

A Photograph album of military aircraft in South Africa



Michael Pierre de Villiers

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Title page: South African Air Force Dassault Mirage III aircraft at Durban's Louis Botha Airport circa late 1960s early 1970s.

ABOUT THE AUTHOR

Michael Pierre de Villiers was born in Durban, South Africa. He was trained to World Meteorological Organization class one meteorologist and multi-discipline weather forecaster in the South African Weather Service where he reached the rank of Director. He served on a weather ship in the South Atlantic. He served on World Meteorological Organization expert teams and was World Meteorological Organization rapporteur for the Africa region. He was also a commercial pilot and flying instructor. More recently he was a weather forecaster in the United Arab Emirates, then in England. Now retired.

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Introduction

The photographs in the album are of military aircraft taken by the author in the period from 1966 to 2001, except two in the author's collection. One is a photograph of a Cheetah C. The author is unknown. The author cannot remember taking this photograph and the negative cannot be found. Although it may be mislaid among many negatives. The second photograph, a Puma at "the ice" (Antarctica), was given to the author many years ago by a colleague (ex-SAAF electronic technician). Unfortunately, I have forgotten his name.

The photographs are organised according to location and air force with little attempt at aircraft category or chronological order. Unfortunately, quality varies depending on camera, film and aging. No digital cameras then. The author started with a brown Kodak Brownie Box camera.

Rather than clutter the text with the many, admittedly deserved references, all references have been listed in the bibliography. I hope this does not cause offence. The author is particularly indebted to Dean Wingrin, as well as Herman Potgieter and Louis Vosloo.

Durban 1966 – 1985

Durban's main airport was originally Runion Airport. However, by 1966 it was Louis Botha Airport (International Civil Aviation Organisation (ICAO) code FADN). Later it was renamed Durban International Airport. The South African Air Force had a base in the north-west part of the airport. Based at the airport was 5 Squadron. Later there was a 19 Squadron B flight that was replaced by 15 Squadron. Photographs were taken at the airport, unless stated otherwise.

South African Air Force (SAAF)



SAAF Harvards in formation, main wheel undercarriage down, in trainer dayglo markings.

North American Harvard

The aircraft was originally built for the United States Army Air Corps as a two seat basic combat trainer. It first flew in 1937. Over 21,000 of all versions were built, serving with numerous air forces. The name Harvard was allocated by Britain and used by the SAAF. The first of many arrived in South Africa from 1942. All together the SAAF had over 600 Harvards of various marks, in particular MkIIAs, MkIIIs, AT6D, and T-6Gs (T for Texan rather than Harvard). In the 1960s and 1970s when I was based at Durban's International Airport, 5 Squadron (Sqdn) also based at the airport operated Harvards. The aircraft was said to be a lot of

spare parts flying in close formation. They made a loud continuous crackling noise when taking off, because the speed of the tips of the propellers would become supersonic, causing a shock



SAAF Impala Mk 1 over Durban's airport, undercarriage down.

wave and a sound similar to the breaking the sound barrier bang. Occasionally we were treated to solo aerobatic displays. In 1973, the Harvards were replaced by the Aermacchi MB326, licence built by the Atlas Aircraft Corporation at Johannesburg International Airport, known as Impalas in the SAAF.

Atlas Impala

Impala Mk1s, two seat ab initio jet trainers, replaced the Harvards at 5 Sqn in July 1973. Ab initio means to start with, or primary. They replaced the now old de Havilland Vampire two seat jet trainer. Early in 1981 they received single seat attack/strike Impala Mk IIs. In total the SAAF had 151 Impalas at

various squadrons, all except for the first 16 imported aircraft were built by the Atlas Aircraft Corporation.



SAAF de Havilland Vampire T Mk55 in dayglo markings with nose equipment bay open and ground crew working on the wing.

de Havilland Vampire

By 1966 there were rare training visits by the two seat trainer Vampire T Mk 55 aircraft to the airport. The photograph shows such a visitor before being retired in 1978. All told the SAAF had about 77 Vampires of various marks, namely, fighter bomber FB5 (1950 – 1960), FB6 (1953 – 1978), FB9 with air conditioning (1953 – 1978), FB52 (1953 – 1978) and some older T11 trainers (1953 – 1978). The twin tail boom aircraft was very popular worldwide. With over 4,000 produced. The Vampire was particularly interesting because it was partially plywood

constructed. One could walk around the aircraft tapping it and hearing the different sound between the plywood and metal parts. The egg shape forward fuselage was made of plywood with aluminium at the aft hot engine section. De Havilland and designer Geoffrey de Havilland

had considerable experience building wooden aircraft, their most famous being the World War II twin engine multirole combat Mosquito, also referred to as the wooden wonder.



SAAF Sabre with under wing fuel tanks to increase range.

Canadair 13B Sabre Mk6

The Sabre single seat jet fighter was another rare visitor to Durban from later 1960s. Seen in the photograph is serial number 350 circa 1976. The Sabre was first flown by the SAAF in the 1950 to 1953 Korean War by 2 (Cheetah) Sqn. The version flown was the North American F-86F Sabre. The SAAF

purchased 34 of the more powerful Canadair 13B Sabre Mk6 in 1956 to replace the Vampire. They ceased flying in 1979.



SAAF DC-4 on short finals with undercarriage down and flaps extended.



SAAF Shackleton MR Mk3 c1975 with contra-rotating propellers turning.



SAAF Piaggio P166S Albatross on a wet day with a weather instrument Stevenson screen in the foreground.

Douglas DC-4/C-54 Skymaster

Another rarity was the Douglas DC-4 Skymaster transport aircraft and its military equivalent C-54. These were 4 ex-South African Airways (SAA) DC-4s obtained in 1966. As far as the author can determine another DC-4 was added with 3 C-54s added late in the 1970s. They were withdrawn from service in 1992, although one made its last flight in 1994. As a young teenager, the author witnessed one of the aircraft (ZS-BMH then in service with SAA) in collision with a 5 Sqn Harvard during the afternoon of Saturday 30th June 1962. The wing of the Harvard hit the tail fin (stabiliser) of the DC-4. The DC-4 continued to a safe landing. The Harvard crashed. The two pilots of the Harvard safely bailed out of the aircraft.

