Looking Back – Becoming a RAAF Fighter Pilot in the 1960s

Introduction

On joining HARS in April of this year, I was re-united with an old friend – the first production CAC Sabre, A94-901. On looking back through my logbook I found that I had flown 'our' Sabre five times during my Sabre training at No2 Operational Conversion Unit (2OCU) at RAAF Williamtown in 1965.

I probably erred in telling my friend and HARS member Peter Reardon about this, as he was soon telling other HARS members about my association with that lovely aeroplane. It is not that I minded this, as I thought it nothing particularly special – given that many other RAAF fighter pilots of the time would have flown A94-901. However, what did worry me was that I thought I detected, among some that heard this news, the hint of a notion that perhaps my place may be in the museum alongside the Sabre!! I don't think I'm quite ready for that yet.

Subsequently I showed Peter an article that I was asked to contribute to a book that was written to commemorate the 50th anniversary of the enlistment, in January 1958, of the 12th intake of the RAAF apprenticeship scheme (the members of which were, and are, known as Wombats – for reasons that some may understand). The title of the book is "WOMBATS 50 YEARS ON" and it was a prize winner in the 2008 RAAF Heritage Literary Awards. As well as detailing a lot of biographical information on the Wombats, the book also attempts (and we hope succeeds) in painting a picture of the RAAF of those times, starting not all that long (a mere 13 years) after the end of World War II.

I was lucky enough to be one of the two members of that apprentice intake who went on to become RAAF pilots, after we had completed about six or so years of work in our initial engineering trade.

Now, after a little bit of arm-twisting, I humbly submit the following article which draws heavily on the contribution I made to the 'Wombat' book. It is very much a personal account but I hope that it gives readers a picture of times past that we all very much enjoyed. While I have tried to be as accurate as possible with the historic detail, inevitably there may be some slight errors - given the passage of around 40 years and the dimming of memory.

Pilot training in the 1960s

My RAAF flying adventure started in January 1964 when I joined No 53 Pilots Course at No 1 Basic Flying Training School (1BFTS) at Point Cook. The course was a mixture of about 20 RAAF hopefuls (six of whom were serving airmen who started out as apprentices in technical trades; the remainder were "direct entrants"). We were designated as "Cadet Aircrew" and we soon came to learn that we were very low in the hierarchy when we found that General Hands and Cooks Assistants looked down on us! There were also about five Army Officers, and a few Navy people, of which one was an officer and the remainder were Cadets Aircrew.

For those of us who were Cadet Aircrew, our training comprised not only the theory and practice of flying but also the training needed to graduate as General Duties Officers. As well as all the technical stuff, there were the usual service distractions such as learning (or, for some of us, re-learning) how to march, do rifle drill, salute officers, etc. Apparently we weren't very good at

this, despite six of us having already served six or seven years. The result was that we hardly ever marched anywhere as a group of cadets; instead it was all 'at the double' – i.e running.

Nevertheless, between the bouts of running – with and without rifles – we steadily progressed with the ground school part of our course. This took some time and it was not until the 11 May that I was able to record in my brand new RAAF log book my first flight in Winjeel A85-443. The ground school did not stop there; it continued alongside our flying for the remainder of our training.

The over-riding memory of those days is the seemingly constant high pressure and the ever-present fear of being "scrubbed". This was not without justification, as the norm was that only about half of those who started a pilot's course would still be there to receive their wings on graduation day.

There were plenty of opportunities to fall by the wayside. These included all the exams and tests as part of the ground school with subjects covered varying from Air Force law, administration, maths and physics to aerodynamics, navigation, aircraft systems and Morse code. On top of that were the regular flying tests as you progressed through some 125 hours of training on the Winjeel. First there was the 25 hour test. Some did not make it past that. Then there was the instrument rating test (more failures). Next came the 70 hour test, followed by the final handling test and a final navigation assessment flight.

The Winjeel, with its tail wheel undercarriage and (Pratt and Whitney Wasp Junior) radial engine, was a fairly challenging aircraft to fly well. Having started off with the problem of getting airsick when doing aerobatics and especially when doing spins (not a particularly auspicious start for someone who later became a fighter pilot), I managed to recover enough to end up somewhere in the middle of the pack as we finished at Point Cook

This was not without having, along with many others, been on the receiving end of some of the 'usual punishments' meted out to those students who (according to their instructors) had committed misdemeanours before, during or after flight – such as forgetting a check, or failing to follow a procedure. One of the favourite punishments was to send the student, in flying gear, for a run across the airfield to a sight board and back – carrying his parachute! Once experienced, it was great motivation not to err again.

