected as the winner of the competition on 25 May 1935.[3] In response to its selection, Air Ministry Specification G.18/35 was written around the Type 652A; in July 1935, an initial order for 174 aircraft, which had been given the service name "Anson", was received.[4] On 31 December 1935, the first production Anson performed its maiden flight; changes from the prototype included an enlarged horizontal tailplane and reduced elevator span in order to improve stability. Additionally, while the prototype had not been fitted with flaps, production aircraft could accommodate their installation from the onset to increase the viable glide angle and reduce landing speed.[5] On 6 March 1936, deliveries to the RAF commenced.[6] By the end of production in 1952, a total of 11,020 Ansons had been completed, which made it the second most numerous (after the approximately 11,500 Vickers Wellington medium bomber) British multi-engined aircraft of the Second World War.[7]

Design

The interior of an Anson C Mark XI, looking forward from the passenger compartment towards the cockpit

The Avro Anson was a twin-engine, low-wing cantilever monoplane. Developed as a general reconnaissance aircraft, it possessed many features that lent itself to the role, including considerable load-carrying ability, and long range.[8] The structure of the Anson was relatively straightforward and uncomplicated, relying on proven methods and robust construction to produce an airframe that minimized maintenance requirements.[8] Much of the internal structure retained similarities to the earlier Avro 652 airliner from which it had been developed. The Anson Mk I was furnished with a low-mounted one-piece wooden wing, composed of a combination of plywood and spruce throughout the wingbox and ribs. The fuselage was composed of a welded steel tubing framework which was principally clad in fabric; the exterior of the nose was clad in magnesium alloy.[8] The Anson was powered by a pair of Armstrong Siddeley Cheetah IX seven-cylinder air-cooled radial engines, which were each rated at 350 horsepower (260 kW).[9][5] Each engine was provided with its own duplicated fuel pumps and separate fuel and oil tanks; the tanks were composed of welded aluminium and mounted in cradles housed within the wing. The engine cowlings were intentionally designed to have a reduced diameter in order to reduce their negative impact on external visibility, which was considered to be valuable to the type's reconnaissance function.[8] These engines drove two-bladed Fairey-built metal propellers.[5] The Anson was the first aircraft equipped with retractable landing gear to enter service with the RAF.[8][10] While the main undercarriage was retracted into recesses set into the bottom of the engine nacelles, the tail wheel was fixed in position.

Commonly, the undercarriage was fitted with Dunlop-built wheels, tyres and pneumatic brakes and Turner legs.[5] The retractable undercarriage was mechanically operated by hand; 144 turns of a crank handle, situated beside the pilot's seat, were needed.[11][12] To avoid this laborious process, early aircraft would often perform short flights with the landing gear remaining extended throughout, which would reduce the aircraft's cruising speed by 30 mph (50 km/h).[7]

G-VROE, a preserved Anson C.21 operated by the Classic Air Force, 2005

Initially, the Anson was flown with a three-man crew, which comprised a pilot, a navigator/bomb-aimer and a radio operator/gunner, when it was used in the maritime reconnaissance role;[13] from 1938 onwards, it was typically operated by a four-man crew.[14] The bomb-aimer would perform his function from a prone position in the forward section of the nose, which was provisioned with a bombsight, driftsight, and other appropriate instrumentation, including a landing light. The pilot was located in a cockpit behind the bomb aimer's position and was provided with a variety of contemporary instrumentation, including those to enable flight under instrument flight rules (IFR) and indirect instrument lighting for night flying purposes.[15] Immediately behind the pilot's position is a small folding seat fixed to the starboard side of the fuselage for an additional crew member or passenger, along with racks that would contain a pair of parachute packs that would be clipped onto the harnesses worn by both the pilot and the navigator. Behind these is the navigator's station, a chair and table provisioned with navigational aids such as compasses, Bigsworth chart boards, sea markers, slide rules for course, wind and speed, a signalling lamp and float flares.[13] Aft of the rear spar is the wireless operator's station – a table with contemporary wireless equipment, including a winch for the trailing aerial, which was attached to the upper fuselage immediately behind the aircraft's cockpit.[13] The armaments of the Anson consisted of a single .303 in (7.7 mm) Vickers machine gun which was fixed within the forward fuselage and aimed by the pilot, while an Armstrong Whitworth-built manually operated gun turret located on the Anson's dorsal section was fitted with a single Lewis gun.[13] Additionally, up to 360 pounds (160 kg) of bombs, which could consist of a maximum of two 100 pounds (45 kg) and eight 20 pounds (9 kg) bombs, could be carried in the aircraft's wings.[16]

Those Ansons that were used in the training role were outfitted with dual controls and usually had the gun turret removed, although specific aircraft used for gunnery training were fitted with a Bristol hydraulically operated gun turret, similar to that used in the Bristol Blenheim.[17][18] The tail fairing of the starboard nacelle contains an inflatable dinghy which is provided with automatic actuators and marine distress beacons.[13]

Operational history

RAF Ansons conducting trials with airborne radar in 1937.