Avro Shackleton MR MK3

Then there were occasionally Shackletons, a long-range maritime patrol and deep-sea search and rescue aircraft, from their base at Ysterplaat Air Force Base (AFB) near Cape Town from 1957 to 1984. The aircraft was developed from the Avro Lincoln bomber, which in turn was developed from famous World War II Avro Lancaster bomber. The SAAF MR Mk3 was specifically developed for the SAAF. Its 22-hour and long-range endurance made it ideal for maritime patrol along South Africa's long coast. When it did call at Durban, it was usually because it had to attend to an engine failure while on patrol. By the 1970s the engines were getting old and temperamental. The author can still remember the rumbling growl of the Rolls Royce Griffon engines, the contra-rotating propellers and belching smoke when first starting. The aircraft were withdrawn from service in 1984.

Piaggio P.166S Albatross

From 1969 the Shackletons were supplemented and eventually replaced by the piston engine Albatross, twenty of them. The last aircraft was delivered in 1974. The

smaller, gull winged, twin engine and pusher propeller aircraft were used for inshore coastal maritime patrol. The aircraft was specially modified for the SAAF. It included surveillance radar, larger wing tip fuel tanks and HF (high frequency) radio equipment with a long retractable aerial for long range communication. A dingy was also installed in case of ditching. A spring-loaded hatch on the starboard side of the aircraft enabled the co-pilot to use a camera when for photographs were required. There was also a floor hatch with a tube behind and between the pilot seats to drop flares or dye markers. The aircraft was withdrawn from service in 1993. Two Albatross aircraft were donated to the SAAF Museum Historic Flight. Others were sold to civilian operators, except one, number 894, that was lost offshore off Dassen Island and never found.

Aerospatiale SA-330 Puma and Atlas Oryx



A SAAF Aerospatiale SA-330 Puma. The photograph does not reflect the true colour. It was more of a drab camouflage green. On the right is a Puma SA330J at Antarctica.

From 1970, the twin engine Aerospatiale (originally Sud Aviation) Puma helicopter operated at Durban's airport as B flight of 19 Sqn based at Swartkop south of Pretoria. The SAAF was the 1st foreign customer for the Puma, one year before the Royal Air Force (RAF). C, H and L variants, plus 2 civilian J variants, were used by the SAAF. The author estimates that in total the SAAF had around 70 Pumas. The two J variants were extensively modified for operation in the Antarctic from the SA Agulhas research ship. Added items included radar, floatation gear, folding blades, improved de-ice anti-ice systems, electrically heated rotor head, air intake filters and skis. They were also painted orange white and blue for easy identification against the white ice and snow. In 1998 they were replaced by two Atlas (later Denel) Oryx helicopters. By 1991, the Puma C variants had been withdrawn, the other variants by 1997, having been replaced by Denel Oryx improved versions of the Puma from 1989.

The Atlas Oryx first flew in 1987. It is understood that 50 were built, around 45 still in service in 2023. The most obvious external differences between the Oryx and the Puma are that the Oryx has a nose radar dome, bigger sponsons, longer tail boom, added ventral tail fin and different engine dust filters above the cockpit when fitted. The basic airframe is still that of the original Puma. In many respects the Oryx is a Super Puma. However, extensive use of locally produced carbon-composite materials resulted in a lighter and stronger airframe as well as increased endurance and manoeuvrability. The Oryx also has an improved hoist for rescue operations. For coastal and offshore operation, it is fitted with emergency flotation gear in the bigger sponsons and around the nose of the aircraft. In the event of an engine failure in flight, the remaining engine has enough power to compensate with a management system



SAAF SA-321L Super Frelon No. 311.

automatically adjusting its power setting. It has improved avionics and electronic warfare systems

Aerospatiale SA-321L Super Frelon

Also based at the SAAF base, from 1981, was 15 Sqn, which was equipped with the heavy lift Super Frelon. Obtained in 1967, they were withdrawn in 1990. An interesting feature of the helicopter was the three-engine arrangement, two in front of the main rotor and one to the rear. Designed as an amphibious helicopter, it also had lower fuselage designed like a ship's hull. One may say it was a flying boat.



SAAF Lockheed C-130B Hercules No. 406.

Lockheed C-130B Hercules

The SAAF purchased seven C-130B aircraft in 1963 before the imposition of an arms embargo on the South Africa's apartheid government. Five more were received in 1997 and 1978, two ex-United States of America Air Force (USAAF) C-130Bs and three ex-United States Navy (USN) C-130Fs. The C-130Fs were soon retired. Major modernisation and modifications were subsequently been made to keep the nine aircraft in service, such as to the wings and wing box, newer engines and avionics. Due to mishaps, such as brake fires and over pressurised fuel tanks, the author understands that the present fleet is 6 aircraft.



SAAF Transall C-160Z No. 333.

Transall C-160Z

The combined French/German C-160Z is markedly similar in design to the C-130B except it has two engines, had a larger cargo hold and could kneel to lower the rear loading ramp. The nine bought by the SAAF in 1969 were designated a Z variant. The aircraft were retired in 1993. It is said due to budget restrictions. This may be because of the rumour that it was too expensive to operate while, if the author remembers correctly, it was considered too expensive to repair main spar problems.

Dassault-Breguet Mirage III

Starting in 1963, the single jet engine Dassault Mirage III variants, later to become Dassault-Breguet, formed the backbone of the SAAF aerial defence of the Republic of South Africa for many years. The different versions, years of service, role and number in service are listed below. Z denotes South Africa.

IIICZ, 1963 - 1990, single-seat all weather interceptor and fighter, 16.

IIIBZ, 1964 - 1990, two seat trainer, 3.

IIIEZ, 1965 - 1986, single seat strike, interdiction and multi-role fighter, 17.

IIDZ, 1967 - 1986, two seat all weather interceptor trainer, 3.

IIIRZ, 1967 - 1990, single seat photographic reconnaissance, 4.

IID2Z, 1974 - 1986, two seat all weather interceptor trainer, 11 (plus one delivered in kit form)

IIIR2Z, 1974 - 1990, single seat photographic reconnaissance, 4.