One of the more memorable moments during our Winjeel flying was the day, early in our training, when two of our course members had a mid-air collision just over the threshold of one of the runways. I was flying solo, turning from base leg on to final approach and saw the whole thing unfold in front of me. In effect, one aircraft was landing on top of the other (having not seen it under his nose) when they collided. I saw a shower of sparks as the prop of one hit the runway and then the other Winjeel pitched up, rolled and struck the ground inverted.

There was almost pandemonium, as at that time about twelve of our course members were airborne – mostly in the circuit - with a good number of them being on their first solo flights. We were all instructed to divert to and land at nearby Laverton, which some achieved with not inconsiderable difficulty. I found that the wisest thing for me to do was to orbit in the vicinity of Laverton to allow some space for the persons having difficulty (due to first solo and unfamiliar airfield, etc) so that they could make the few attempts that it took them to land successfully.

The pilot of the Winjeel that crashed inverted was seriously injured and very lucky to survive. Fortunately, a quick-thinking RAAF doctor was leaving the base on his way home and saw the accident. He hared across the airfield and performed life-saving first aid. The Cadet subsequently recovered from severe facial and other injuries and, after a stint as an air traffic controller, went on to complete another pilot course and have a very successful RAAF career.

Early November 1964 saw the end of our time at Point Cook, with the remaining 11 RAAF Cadets, plus a Navy Lieutenant and one Navy Cadet, moving to No 1 Advanced Flying Training School (1AFTS) at RAAF Pearce in WA for the next the next phase of our training. (The Army pilots left to continue their training with the Army at Oakey). Some of us were fortunate enough to travel on the inaugural Trans Australia Airlines Boeing 727 flight from Melbourne to Perth.

Our training at Pearce involved about 115 hours of flying on the Vampire MK35, which I loved. I had worked on the Vampire as an engine fitter at Fairbairn and had always wanted to fly it. Consequently, I remember my first solo flight as if it was yesterday. The sheer elation of being in control of my own jet for the first time was a moment that has stuck with me.

The routine at Pearce was much the same as at Pt Cook, but things were seemingly much more orientated towards the pilot training side of things (and we got to march rather than 'double'). However, the intense pressure and constant fear of failure of exams/tests continued, both in the air and on the ground. Two more of our course members left our ranks, one after the dreaded final instrument handling test. This may have seemed like a major set back to him then, but to his great credit he went on to become the Chief Pilot of Ansett during the 1990s.

Two things stick in my mind from our Vampire flying training days. The first is flying some of our high level (around 30,000 feet) navigation exercises with the pressurisation turned off due to concerns about some cracking found in the Vampire's plywood and balsa wood fuselage. We got to experience how the World War II fighter pilots must have felt when operating at those altitudes. Breathing was a constant effort and speaking was very difficult, resulting in considerable tiredness at the end of a long Navex.

The second is being encouraged by my instructor to develop a lower altitude (5,000 to 10,000 feet) aerobatic routine in the Vampire for my 'Wings' test. It was great fun, mainly due to the much better handling and performance that you experienced in the Vampire at the lower altitudes compared to our normal aerobatic routines where we were restricted to a base of 10,000 feet.

I was very happy to be among the 10 remaining RAAF Cadets and one Naval officer who were awarded our coveted pilot wings at a graduation parade early in May 1965. At the same time we cadets were appointed to short-service commissions as Pilot Officers. Although that seemed to us to be a considerable elevation in status, we soon found it meant that we had acquired a new name that again put us at the bottom of the pecking order. We were known as "bograts" or "boggies".

The "Bograt" meets the Sabre

So then it was off to our first flying postings as brand new RAAF pilots. I found myself, along with three of my course-mates, at No 2 Operational Conversion Unit at Williamtown, about to be trained as a fighter pilot flying Sabres.

My initial reaction was that I did not want to be there, as my strong preference was to fly the Hercules transport aircraft. In our initial meet and greet with the Officer Commanding 81 Wing at Williamtown, GpCapt Mick Mather (who at that time never missed the opportunity to fit another expletive into a sentence if it was at all humanly possible) gave me a fleeting opportunity to get out of flying Sabres. He said something along the lines of: "Right you bastards, if any of you don't want to be an f…ing fighter pilot, bloody well tell me right now or forever hold your f…ing peace!" He was more than a little intimidating, so I decided to hold my tongue and give it a go. Afterwards, I was very glad that I did.