On 6 March 1936, the Anson entered RAF service, No. 48 Squadron was the first RAF unit to be equipped with the type. Upon the type's introduction, it represented a new level of capability for the service, serving not only in a general reconnaissance capacity but also being an effective general-purpose aircraft[8] In July 1937, a Coastal Command Anson was fitted with an experimental airborne early warning radar which was able to detect large warships 5 miles (8.0 km) away in poor visibility and was successfully used in fleet exercises off the east coast of England in September.[19] By the outbreak of the Second World War, the RAF had received a total of 824 Ansons while there were 26 RAF squadrons that were then operating the Anson I: 10 of these were assigned to Coastal Command and the other 16 were with Bomber Command.[20] By 1939, all of the squadrons assigned to Bomber Command that had been equipped with the Anson I served as operational training squadrons which were used to prepare crews for frontline service. 12 of the squadrons were in No. 6 (Operational Training) Group. Newly formed crews, having previously completed individual flying and technical training courses, were first trained as bomber crews in Ansons before advancing to the various frontline aircraft types, which were in the same squadrons with the Ansons. After training the crews would advance to the frontline bomber squadrons with aircraft such as the Fairey Battle, Bristol Blenheim, Vickers Wellington, Armstrong Whitworth Whitley or Handley-Page Hampden.

An Anson of No. 320 (Netherlands) Squadron, Coastal Command, about to take off on a patrol mission, circa 1940–1941

Even before the start of the war, it had been realized that the Anson's limited capabilities would make it ineffective in its intended main role as a maritime patrol aircraft. In 1938, it had been decided to replace the Anson in this role with the American-built Lockheed Hudson, which was 100 mph faster, had three times the range, carried a much heavier bomb load and had a superior defensive armament. The first squadron to be reequipped with the type was already training with them in September 1939. Meanwhile, the remaining Coastal Command Anson squadrons had to go to war with what they had. The Anson had an endurance of only four hours so it could only be employed in the North Sea and other coastal areas; however, it lacked the range to reach the coast of Norway. Its weapons against German U-boats were two small 100 lb bombs, which required a direct hit on the hull of a submarine to be effective, at least in theory. On 3 December 1939, an Anson mistakenly attacked a surfaced Royal Navy submarine, HMS *Snapper*, and although the aircraft succeeded in hitting the conning tower, the only damage was four broken light bulbs. In an earlier friendly fire incident off the coast of Scotland in September, the bombs of an Anson of No. 233 Squadron had bounced off the surface of the water and exploded in an air burst, which holed the aircraft's fuel tanks causing it to ditch off St Andrews.[19] Despite numerous claims of attacks on U-boats by Ansons in the first months of the war, postwar examination of German records showed that little damage had been inflicted. Despite their obsolescence, Ansons were employed during the Dunkirk evacuation to deter attacks on Allied shipping by German E-boats.[21] On 1 June 1940, a flight of three Ansons was attacked near Dunkirk by nine Luftwaffe Messerschmitt Bf 109s. According to the unsubstantiated claims, one Anson destroyed two German aircraft and damaged a third, while no Ansons were lost.[22] The aircraft achieved more success training pilots for flying multi-engined bombers, such as the Avro Lancaster. Ansons were first deployed to Flying Training Schools in November 1936, replacing the obsolete bombers then used for twin-engine training.[23]

The Anson was also used to train the other members of a bomber's aircrew, such as navigators, wireless operators, bomb aimers and air gunners. Postwar, the Anson continued in the training and light transport roles. The last Ansons were withdrawn from RAF service with communications units on 28 June 1968.[7] During the 1939–45 war years, the British Air Transport Auxiliary operated the Anson as its standard taxi aircraft, using it to carry groups of ferry pilots to and from aircraft collection points. There was no fatal mechanical failure of an Anson in ATA service, and it was typically very well regarded.[24]

The Royal Australian Air Force (RAAF) initially ordered 33 Ansons in November 1935 to fill the maritime reconnaissance role. The first were delivered in 1936 and 48 were in service before the start of the war. The RAAF eventually operated a total of 1,028 Ansons, the majority of these being Mk Is. These aircraft continued to be operated until 1955.[25]

The Royal New Zealand Air Force (RNZAF) operated 23 Ansons as navigation trainers during the Second World War, (alongside the more numerous Airspeed Oxford), and acquired more Ansons as communication aircraft immediately after the war. A preserved navigation trainer is in the Air Force Museum of New Zealand at Wigram.