A SAAF Mirage IIICZ in original metal finish on the runway and a Mirage IIIRZ in new camouflage finish on the apron. Notice the castle and eagle roundel. From 1958 to 2003 the SAAF used an eagle and castle roundel on its aircraft. The castle being representative of the shape of the Cape Town Castle built between 1666 and 1679. A Vampire T Mk55 (shown in an earlier photograph) is in the background left and part of a SAA B727 to the right.



A SAAF Mirage F-1CZ on very short finals with a very tilted horizon. The photograph was taken in great haste while trying to capture the aircraft. It was also reproduced from a slide.

In total 58 or 59 aircraft. Until the later 1980s, the exact number of aircraft was top secret. Durban's airport was often host to SAAF the Mirage IIIs from their fighter base at Hoedspruit (near Louis Trichardt) for training exercises offshore. This included supersonic flying by the Mach 2 Mirages which could not be done over land due to the sonic bangs. Mach 2 = twice the speed of sound.

Dassault-Breguet Mirage F-1

The single seat, single jet engine Mirage F-1 fighter was an improvement of the III. The change to a conventional wing design and high wing position improved manoeuvrability by about 80% as well as improved take-off and landing performance,

similar speed and three times endurance. The SAAF received the order for 16 F-1CZs in 1974/1975. The aircraft was an all weather interceptor with under wing hard points to carry electronic countermeasure pods. It was in service from 1975 - 1992. The single seat F-1AZ fighter/bomber was a clear weather interceptor version of the F-CZ focussed on the ground attack role with under wing hard points to carry bombs. The SAAF received 32 F-1AZs. It was in service from 1975 – 1997. Like the Mirage III, the Mirage F-1s were also seen at Durban for offshore training exercises.

Hawker Siddeley Buccaneer S Mk 50



SAAF Buccaneer S Mk 50 No. 416.

The Buccaneer was in service with the SAAF from 1965 to 1991. At times there were visits from the twin jet engine Buccaneer aircraft, usually single aircraft, however, on one occasion, the author saw six. Initially the Blackburn Buccaneer, the SAAF ordered 16 aircraft. The SAAF wanted to buy another 16, but were blocked by the United Kingdom (UK) Harold Wilson government, because it introduced an anti-Apartheid arms embargo. One Buccaneer was lost on its delivery flight without loss of the 2 crew. The maritime strike aircraft were intended for marine protection as part of the South Africa/British Simonstown Agreement. Due to the long coastline, they were fitted with aerial refuelling, bigger fuel tanks, strengthened undercarriage and stronger wheel brakes.

They were also side fitted with Bristol Siddeley rocket engines to give extra thrust for take-off from inland hot and high altitude airfields. I remember being allowed to crouch near to the runway (not too near) at the take-off position to see and hear a pair take-off using the rockets on Durban's runway 23. Really loud with a flame from each rocket. Of course, in those days one did not have ear noise protectors. The rockets were found to be unnecessary and later removed. The SAAF was the only air force to operate the aircraft other than the British. During the latter part of their service I heard that they had nuclear capability. I knew about the Pelindaba (Zulu for the conclusion) nuclear research centre west of Pretoria and later nearby Valindaba (Zulu word for remain silent) uranium enrichment plant, but did not think more of it. It was when working in Pretoria much later that I learnt that they had developed air launched nuclear weapons during the 1980s. I saw both research centres often (and have photographs of both of them) when living and working in Pretoria. Only five aircraft remained operational by the time the Buccaneer was retired from service in 1991.

English Electric Canberra B(1) Mk12 and T Mk 4

The Canberra was a highly regarded aircraft used by air forces worldwide. In its heyday, it could fly higher than any other aircraft in the world and set a world altitude record of just over 21 000 metres (~ 70 000 feet).

The SAAF operated six B(1)12 interdictor aircraft from 1963 to 1991. An interdictor being a tactical bomber operating far behind enemy lines. Apart from during the South-West



A very hazy photograph of two SAAF Canberra B(1) Mk12s taxiing to take-off. A Piper PA-22 Colt is in the foreground.



SAAF HS125 Mercurius No. 06.

Originally designed by de Havilland it was manufactured by Hawker Siddeley, which became British Aerospace (BAe) from 1997 and adopted by Raytheon from 1993. The SAAF operated 4 aircraft as the VIP transport Mercurius from 1970 to 1999. Normal configuration was two pilots and 8 passengers.

26th May 1971 three of the aircraft, 01, 02 and 03, flew into Devel's Peak Mountain close to Cape Town with the loss of 11 lives when on practice formation flying before a flypast on the



SAAF Vickers Viscount 781D Casteel being towed from the SAA hanger to the apron.

Africa/Angola Bush War, the SAAF aircraft were used mostly for high altitude photographic reconnaissance over foreign territory. The three T Mk 4 trainers were operated from 1964 to 1991. They were also used for reconnaissance. A second-hand B Mk2 nose was acquired from Rhodesia and a T Mk 4 trainer was converted to a bomber. A photograph of the T Mk 4 is shown later.

The distinguishing difference between the B(1) and the T variant being the cockpit. The B(1) has an offset single pilot teardrop canopy while the T variant has an oval two pilots side by side canopy. The bomber version had a glass nose to enable the navigator/bomb-aimer to aim the bombs through a gyroscopically stabilised gunsight. Crew varied between two and three. Three crew being a pilot, a navigator and bomb aimer. The two crew configuration being a pilot and navigator/bomb aimer. The bomb aimer would be a camera operator in the reconnaissance role. The trainer would have two pilots. The non flying crew were seated within the fuselage aft of the pilot's position. The pilot, or pilots, had Martin-Baker ejection seats. However, the rest of the crew had to rely on an escape hatch and parachute.

Hawker Siddeley HS125-400B Mercurius

31st, Republic Day. The mountain was shrouded in cloud. It is thought the lead aircraft, flying below minimum sector safety altitude, misjudged a turning circle. This left one remaining aircraft 04. The three aircraft were soon replaced, with a 5th aircraft added in 1983, apparently numbered 05, 06, 07 and 08.