Before we began to train on the Sabre we learned on the Vampire to fire guns, drop bombs, fire rockets and do all the sorts of formation, air combat manoeuvres and navigation required of fighter pilots. This was completed in a little over one month. We were then introduced to the Sabre simulator which was nothing like modern day sophisticated simulators. It was, in essence, a fixed base procedures trainer. But to us it was the height of modern technology after the World War II Link trainers we had struggled with at Pearce.

After a few hours in the simulator we progressed to the aircraft and sat in it running through our checks under the supervision of an instructor - to the stage where we started and ran the engine. Once this was completed it was time for practise taxying of the aircraft, partly to introduce us to the concept of nosewheel steering – one of the features of the Sabre that was new to us. This was where the poor instructors really earned their money by performing something that would never be allowed under today's OH&S regimes. Because there were no dual control Sabres, the instructor stood on the wing hanging on to the cockpit sill while the student taxied the aircraft. This was not without considerable risk, as getting the hang of the nosewheel steering was not easy. Sometimes, in lapse of concentration, the student would let go of the steering button and the aircraft would tend to spear off the taxiway. Inevitably, this would be followed by a bout of severe braking from the student, with the instructor hanging on for grim death to try to avoid sliding off the front of the wing and under the wheels!

The next big event was the first flight – which of course was solo, because there were no two-seat Sabres. This is another event that left an indelible impression on my memory. But before I relate a few memories of that, some words on the Sabre.

It was the top US fighter of the Korean War and one of the first production aircraft capable of going supersonic in a dive. It fitted the maxim that "if it looks good, it will be great to fly". Our RAAF version was an improvement on the earlier US models. It was built in Australia by the Commonwealth Aircraft Corporation and was introduced into the RAAF in about 1954. One of its distinguishing features was a deeper fuselage that was needed to house the Rolls Royce Avon engine unique to our variant. The Avon gave it improved performance, especially at higher altitudes. We regularly flew it in all types of manoeuvres at up to 45,000feet - something an American Marine I met, who had flown an earlier US version, found almost impossible to believe. Another distinguishing feature was the two 30 mm Aden guns that replaced the six 0.5in calibre machine guns (peashooters) of the US versions. Our Sabres were also fitted with two Sidewinder passive homing infra-red air to air missiles.

The Sabre had what some called the "T-Model Ford version" of a powered flight control system. The primary flight control surfaces were operated by hydraulic actuators, the valves of which

were linked mechanically to the control column. There was no direct, or backup, mechanical link between the stick and the control surfaces. Artificial 'feel' was provided by a system of bungees assisted by a bob weight that increased resistance to aft stick force in proportion to the G force on the aircraft at the time. There was no system to change the control 'feel' in proportion to the indicated airspeed of the aircraft.

At slow speeds the Sabre's controls felt very heavy and required large movements. At high indicated speeds the 'feel' was likened to "sitting on a billiard ball" – it took only a minor twitch to cause a rapid divergence of flight path. This meant that you had to be very careful in the latter situation as it was very easy to overdo pitch changes and overstress the aircraft or even, as happened on at least one occasion, rip the wings off the aircraft.

The other concern with the Sabre was that, unlike the Vampire, it did not have anti-skid brakes, so landing on a wet runway with the narrow, high pressure tyres could be a very interesting experience. Over-exuberant braking could lead to aquaplaning and then possible loss of directional control. I remember on one occasion during Sabre training, rolling out as number two at the end of the landing run in rain and looking back and seeing number four's Sabre (a fellow student) coming sideways down the runway!

Apart from this it was a delightful aircraft to fly, especially in mock aerial combat, as the big bubble canopy allowed you great all round vision, particularly in that all important area of your "six o'clock". The cockpit was relatively big and roomy and thus comfortable. The difference between it and the Vampire reminded me of the difference between sitting in a big American car and a small English sports car such as the MG "T" series that was popular with some of us at the time. However, the Sabre's cockpit air conditioning was a bugger at low level in the tropics. It could not separate the moisture from the air and often it would turn out a cold mist (sometimes accompanied by chunks of ice) that rapidly fogged up the cockpit canopy - which was the last thing you needed when close to the ground at high speed. Indeed, if it caught you unawares, it could be positively scary. The remedy was to turn it off and swelter in the heat.