The Royal Indian Air Force operated several Ansons as part of the *No.1 Service Flying Training School (India)* for Pilot and Navigation training. These Ansons continued this role post-independence and were retired at an unknown date.[26]

The Royal Canadian Air Force (RCAF) and Royal Canadian Navy (RCN) operated 4,413 Anson aircraft, 1,962 British built and 2,451 Canadian built aircraft.[27] The RCN operated the aircraft until 1952. Although the Canadian Ansons were used throughout the training schools of the British Commonwealth Air Training plan for training aircrew, some aircraft were pressed into operational service with the RCAF's Eastern Air Command. A good example of the training schools' involvement in combat operations with the EAC during the emergency of the battle is illustrated in an article dated 1 March 2006 of the Royal Canadian Legion magazine entitled *Eastern Air Command: Air Force, Part 14*; the author Hugh A. Haliday wrote: "The need for Atlantic patrols was undiminished, yet the Battle of the St. Lawrence stretched EAC resources. Based at Charlottetown, 31 General Reconnaissance School was mobilized to fly patrols using Avro Ansons, each carrying two 250-pound bombs. At the very outset of the war, the Anson and its ordnance had failed in RAF anti-submarine work. Now in Canada, it was remobilized as an aerial scarecrow. German views varied as to Canadian countermeasures. The captain of U-517 found his operations increasingly restricted by strengthened air patrols. In October 1942, U-69 reported "strong sea patrol and constant patrol by aircraft with radar."

The United States Army Air Forces (USAAF), employed 50 Canadian-built Ansons, which were designated the **AT-20**.

The Egyptian Air Force (EAF) operated a fleet of Ansons in communications and VIP duties. A specially outfitted Anson was presented to the then King of Egypt by the RAF.

The Royal Afghan Air Force obtained 13 Anson 18 aircraft for various duties from 1948. These aircraft survived until 1972.

Postwar civil use

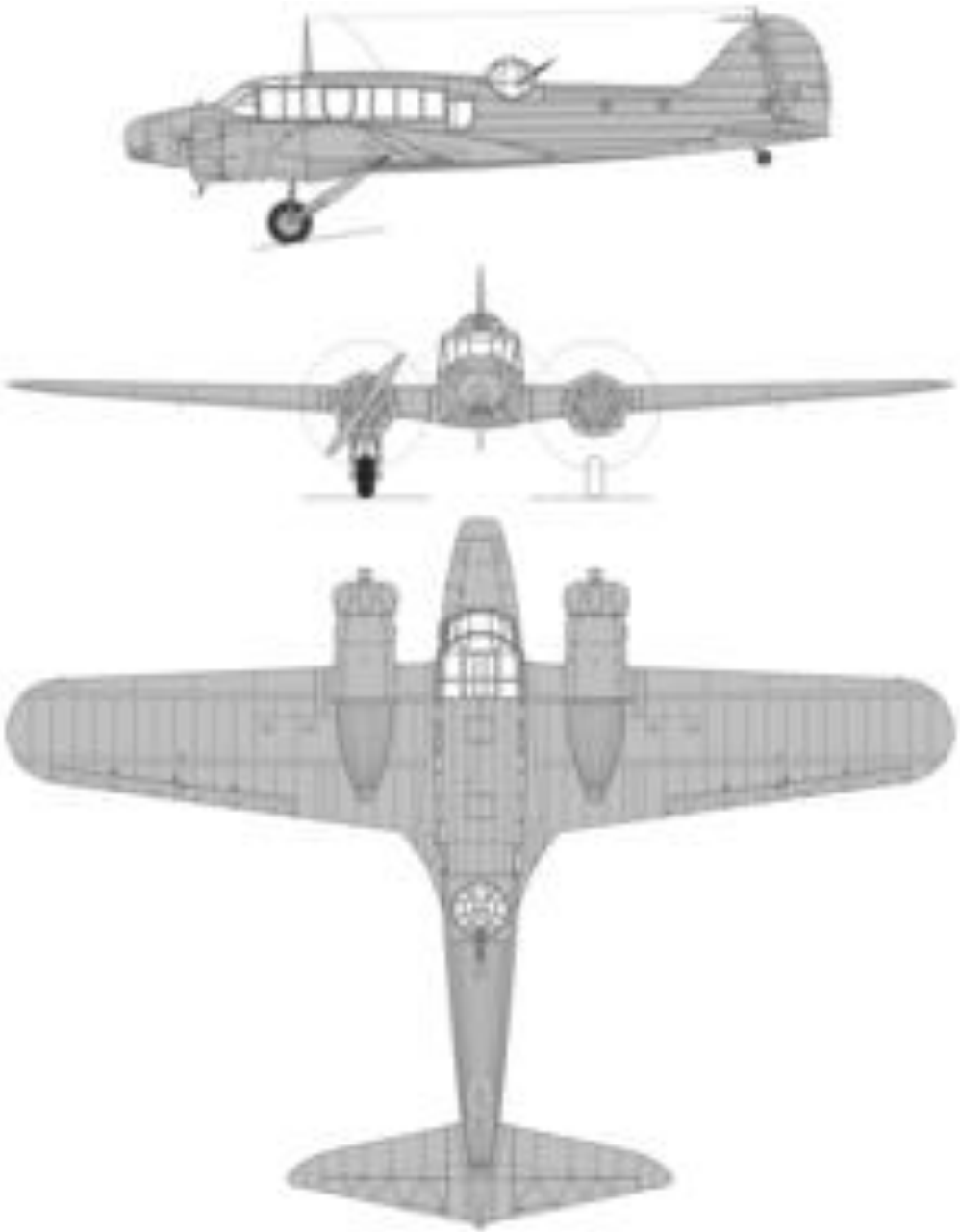
Anson 11 *G-ALIH* of Ekco Electronics at Blackbushe, Hants, in September 1955