Vickers Viscount 781D Casteel

The Viscount was occasionally seen in Durban during the 60s and 70s. The

passenger transport aircraft, powered by 4 Roll-Royce Dart 510 engines. first flew in May 1958 at Hurn, Bournemouth. June 1958 it was handed over to the SAAF for use as VIP transport. It was allotted the serial number 150 and named Casteel painted near the cockpit on the starboard side only. When delivered it included a large store of spare parts. When sold in 1991 many of these parts remained unused. The final owner was Bazair, registered 9Q-CWL. It crashed in flames 6th June 1997 near Irumu in the Democratic Republic of the Congo. Rumour has it there was and an inflight cabin fire and some drums of Jet A1 fuel were on board.

Rhodesian Air Force (RhAF)

Hawker Hunter FGA.9 and English Electric Canberra T4



RhAF English Electric Canberra T4 being refuelled and a Hawker Hunter FGA.9 at Durban's airport on different occasions.

During the 1970 to 1980 there were regular Rhodesian Air Force (RhAF) Hunter and Canberra long range navigation training flights to Durban. Formerly the Royal Rhodesian Air Force, they changed the name upon Unilateral Declaration of Independence by the country's leaders in 1970. The RhAF had 12 Hunters and 10 Canberras, split into 8 B.2 interdictors and 2 T4 trainers. I never saw any of their B.2s in Durban.

French Fleet Air Arm



FFAA Breguet 1150 Atlantique.

Breguet 1150 Atlantique

A very rare visitor to Durban circa late 1960s, possibly once only, was the French Fleet Air Arm (FFAA) long-range maritime patrol Breguet Atlantique. Notice the FFAA roundel on the side of the aircraft. The twin Rolls-Royce Tyne turboprop aircraft has a double bubble hull. The upper section has the pressurised crew compartment, the lower unpressurised section contains a long weapons bay. The tail boom houses a magnetic anomaly detector (MAD). Although a maritime patrol aircraft, its primary purpose was anti-submarine and anti-surface warfare. Secondary roles were search and rescue and long-range surveillance. This version entered service with the FFAA in 1965, retired 1991. Second generation variants continue in service.

Royal Air Force (RAF)



RAF de Havilland Comet 4C.

high-ranking diplomats, scientists and advisers on assignment for the government. Also, for troop deployment and medical evacuations.

Comets continued service with the RAF until 216 Squadron was disbanded in 1975, following a wave of government cuts. The aircraft were sold to Dan Air. They had done relatively few hours and been maintained, cleaned and polished to the highest standard. Apparently, Dan Air was astonished by their condition, smoothness and fuel efficiency compared with Comets they had bought from commercial airlines.

Royal Navy Fleet Air Arm



Royal Navy Fleet Air Arm Westland Wessex aboard ship in Durban harbour.

de Havilland Comet 4C

The Comet 4 first flew on 27 April 1958 and received its Certificate of Airworthiness on 24 September 1958. It was a stretched version of the original Comet. The Comet 4C had the Comet 4B's longer fuselage, as well as the longer wings and extra fuel tanks of the original Comet 4, which gave it a longer range than the 4B.

RAF Transport Command bought five Comet 4Cs, which they referred to as Comet C.Mk.4. They were delivered to 216 Squadron at RAF Lyneham in 1962. The squadron already had considerable experience with its fleet of Comet C.Mk.2s, which it had used for V-bomber support, VIP transports, carrying members of the British Royal Family, the Prime Minister, and other

Westland Wessex WS58 (HAS3)

On one occasion there was a visit to the port of Durban by a Royal Navy vessel that carried Wessex helicopters. The Westland Wessex was a British licence built development of the American Sikorsky H-34 or S58. An important change was replacing the Sikorsky's piston engine with a turboshaft Napier Gazelle engine. Later variants, such as the HAS3, had two Rolls-Royce Gnome engines. The improved anti-submarine HAS3 came into service in 1967. It had more engine power, improved radar, avionics, navigational and weapons systems. It was usually deployed on amphibious assault ships, such as the commando carrier HMS Albion that was converted from an aircraft

carrier in 1962. I am almost certain the part of the vessel visible in the photograph, circa early 1970s, is HMS Albion.

I was fortunate to be offered a ride on a Wessex used by a company that used the Wessex helicopter to carry supplies from Durban's airport to offshore passing ships, usually tankers too big to use the Suez Canal route and too big to enter port. It was also cheaper and quicker for other ships than entering port. The helicopter descended alongside the tanker and edged sideways until over the helipad then slowly settled on the deck. All the while the ship sailed on. The cargo was quickly offloaded to ship's crew members. Another crew member stood nearby with a thick and powerful hose. Any mishap and hint of a fire, we were going to get blasted. Take-off was the reverse of the approach and back to the airport.

Swartkop

SAAF Swartkop Airport and AFB (ICAO code FASK) is situated in the south-western part of Pretoria. Swartkop means black hill. It was South Africa's first AFB, established in 1921. Today, in 2023, AFB Swartkop hosts the Air Force Mobile Deployment Wing with 17 Squadron flying Aguster Westland AW109 LUH and Oryx helicopters.

The photographs in this section were taken during a few visits to air shows between the first time in 1988 and the last visit circa late 1990s.

SAAF



SAAF aerobatic team Atlas Impala Mk1.



SAAF Atlas C.4M Kudu.

Atlas Impala

The two seat Atlas Impala Mk1 in the photograph is painted in the then new colours of the SAAF Silver Falcons aerobatic team. Initially in standard metallic silver, they adopted a silver with orange white and blue trim colour scheme in 1985. The pale blue colour with white and dark blue trim, seen here, was adopted in 1994. The two seat Atlas Impala Mk1 trainer was used from 1967 to 1997. After a two year break, in 1999, the aerobatic team was revived using the Pilatus PC-7 Mk II Astra trainer. Before the Silver Falcons there was an aerobatic team, from 1954 to late 1967, named the Bumbling Bees using de Havilland Vampire FB Mk9s. See details of the Impala and Vampire in the Durban section

Atlas C.4M Kudu

The Aermacchi AL-60 was a late 1950s to early 1960s light civil utility aircraft. In collaboration with Aermacchi, the Atlas Aviation Corporation designed the AL-60C-4M, which ultimately became the Atlas C-

4M Kudu. The Kudu differed from the Aermacchi version in that the fuselage was a new design with a single sliding door for paratrooper use and a floor hatch for dropping supplies. It also had a taildragger undercarriage. Apart from the pilot it could carry seven passengers or two casualty evacuation (CASEVAC) stretchers. 38 to 40 aircraft were built. It was in SAAF service from 1974 to 1991. It was a noisy aircraft with the nickname converter. It converted fuel to noise.