But back to that first flight. You were accompanied by an instructor in another Sabre who flew in formation as a chase pilot. This is my recollection of the flight:

> *We are lined- up at the very beginning of the runway ready for take-off, with my instructor's Sabre tucked along side. Close that big bubble canopy. Cleared for take-off. Hard on the brakes and push the throttle smoothly forward up to max RPM. It's now straining to be unleashed. Thumbs up from the instructor and release the brakes. Wow! We have only just left the concrete 500 feet down the runway and the airspeed indicator is already showing 50 knots. This is nothing like a Vampire. In no time at all we are at the airspeed to crack the nosewheel and then the lift off speed has come and gone. Gently move the stick back to ease it off the ground and in no time at all we are airborne. Get the gear and flaps up.*
>
> *Now concentrate like mad to get the right pitch attitude and try to keep the wings level. Gee, it is really sensitive in roll. Don't clutch the stick so tightly and try to relax. Ah! That has stopped some of the frantic wing-waggling. Suddenly we are passing through 1,000 feet still on the runway heading. A voice comes through my helmet headphones. It is my chase instructor: "come on, be a devil. Try a turn!"*

We then fly out to the training area and practise the manoeuvres needed to be able to fly a circuit and landing. We practise using the speed brakes, lowering the landing gear and flaps and doing a simulated approach and go-around (touch and goes in the Sabre were forbidden). Then it is back to the circuit to do the real thing. We do several circuits and approaches, followed by go-arounds and then it is time for the real landing. By this time I am starting to get a little used to the feel of this wonderful aeroplane and I manage to make a reasonable approach and touch down with only a minor bounce. I feel instant relief and elation at the same time. I am going to love flying this aeroplane that I originally didn't want to fly.

And I did.

My Sabre training at Williamtown began with that first flight on 24 August 1965 and ended with a large formation 'simulated strike' on 11 November 1965. My log book shows that at the time of graduation from No 24 Fighter Operational Conversion Course I had a total of 71 hrs and 15 mins on the Sabre. Licensed to kill (probably myself only)!!

During that time we started out with the basics of learning (or teaching ourselves) how to take off and land. Then it was on to close formation, instrument flying, navigation exercises and battle formation. Next was air to ground gunnery, rocketry and dive bombing on the Saltash range adjacent to Williamtown. Initially, just hitting Australia felt like an achievement, but some slow improvement gave us hope.

After that it was on to practising air to air attacks on other aircraft using the cine camera to record our success or otherwise in achieving a 'kill'. This was followed by live air to air gunnery, which involved shooting at a towed aerial banner with colour-tipped ammunition. Many a disheartening moment was spent by students who vainly searched the recovered banner for evidence of hits from their colour of 30 mm ammunition.

Finally, we moved on to more advanced mock aerial combat, or "air combat tactics" as it was called. This started out with one versus one and ended with four versus four. It was here that we began to learn our trade as a wingman, something we would do for some time hence until we qualified as a leader – first of a pair, then a four, and then an eight ship formation. Initially, learning to fly as a wingman was a very difficult task. You were supposed to fly in a 60 degree 'cone' about 600 feet behind your leader while looking over your shoulder to detect any threat aircraft coming from behind. This allowed the leader to concentrate on the tactical situation out in front of him. Unfortunately, until you had a bit of experience under your belt, there was not much looking behind as you spent a lot of time trying to avoid running into your leader (or someone else) who could be aggressively manoeuvring at up to 6 'G'.

It was during this Sabre training at 2OCU that I flew the Sabre A94-901 that is now at HARS. My log book shows the following entries:

- 2 Sep 65 Close formation 25,000 ft 1hr
- 13 Sep 65 Low flying 40 mins
- 16 Sep 65 Pairs patrol formation 55 mins
- 23 Sep 65 Rocketry 40 mins
- 9 Nov 65 Four versus two air combat tactics 55 mins

All of my subsequent operational Sabre flying was done from Butterworth in Malaysia from December 1965 until March 1968. At the beginning it was in the era of the Confrontation between Indonesia and Malaysia. Initially I flew with No 3 Squadron then, following its return to Australia in 1967 to re-equip with Mirages, I was transferred to No 77 Squadron.