After the war, Ansons continued in production with Avro at Woodford. At this time, large amounts of the type were being produced for civilian use, where they were operated as light transports by a range of small charter airlines and as executive aircraft by large corporations. Countries that saw civilian operations with Ansons included the United Kingdom, Canada (Mk. V aircraft only), Australia and Denmark.

An Anson XIX, which had been operated for aerial survey work in the United Kingdom up to 1973

Railway Air Services operated Ansons on scheduled services from London's Croydon Airport via Manchester to Belfast (Nutts Corner) in 1946 and 1947. Sivewright Airways operated three Mk XIX aircraft from their Manchester Airport base on charter flights as far as Johannesburg and on scheduled flights to Ronaldsway Airport in the Isle of Man until 1951. Finglands Airways operated an ex-RAF Anson I on inclusive tour flights and on scheduled flights from Manchester Airport to Newquay Airport between 1949 and 1952. Kemps Aerial Surveys operated several Anson XIXs on survey work within the UK until their retirement in 1973.[28] In 1948, India ordered 12 new Anson 18Cs for use by the Directorate of Civil Aviation as trainers and communications aircraft; these were delivered from Yeadon in the spring of 1949.[29] Ansons continued to be manufactured by Avro at Woodford for the RAF until March 1952; the type was used as trainers and served in the role of Station communications aircraft until 1968. The wooden wings of Ansons flying in Australia were found to fail at a high rate. The phenolic glue bonds would part, and it was speculated that the problem was due to the high humidity. In 1962, the Commonwealth Government decided to ground the majority of wooden-winged aircraft then in operation; amongst those aircraft affected, the Anson and De Havilland Mosquito were included. Of the Ansons, no such aircraft were re-registered as the government had mandated a test that essentially destroyed the wings, thus requiring the fitting of new wings. Most owners decided to voluntarily scrap their aircraft well before this time. By the 21st century, the vast majority of Ansons had been retired from flying. However, a single Anson Mk. I, which had been originally manufactured in 1943, had been restored to airworthiness, having been refitted with later metal wings. On 18 July 2012, this restored aircraft returned to the air in Nelson, New Zealand.[30]

Specifications (GR Mk I)



General characteristics

- **Crew:** 3–4
- **Length:** 42 ft 3 in (12.88 m)
- **Wingspan:** 56 ft 6 in (17.22 m)
- **Height:** 13 ft 1 in (3.99 m)
- **Wing area:** 463 sq ft (43.0 m^2)
- **Empty weight:** 5,375 lb (2,438 kg)
- **Max takeoff weight:** 8,000 lb (3,629 kg)
- **Powerplant:** 2 × Armstrong Siddeley Cheetah IX 7-cylinder air-cooled radial piston engines, 335 hp (250 kW) each
- **Propellers:** 2-bladed fixed-pitch propellers

Performance

- **Maximum speed:** 188 mph (303 km/h, 163 kn) at 7,000 ft (2,134 m)
- **Cruise speed:** 158 mph (254 km/h, 137 kn)
- **Range:** 660 mi (1,060 km, 570 nmi)
- **Service ceiling:** 19,000 ft (5,800 m)
- **Rate of climb:** 960 ft/min (4.9 m/s)

Armament

- **Guns:**
- 1 × .303 in (7.7 mm) machine gun in front fuselage
- 1 × .303 in (7.7 mm) Vickers K machine gun in dorsal turret
- **Bombs:**
- 360 lb (160 kg) of bombs

Source : https://en.wikipedia.org/wiki/Avro_Anson