SAAF Avro Shackleton Pelican (P/1716).

safely force landed. However, the aircraft was written off. See more details of the Shackleton in the Durban section



SAAF Hawker Siddeley Buccaneer S Mk 50. No. 414 or 421.



A de Havilland DH.82A Tiger Moth as used by the SAAF.

Avro Shackleton

The aircraft in the photograph is Pelican 16 (SAAF serial number P/1716). The number 16 is visible on the nose. After retirement of the Shackletons in 1984, P 1716 was ferried from Cape Town to the SAAF Museum at Swartkop. The aircraft was restored to airworthy status by 1994. 8th July 1994 it began a staged flight from Cape Town to the UK to attend air shows. Unfortunately, 13th July, while over the Western Sahara Desert, the two starboard engines failed within ten minutes of each other. The aircraft could not maintain height and with its 19 occupants,

Hawker Siddeley Buccaneer S Mk 50

The Buccaneer on display is either number 414 or 421. Both are apparently housed at the SAAF Museum at the airport. See more information about the aircraft see the Durban section. This is a better quality photograph than in the Durban section.

D.H.82A Tiger Moth

The world famous British de Havilland DH.82a Tiger Moth served as an ab initio trainer in the SAAF from 1939 to 1946. It was widely used, especially by the RAF. It remained in service with the RAF until replaced by the de Havilland Chipmunk in the early 1950s. Many surplus Tiger Moths were bought for civilian operation, particularly tourist pleasure flights and enthusiasts flights. The Tiger Moth in the photograph, ZS-BGN in RAF colours and named Bertie, is privately owned. In 2019 it was based in Vereeniging, South Africa.

de Havilland Canada DHC-1 Chipmunk

Partially obscured behind the Tiger Moth photograph, is a DHC-1 Chipmunk painted in

RRAF colours as WG354. Built in the UK it was delivered to the Southern Rhodesia flying training school in 1951. In 1953 it was sold to an air company in Cape Town registered as ZS-DIU. It was donated to the SAAF Museum in 1979 and restored to flying condition in 1981 in its original Rhodesian colours. For many years it flew at air shows until 2001.

Junkers Ju-52/3m



A Junkers Ju-52/3m. The aircraft type was used by the SAAF in World War II.

charter and special flights.



A Consolidated PBV-5 Catalina IB/III as used by the SAAF



SAAF Piaggio P.166S Albatross No. 881.

During World War II, SAA was conscripted to the SAAF. This included its eleven passenger transport Ju-52s which were in service from 1939 until shortly after the war's end in 1946. The SAAF used them primarily to ferry troops and supplies to North East Africa and bring wounded soldiers home, eventually going as far north as Cairo. The photograph is of a Spanish built Ju-52/3m acquired by SAA in 1980 for its Historic Flight. Re-registered as ZS-AFA it was refurbished and re-engined with Pratt and Whitney Wasp engines. These are the same engines used by Harvards, so spare parts are readily available. The aircraft is used for

Consolidated Catalina

The Consolidated PBV-5 Catalina IB/III flying boat was the variant operated by the SAAF during World War II from 1943 to 1945. PBV was a United States Navy designation. PB meaning Patrol bomber and Y means it was built by Consolidated. Note, the difference between a flying boat and a seaplane is that a flying boat has a hull while a seaplane has floats. The Catalina was produced in thousands in the 1930s and 1940s with the last military aircraft serving until the 1980s. It is still used in limited numbers around the world as civilian waterbombers for aerial firefighting. During World War II, Catalinas were used in anti-submarine warfare, search and air-sea rescue, convoy escort and at times cargo transport. The photograph is an airworthy Catalina PBV-5A, Navy serial 48294 of the Military Aviation Museum, Virginia Beach with United States registration N9521C.

Piaggio P.166S Albatross

The aircraft type having been withdrawn from service in 1993, two Albatross aircraft were donated to the SAAF Museum Historic

Flight. The photographed aircraft 81 is almost certainly one of the donated pair. The number 81 is on the top of the stabiliser (tail fin). Serial numbers used by the SAAF were 881 to 900. For more details of the Albatross see the Durban section.

Sikorsky S-51



SAAF Sikorsky S-51 number A1.

The S-51 was a four seat utility helicopter in service from 1948 to around 1964. It was the first helicopter operated by the SAAF. Three aircraft, numbered A1 to A3, were purchased, entering service in 1948. Their purpose was to spray Tsetse Fly in Zululand. All three crashed in the Hluhluwe/Mtubatuba area of Zululand between 1950 to 1952. The fate of A2 and A3 is not known. A1 was transferred to Ysterplaat near Cape Town. It was sold in 1964 and later scrapped. A Cape Town scrap yard gave it to the SAAF Museum in 1976 where it was restored as a static display.

Sikorsky S-55

The SAAF acquired three S-55 utility helicopters (A4 to A6) in 1956. The S-55 photographed



SAAF Sikorsky S-55C No. A5 in 1947 to 1958 markings with a jumping Springbok in the middle of the roundel.

at Swartkop was acquired in 1984 and rebuilt to flying condition. They were used mainly in air-sea rescue. Also used for humanitarian and civil activities, such as flood relief and warning beacon erection. All three were sold, in 1967 or 1968, to a civil operator as ZS-HCO, ZS-HCL and ZS-HCM. One of these Sikorsky's was reported as having crashed in 1970. I have a photograph of a Westland Whirlwind S-55T ZS-HDX (construction number WA296), at Virginia Airport (in the north of Durban), which was also written off in 1970 offshore of KwaZulu-Natal. The company at Virginia Airport did import four ex-Royal Navy Fleet Air Arm aircraft where they were known as Westland Whirlwinds. Perhaps a coincidence, perhaps mistaken identity and the two reports are of the same aircraft. The Westland Whirlwind S-55T was an improved version of the Sikorsky S-55. The helicopters were used from Virginia for offshore tanker supply. This was later done from Durban International Airport. See Durban, Royal Navy Fleet Air Arm, Westland Wessex WS58 (HAS3).