It was an interesting time to fly Sabres as they were nearing the end of their time as a front line fighter aircraft, with the then new Mirages just entering service. When I arrived at Butterworth, I was the newest and least-experienced squadron "bograt"; by the time I left with nearly 700 hours Sabre time, I was one of the most experienced pilots in 77 Sqn, apart from the executive pilots and the squadron Fighter Combat Instructor (FCI). Almost all of the very experienced pilots had been moved on to begin Mirage training. It was a happy unit with there being no shortage of youth and exuberance.

We flew all of the classic fighter roles: air defence intercepts (within the limits of the Sabre's day-fighter only capability); air to ground weapons delivery (bombs, rockets and guns); live air to air gunnery on towed aerial targets; simulated air to ground strikes', including on simulated "terrorist headquarters" in the jungle; and, lots of "air combat tactics" missions.

Our bombing, rocketry and gunnery missions were conducted mostly at the weapons range on Song Song island which was a few minutes flying time north of Butterworth, just off the coast. This led to the need, from time to time, to 'volunteer' for the duties of Range Safety Officer at Song Song. It was not an arduous task as you went there and back on an RAF crash rescue boat and stayed overnight for a few days on an adjacent island. You then travelled the short distance to and from the range each day by the crash boat. It was about the closest that you would ever get in the real world to McHale's Navy!

Part of the posting at Butterworth in those days was the reality of several deployments to No 79 Squadron at Ubon in Thailand where eight Sabres had a role in the "air defence of Thailand". I had two tours of two months and four tours of one month each during my Sabre flying days (adding up to a total of 200 days – making me the second-longest serving Sabre pilot in the entire period that 79 SQN Sabres were deployed at Ubon). The flying mainly involved practise air defence intercepts and air combat tactics with some limited simulated strike and armed reconnaissance tasks. We generally flew under the control of the local "Lion" air defence radar station with whose people we enjoyed a very good rapport.

One of the benefits of flying from Ubon was that we got to fly mock aerial combat missions against some of the USAF and US Marines aircraft that were operating in the Vietnam War, including in North Vietnam. They seemed to welcome the opportunity, as the Sabre had a performance similar to the MIG-17 aircraft that they sometimes encountered over North Vietnam. We also very much enjoyed the chance to enhance our air-fighting skills against A4s, F4s, F102s, F105s and F106s to name a few. We particularly enjoyed stoushes with F4s of the USAF 8th Tactical Fighter Wing, led by the legendary Col Robin Olds, with whom we shared the base at Ubon. There was sometimes a good opportunity for a spirited de-brief in their bar or ours afterwards, to try to resolve "who waxed who"!

The following are brief recollections of some incidents in my Sabre flying career:

In February 1967 I was one of two Pilot Officers in 3 Sqn who were chosen to fly Sabres back to Australia. We flew as part of a formation of eight Sabres, operating in two 'fours' twenty minutes apart. The route was: Butterworth – Changi, Singapore – Den Pasar, Bali – Darwin – Townsville – Williamtown. It was not long after the end of Confrontation and the events in Indonesia when General Soeharto deposed former President Soekarno. The airport at Den Pasar, Bali was only 5,000 ft long (we normally used 8,000 ft, so it was short for a Sabre) and was in the process of being extended, with a 20 ft drop off one end. So, before departure we spent some time practising short landings while carrying external fuel tanks.

All went well with the flight initially, apart from our formation flying through an enormous thunderstorm on the way into Changi. But it was on the leg from Changi to Den Pasar that things got interesting for me. It was a very long leg and we would arrive at Den Pasar with the bare minimum of fuel remaining. We were carrying the large external (drop) tanks. These were pressurised by bleed air from the engine and fed fuel into the main tanks of the Sabre. There was no gauge to show the fuel remaining in the external tanks, so the only indication they were empty was a caution light coming on, followed by the reading on the main fuel gauge starting to drop.

On the Changi to Den Pasar leg in my Sabre (A94-367) this happened very much earlier than planned. Somehow I did not seem to have got all of the fuel that I should have from the external tanks and now the main fuel gauge reading was dropping. After a few radio calls, I ascertained that I had about the same fuel left as those in the formation that was 20 minutes ahead of ours. That meant that I would get to Den Pasar with the tanks almost dry. After much discussion with my leader on options, including jettisoning the external tanks, we decided to keep the tanks on and stay at altitude (45,000 ft) until we were almost overhead Den Pasar.