SAAF Aérospatiale Alouette II No. 22.

Aérospatiale Alouette II

Originally Sud Aviation, the utility helicopter was operated by the SAAF from 1960 to

1973. It was the SAAF's first turbine powered helicopter. Seven were ordered. An 8th aircraft was obtained in 1964 from the Anglo American Corporation. March 1983 the SAAF Museum received an Alouette II which they restored to airworthy condition, painted in the colours and marking when it was used as a training helicopter at Ysterplaat, near Cape Town, in the early 1960s. 22 was the number of the last of the aircraft serial numbered 15 to 18 and 22. They were used by the Rhodesian Air Force from 1975 to 1981 when they were returned to the SAAF.

Supermarine Spitfire

Apart from operating different marks of Spitfires during World War II, after the war Britain



SAAF Supermarine Spitfire IXe No. 5518.

offered the SAAF a gift of surplus aircraft. This included a large number of Mk IXs. By 1954 the SAAF had disposed of all Spitfires, except a Spitfire IXe built at Castle Bromwich in England in 1945 and numbered 5518 in the SAAF. This aircraft was displayed on poles at the entrance to Waterkloof AFB until 1985 when it was restored to airworthy condition on behalf of the SAAF Museum at Swartkop by the South African Aviation Foundation and Friends of the SAAF Museum. Its first flight was in 1995 painted as 5553/K-AX. The Rolls Royce Merlin engine aircraft has the bubble

canopy of later models and clipped wings. Clipped wings increase the roll rate and low-altitude speed performance by reducing the drag. At a SAAF Museum Flying Day at Swartkop, 15th April 2000, an engine malfunction resulted in a forced landing and badly damaged the aircraft. In 2023 it was still being restored. The only other Spitfire in South Africa, of which I am aware, is a static display Mk.VIIIc at the South African National Museum of Military History in Johannesburg.

Westland Wasp HAS Mk1

The SAAF bought 17 Wasp HAS Mk1s in three batches spanning from 1963 to the mid 1970s. It was the first SAAF naval helicopter. The Westland Wasp was developed specifically for naval



SAAF Westland Wasp HAS Mk1. Either No. F.9559 or F.9663. Behind it is a SAAF SA 330 Puma, minus rotor blades, in drab green and khaki camouflage.

ship based anti-submarine warfare operation. It could carry two torpedoes and depth charges. With one pilot and one crew, it could carry three to four passengers, or one stretcher. The tail rotor could be folded for easier storage on board ship and the four caster wheels on the fixed undercarriage could be locked at four opposing 45° angles to prevent caster and assist landing on a pitching and rolling ship deck helipad. The helicopter was used on South African Navy destroyers and later President class frigates. After withdrawal of these ships, the Wasp was deployed to the test and development centre at AFB Bredasdorp in 1984 and retired in 1990.

Fieseler Fi-156c-7 Storch

The Storch (Stork) was a World War II German Luftwaffe artillery spotter and communications aircraft with over 2500 built by the end of the war. It was a forerunner of what is today called a STOL aircraft (Short Take Off and Landing). It could get airborne in 35 metres and land in 125 metres. Its low stall speed meant it could loiter at 27 knots (~50 kph, ~30 mph) and even hover in strong headwinds. The aircraft was never operated by the SAAF. An airworthy aircraft was donated to South Africa after the war in 1946. The SAAF spent less than 7 hours evaluating the aircraft. In a roundabout way the aircraft, in less than pristine condition, arrived at the SAAF Museum at Swartkop where it was restored to flying condition and faithfully painted in its Eastern Front colours and markings. Flown again in 1979 it became a



World War II German Luftwaffe Fieseler Fi-156c-7 Storch.

new addition to the Museum's airworthy aircraft.

Royal Rhodesian Air Force



RRAF Hunting Percival Provost T52.

Hunting Percival Provost T52

The Percival P.56 Provost was a British manufactured basic trainer aircraft that was in production from 1950 – 1956. Armed versions were produced. The T52 was an armed version delivered to the then Royal Rhodesian Air Force (RRAF) in 1955. Twelve were ordered. The aircraft in the photograph is in the SAAF Museum collection.

Waterkloof

Waterkloof AFB (ICAO code FAWK) situated immediately south of Pretoria is the SAAF's busiest and biggest AFB. It has been in existence since 1938, albeit then as a practice forced landing field for the then primary Swartkop AFB a few minutes flight time away. Today, Waterkloof is more than just an air force base. Commercial aircraft can use the base for various reasons, as well as the launching of humanitarian operations. It can accommodate aircraft the size of the Airbus A380 and Boeing 747-400 and has in the past occasionally been used as a diversion airport for Johannesburg's airport.

The photographs were taken at the International Military Airshow: Air Force Base Waterkloof, Pretoria, South Africa. 4 - 7 October 1995 to celebrate 75 years of the SAAF from 1920 to 1995. Two colleagues and I attended a meeting at the base prior to the air show to discuss a weather forecasting service and establish reciprocal contact details.

SAAF

Atlas Cheetah



SAAF Atlas Cheetah C. The photograph may have been taken at Swartkop.

that of a wing leading edge fence. That is, to inhibit outboard spanwise airflow on a swept wing and increase lamina (or smooth) flow to prevent or delay turbulent separation of the boundary layer air, thereby reduce drag and buffeting at high speed and high angle of attack.

Three variants were developed, the two seat training/interdiction D (in service 1986 to 2008), the single seat multi-role, all-weather fighter version E (1986 to 1992) and the single seat C version (1993 to 2008). The E version was



No, the photograph is not upside down. SAAF 75 years Mirage IIICZ.



SAAF Boeing 707-300 series.