Thereafter followed a harrowing time as I watched the fuel gauge reading dropping ever lower with Den Pasar getting closer at what seemed to be an agonisingly slow pace. At last Den Pasar appeared over the horizon. My leader stayed with me and the other two members of our formation split off for a normal approach. With the airfield in sight, and within gliding distance, and with my fuel reading by now very low, we started our descent on idle power to conserve what little fuel I had left. By now I was getting pretty tense, because I was facing one shot at a landing on a very short runway with almost no fuel left. And then, during the descent something strange (and wonderful) happened. The 'external tank empty' caution light went out and the main fuel gauge reading started to rise. Within a few minutes I had the same fuel reading as my leader. A feeling of immense relief swept over me and I then happily diverted my whole attention to successfully landing on the short runway.

What happened? The experts' best guess was that there must have been some water in the system that eventually froze at high altitude, restricting and then stopping the flow from the external tank. This ice then melted in the descent and allowed the remaining fuel to flow from the external tank into the mains. I was happy to believe their theory as it certainly fitted the symptoms and the problem did not re-occur on later legs.

The next recollection concerns one of the fun aspects of flying the Sabre. You could open the canopy while airborne, provided your airspeed was below 215 knots. Not only was this a bit of fun (sitting like Joe Cool with the canopy back and your elbows resting on the sill [but don't stick them too far out into the slipstream, or it'll rip your bloody arms off!]) – it could also be useful. At the later stages of my Sabre flying at 77 Sqn I was sometimes tasked to carry out maintenance

test flying of Sabres out of a major servicing at 478 Maintenance Squadron. One of the tricks taught to me by an old hand, who was our Squadron Fighter Combat Instructor, concerned cleaning out the cockpit while airborne. The procedure went something like this. Slow down and open the canopy. Roll the aircraft inverted and push on the stick to create negative 'G'. This caused all of the accumulated rubbish, dust, etc to rise up from the cockpit floor into the canopy area. You then gently applied a bit of rudder to cause the aircraft to skid and direct a very strong breeze into the inside of the canopy area, which very effectively removed any of the detritus lingering there. Voila! A clean Sabre cockpit.

My final recollection is appropriate because it concerns my last flight in a Sabre. For this flight I was the leader of a formation of four Sabres that would do 15 degree rocketry on Song Song range. We were fully laden with 30 (five tiers of three under each wing) of the World War II style British 3-inch rockets with dummy concrete heads. We were having fun firing them all off, as they had reached their "use-by date" in storage.

The procedure was that we took off in two pairs in echelon right formation and then joined up as a formation of four to fly to the range. All went well until not long after I was airborne when my number four called that he had had a compressor stall just after take-off. I immediately turned rapidly and caught sight of him just as he had completed a short zoom and was starting to descend again. I called, as did No3, for him to eject. But he replied, much to our dismay, that he was going to land straight ahead.

We watched the Sabre, now with its wheels down, touch down in a dry paddy field off the end of the runway, whereupon the landing gear broke off, the rockets dug in and broke off and the aircraft skidded along, coming to rest sideways but upright in a drain at the edge of the paddy. The left wing had almost separated and a fire had broken out at the wing root. There was still no sign of the pilot and we feared the worst. Then, all of a sudden, a figure appeared through the partly open canopy and sprinted towards the end of the right wing. At this point we saw him jerk to a sudden stop because he was still attached to the seat by his dinghy lanyard. He quickly undid it and moved to a safe distance from the aircraft. He was OK, but no-one could ever figure out how he got out through such a small gap in the canopy.

I then called the control tower and asked them if they had copied that an aircraft had just crashed off the end of the runway. The reply was "say again" in a tone that indicated that they had no idea, despite it happening just after the departure end of the runway - and all of the radio chatter about crashing aircraft, including calls to eject, that occurred on their tower radio frequency. At the subsequent investigation, I was asked why I had not declared a mayday? Well, yes …but, blind Freddy… Oh well, that's life.

That flight, in A94-956 on 19 March 1968, was my last one in a Sabre, with my log book showing that I had flown a grand total of 689 hrs and 55 mins in that lovely aeroplane. All Sabres were immediately grounded pending an investigation by then GpCapt (later Air Marshal, and Chief of the Air Staff) James Rowland. It found that CAC when overhauling the Avon engines had been putting in increasing numbers of 'blended' compressor blades (i.e. blades that had had minor damage to their aerodynamic surfaces that was removed by, in effect 'sanding' them). The increased use of blended blades had moved the engines closer to their surge lines so that there was a greater likelihood of compressor surges/stalls in relatively benign flight environments. This appears to be what happened to No 4s Sabre.