The high cost of a more sophisticated replacement for the aging Mirage III and the United Nations arms embargo, forced South Africa into extensive development of the Mirage III. The result was 50% reconstruction of the aircraft that justified its classification as a new aircraft, hence the Atlas Cheetah. External modifications included; fixed canards behind and above the engine intakes (resulting in decreased landing speed and distance) and a new delta wing shape with a saw-tooth leading edge. A saw-tooth is a sharp Z shaped break in the wing leading edge. The effect is the same as

that of a wing leading edge fence. That is, to inhibit outboard spanwise airflow on a swept wing and increase lamina (or smooth) flow to prevent or delay turbulent separation of the boundary layer air, thereby reduce drag and buffeting at high speed and high angle of attack. It needed extensive internal and external changes to reach Cheetah standard. The E version was withdrawn in 1992 when the final and most modern developed C version became available. The C and D versions were finally withdrawn in 2008 ahead of the introduction of the Swedish Saab Gripen.

Dassault-Breguet Mirage IIICZ

The photograph of the Mirage IIICZ, painted to celebrate 75 years of the SAAF, was taken during a flypast. See details of the Mirage III in the Durban section.

Boeing 707s

Five Boeing 707s were operated by the SAAF from 1986 to 2007 dedicated to air-to-air refuelling and electronic warfare and early warning. The first three were ex-Air France aircraft B707-328Cs (28 is the Boeing number for Air France aircraft).

Apart from refuelling, the aircraft were capable of being fitted with the COMINT and ELINT systems, plus the necessary cheek fairings. COMINT = direct COMMunications INTelligence signals. ELINT = indirect ELectronic INTelligence signals. A B707-344C and B707-344B, both ex-SAA (44 is their Boeing number) were added in 1990 and 1992, respectively. B707-344C became a dedicated COMINT and Communication Jammer aircraft. An electronic warfare and early warning capability was added to the unit's primary responsibility. The aim was to fit B707-344B the same as 344C. However, in view of the changed political situation, it was deemed unnecessary. Instead, it was used for crew training. A B707-328C (serial number 1419) was donated to the SAAF Museum at Swartkop.

XPS Piaggio P.166S ex-SAAF and B727



Ex-SAAF Piaggio P.166S.

When the aircraft was withdrawn from service the remaining 19 were sold to private companies.

The photograph shows one of a few that went to the XPS parcel and courier delivery company. In the background is a XPS Boeing 727-23F registration ZS-NPX, an ex-American Airlines aircraft (Boeing number 23).

French Air and Space Force

Dassault Mirage 2000

A photograph is believed to be a French Air Force two seat Mirage 2000D long-range precision strike aircraft with conventional weapons and terrain following avionics. The underwing



French Air Force Dassault Mirage 2000D. In the background Russian MiG 29s.

hardpoints can accommodate precision guided weapons. The aircraft is taxiing with the cockpit canopy unhinged. It has a small winglet behind the engine intake, slightly taller tail fin than the Mirage III and squarer top leading edge corner, all characteristics of a 2000D. The pictured aircraft also has an inflight refuelling probe.

Royal Australian Air Force

Lockheed Martin P3C Orion

The Orion is a four turboprop engine maritime patrol aircraft developed from the

Lockheed Electra airliner. It was a replacement for the four piston-engine Lockheed P2 Neptune. The Orion first entered service in the 1960s. Periodic upgrades have kept the type flying into the 20th century. Numerous variants have been developed. For example, anti-



RAAF Lockheed Martin P3C Orion.
boom housing the MAD.

submarine and anti-ship warfare, search and rescue, ELINT surveillance and weather research, including hurricane hunting. The Royal Australian Air Force (RAAF) operated P-3Cs which were later upgraded to AP-3Cs with new electronic systems and radar in 2012. As of 2023 they should no longer be in service, having been replaced by the much more capable P-8A Poseidon, a military aircraft based on the Boeing 737-800 with air-to-air refuelling capability. The photographed RAAF Orion is painted in a low visibility colour scheme. Notice the tail

RAF

BAe Hawk T.1A



RAF Red Arrows aerobatic team taxiing to perform and in formation fly past.

The British Aerospace (BAe) RAF Red Arrows 9 formation aerobatic team visited the air show with their distinctive red colour Bae Hawk aircraft. The BAe Hawk is a British built two seat advanced jet trainer manufactured since 1977. It has also been used as a light attack aircraft. Until 1980 they used the Folland Gnat. When a teenager, the author built an Airfix Folland Gnat model, one among many other Airfix model aircraft built. BAe now trades as BAE

Systems.



RAF BAe Nimrod Mk2. Notice the inflight refuelling probe and MAD tail boom.

BAe Nimrod Mk2

The BAe (originally Hawker Siddeley) Nimrod is a maritime patrol aircraft, based on the de Havilland Comet 4. It first flew in 1967, entering service in 1969. There are two versions, the standard and anti-submarine warfare MR. Mk2 and the electronic reconnaissance R. Mk1. The latter can be recognised by the MAD tail boom, as seen in the photograph. A number were later converted to airborne early warning aircraft. All Nimrods were withdrawn from service in

2011, leaving the RAF without long range maritime cover, until replaced by 9 P-8A Poseidons since 2020.

Russian Air Force



Russian Air Force Antonov AN-124 Ruslan (left) and Mikoyan Gurevich MiG-29 (right).

Antonov AN-124 Ruslan

The Ruslan is a heavy strategic transport. The type first flew in 1982. It is the biggest military transport aircraft in service. By 2013, 26 aircraft were in commercial service. Like the Boeing 747 freighter the nosecone lifts upward to permit loading. The nose undercarriage can kneel to facilitate loading. It also has a rear opening door that can be opened inflight to eject parachute supply pallets.

Mikoyan Gurevich MiG-29

The MiG-29 is an interceptor and ground attack fighter. A distinctive feature is the twin tail and large ventral engine intakes. It first came into service in 1983. Its multirole capability meant it replaced a number of different fighters already in service.

United States Air Force (USAF)

Boeing E-3 Sentry

The E-3 Sentry is an all-weather Airborne Warning And Control System (AWACS) aircraft that entered service with the USAF in 1977. Production ended in 1992. The aircraft is a modified Boeing 707-320B. The most noticeable external modification is the rotating radar dome. Hydraulic pressure has been increased to drive the radar dome. Improved CFM International CFM56 engines have replaced the original Pratt & Whitney JT3Ds. Internally, the aircraft is very different with a host of avionics computers and other electronic equipment installed. The aircraft has 11 hours endurance, but can be increased with inflight refuelling. Crews work shifts using a rest and meals area. It has a bail-out tunnel for emergency inflight evacuation.



USAF Boeing E-3 Sentry.

Boeing KC-135 Stratotanker



USAF Boeing KC-135 Stratotanker.

installed. Along the way there have been many and varied changes to equipment and avionics, including a modern so called glass cockpit. A glass cockpit has electronic (digital) flight instrument display Liquid-Crystal Display (LCD) screens as opposed to the old analog dials and gauges.

The KC-135 Stratotanker is an air-to-air tanker and transport aircraft in USAF operation since 1957, albeit with a number of upgrades through the years. It was developed along with the Boeing 707, except it has a narrower and shorter fuselage than the 707. It uses an extending flying boom to refuel aircraft rather than a hose and drogue system used in a number of countries. Initially, four Pratt & Whitney J57-P-59W turbojet engines were fitted, then already in use Pratt & Whitney TF33-PW-102 turboprops were fitted in the 1980s, finally four CFM International CFM56 high-bypass turbofan engines were



USAF Boeing KC-10 Extender.

Boeing KC-10 Extender

The KC-10 is a three jet engine air-to-air tanker and transport aircraft in USAF operation since 1981. Originally the McDonnell Douglas KC-10 Extender until bought by Boeing. It is a military version of the Douglas civil DC-10 airliner. It can refuel using an extending flying boom, or hose and drogue systems. The aircraft has three General Electric CF6-50C2 turbofan engines, one engine nacelle under each wing and one mounted in and near the base of the vertical fin.

Lockheed Martin C-141 Starlifter



USAF Lockheed Martin C-141 Starlifter.

The C-141 is a four jet engine, long range heavy strategic transport that entered service in the USAF in 1964. It is powered by four Pratt & Whitney TF33-P-7 turbofan engines. A problem with its narrow fuselage design, even after lengthening, was that fully laden it would often still would not reach its fully laden weight. The narrow fuselage also meant that numerous military vehicles could not be carried. Nevertheless, it was a useful and able workhorse. Its large rear doors meant it was easily loaded and unloaded and could be used for paratrooper dropping. I often saw the aircraft at Johannesburg

International Airport. It retired from USAF service in 2006.



Eswatini Defence Air Force IAI Arava 201.

Eswatini (was Swaziland) Defence Air Force

IAI Arava 201

The Arava 201 is an Israel Aerospace Industries (IAI) light STOL utility transport aircraft. This aircraft, 3D-DAC, was written off in 2004. The aircraft landed on an agricultural airstrip due to worsening weather. Apparently, the control locks were not removed prior to take-off. The take-off failed and it overran into a sugar cane field. There were no casualties.

Johannesburg International Airport Aviation Africa 1994

The photographs were taken in the South African Airways technical area at Johannesburg International Airport (ICAO code FAJS) where they hosted a static Johannesburg International Airport Air Show. The show was held circa 1991 to 1994, the years determined by the appearance of an Atlas aircraft that first flew in 1991 and was written off early in 1995. My belief was that it was in 1994. It was 1994. Found an online photograph of the Cessna 208B Grand Caravan N404GE by Cornelius Saayman. In 2006 the airport was renamed O. R. Tambo International Airport (ICAO code FAOR).

SAAF

C47-TP Turbo Dakota



SAAF C47-TP Turbo Dakota.

The DC3/C47 Dakota had been in SAAF service since 1943. The decision was made to prolong the life of the aircraft at less cost than procuring a newer type of aircraft. Modernising consisted of replacing the piston engines with turboprops and extending the fuselage forward of the wing root. The conversion is a licensed version of the USA Schafer/AMI-65TP conversion. The three blade piston engines were replaced with five-blade constant-speed propeller Pratt & Whitney Canada PT6A-65AR turboprops. A bonus is that the propellers can be feathered or reversed and can be de-iced in icing

conditions. The aircraft also flies faster than the old DC3/C47 and is still able to operate from an unpaved runway. Internally the aircraft has had a major overhaul, including rewiring, new avionics (including sonar equipment and emergency beacon detection equipment), fire detection/extinguishing, the addition of weather radar (with console screens for the pilots, radar operator for maritime patrol and navigator). The radar is useful for sea-surface ship detection.

The first aircraft was completed and displayed 20th August 1991, the 2nd two months later. Six are currently (as of 2023) believed to be in service, although a number have been sold and some in storage. The primary use is for maritime patrol as well as search and rescue.

Denel AH2A Rooivalk



SAAF Denel AH2A Rooivalk.

The highly rated SAAF Rooivalk (Red Falcon) is a two seat attack/strike helicopter in service since 1999. It is the result of a project that started in 1984 at enormous cost. It was built in conjunction with the Oryx, which is based on the Eurocopter Cougar. Allegedly clandestinely with co-operation from French Eurocopter and Turbomeca engineers while a UN arms embargo was in force until 1994. The pilot sits in the upper rear seat while the weapon systems officer sits in the front. The cockpits have armour-protected and crashworthy seats. Obviously, ejector seats are not fitted. Upgrades and

modifications were made between 2007 and 2011. As at 2023, it is believed there are eleven in service.

Atlas Ace



Atlas Ace.

Although not a SAAF aircraft and it never entered production, the aircraft is of interest from a military aspect. The Ace was a two seat, Pratt & Whitney PT6A turboprop engine, carbon fibre composite trainer aircraft with retractable tricycle undercarriage. It was designed and built by Atlas as a contender to replace the SAAF North American Harvard trainer. However, the award went to the Pilatus PC-7, known in the SAAF as the Astra. The sole prototype flew in April 1991. It was shown at the Farnborough International Air Show in September 1994. It was written off in a landing accident in

January 1995. A second, improved, prototype did not fly and the project was cancelled.

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