Flying the Mirage III

So then it was back to Williamtown to learn to fly the Mirage, starting in May 1968. Before I mention a few recollections of my five and a half years of Mirage flying, it may be appropriate to set the scene on what was then the brand new front line fighter for the RAAF - with aircraft still being delivered off the production line at the Government Aircraft Factory at Avalon in Victoria.

The Mirage was an aircraft designed in the 1950s and despite it appearing to be a state of the art Mach 2 fighter it incorporated technology that belonged to the 1950s, rather than the vastly improved technology that came out of the US space program that was well into its stride in the 1960s (remember this was 1968 and the first Apollo landing on the moon did not take place until mid-1969). One of the examples of the dated technology was that, while the Mirage was equipped with a radar and associated weapons system including a semi-active radar homing air to air missile (the Matra R530), that radar actually incorporated valve technology. That will give an idea of the rest of the technology in the aircraft.

The Mirage began being delivered to front line squadrons in late 1964, with No 75 Squadron being the first to receive the aircraft. By May 1968 both 75 Squadron (then in Butterworth) and No 76 Squadron at Williamtown were fully equipped with the Mirage IIIO-F which was the air defence version of the fighter - fitted with the Cyrano IIA radar. At that time 2 OCU and 3 Sqn were receiving new Mirage IIIO-A aircraft which was the multi-role version of the aircraft fitted with the Cyrano IIB radar and a Doppler navigation system. The IIB radar incorporated a ground mapping function with terrain avoidance features that allowed radar navigation close to the ground, day and night, in all weather, for the ground attack role. It also retained the air defence radar capabilities of the IIA. Later on, all Mirage IIIO-Fs were upgraded to IIIO-A standard.

One of the advantages that the Mirage had over the Sabre was that there was a two-seat version for training (the Mirage IIID). However, there was one significant shortcoming with the two-seater. It did not have a radar. So it was virtually useless for training in most of the main operational roles where radar was integral to the outcome.

The Mirage operational conversion course that I was on was the first to undergo the complete multi-role training on the Mirage IIIO-A. It lasted about four months and in that time we flew about 86 hours. Looking back through my log book I was amazed to see that I was sent solo after only 2.8 hours in the two-seater.

What was it like to fly? Again, it fitted the rule: “if it looks good, it will fly well”. And that was the way it was, once you got used to the characteristics of its delta wing. It did not like to be slow, but once you got it going, it had delightful handling with very few vices. The cockpit was much more snug than the Sabre, but comfortable enough for normal sortie lengths. These were generally a bit over an hour with the 110 gal supersonic tanks fitted, or 40 to 50 mins without. With the larger external tanks fitted (a choice of 286 or 374 gal) it would go further, with the larger tanks allowing you to go from Townsville to Darwin at high level for a sortie length of just over two hours.

We fitted the larger external tanks for some ground attack missions, such as carrying two 1,000 lb bombs on strike missions to the Dutson weapons range near East Sale. In that configuration the aircraft was at its maximum take-off weight of 30,000 lbs – pretty darned heavy for that small delta wing. The take-off speed at that weight was very close to 200 knots and in later years the max weight was further limited because it was found that on hot days, the take-off true ground speed was exceeding the speed rating of the tyres. You did not have to tell us pilots that. In that configuration it took every last usable foot of runway to get off the ground on a 30 deg plus day, just sneaking over the arrester barrier at the end of the runway, after a very gentle lift off.

The difference in speeds on take-off and landing was one of the things that struck you most when you moved from the Sabre to the Mirage. A typical take-off in the Mirage with the 110 gal supersonic external tanks saw you raise the nosewheel at 120 knots and rotate to get airborne at about 175 knots. You then accelerated to 400 knots/Mach0.9 for the climb in dry power (450kts/M 0.9 with afterburner), with a 45 deg bank turn onto your initial climb heading. Speeds in the landing circuit were much higher, with you carrying at least 200 knots until straight on final approach, reducing to 175 knots as you crossed the runway threshold to touch down at about 165 knots and deploy the brake parachute.

There was no doubt that the Mirage was a fast, high performance aircraft for its day. It was a genuine Mach 2 aircraft, which was something we all saw during our conversion course. One of the exercises was to take a clean aircraft up to about 40,000 feet, select full afterburner, and then gently descend while accelerating to see how fast it would go. It was a case of going for as long as you could, before desisting because either the fuel was running out or the Mach Warning light (which measured engine inlet temperature) came on. I managed to see Mach 2.1.

Speaking of fuel running out, there was an interesting feature of the Mirage fuel system that occasionally caused some alarm. The main fuel gauge only showed what was left in the main fuselage tank. There were other tanks distributed all around the aircraft and these fed into the fuselage tank. A system of amber lights showed when these other tanks were empty, but you only knew how much fuel you really had when the main fuel gauge reading started to drop. The cause of the occasional alarm was that if you operated for any length of time in full afterburner at low altitude, the engine depleted the main fuselage tank quicker than the other tanks could refill it. As a consequence, the main fuel gauge reading would drop at an alarming rate with you sometimes only becoming aware of it when the red “130 gals of fuel remaining” warning light came on. At low altitude that was about enough fuel to get you precisely nowhere (maybe for a circuit and landing if you were alongside the airfield). Of course you would immediately cancel the afterburner and wait anxiously while fuel from other tanks hopefully fed into the main and the gauge reading began to rise.

Another interesting exercise that allowed you to experience the quite startling performance of the Mirage was to carry out a post-heavy maintenance test flight in a clean-configuration aircraft. The test schedule required that you carry out a full afterburner climb, starting the clock at brakes release and stopping it at 30,000 feet. You also had to write down a set of instrument readings every 10,000 feet. Talk about a mission almost impossible! I recall that on a good day the time to 30,000 was about 3 mins, with the first 10-20,000 ft disposed of in a very short order. I also seem to recall that the climb attitude was somewhere around 30 deg nose-up or more for quite a while. This is no doubt not quite as awesome as the performance of fighters like the F/A–18

Hornet that can have power to weight ratios of better than 1:1, but nevertheless it was suitably impressive from the inside, looking out.

So what did we do with the Mirage? First there was the air defence role. This mainly involved practicing intercepting target aircraft with the aim of using a missile to achieve a 'kill'. Often this involved Mirages operating as a pair in 'radar trail'. This meant that the number two aircraft followed about three miles behind his leader– maintaining station by following the 'blip' of his leader on the radar. It was in this role that you first became aware of the "one armed paper-hanger" nature of trying to fly the aircraft as well as successfully operate its fairly primitive radar and weapons systems. One of the limitations was the short detection range of the Mirage's radar, particularly from head-on aspects and especially against a relatively small target like another Mirage (which were often used as targets, although there was increasing use of Canberra aircraft later on).

An example of an extremely difficult exercise was the 150 degree frontal (i.e. 30 deg off head on) "snap-up" supersonic intercept. This involved flying at Mach 1.2, about 10,000 feet below a target travelling at about Mach 0.8. The closing speed would therefore be something like 20 nautical miles per minute. With the Mirage's Radar, it would be a good day if you saw the target at 20 miles and achieved a lock-on at about 15 miles. Just getting to this stage meant extreme concentration on manipulating the radar while still trying to fly the aircraft and keep it in some semblance of stable flight. With a good day and lock on of the radar at 15 miles it was then a case of following the heads up display "sight orders", which often would command a rapid pitch up and possibly a turn. You would manoeuvre quickly to try to zero sight orders so that you could achieve the Matra lock-on tone that meant you could 'fire' the missile. All of this at the closing rate of a mile every three seconds. Then it was a case of calling "MA [mission accomplished] Primary" and recovering to normal flight without going through the altitude of the target aircraft (which was a strict "no-no"). Sometimes this meant rolling inverted and applying considerable back stick to arrest the climb – which was all very good for the adrenalin on a dark and stormy night! You then had to be ready for a sharp turn and a re-attack from the rear, should it be considered necessary by the intercept controller. And, if you were number two of a pair in radar trail, there was then the added task of re-establishing and maintaining your radar trail position behind your leader.

Of course, all intercepts were not this difficult, but in general the workload of flying a high performance single seat aircraft, while at the same time operating its manually intensive radar and weapons systems, was always a difficult and, at times, almost overwhelming task, with the attendant dangers of task overload.

The other difficult task that came with the Mirage IIIO-A was that of radar navigation. This was often part of ground attack/strike training missions. The difficulty again revolved around the manually intensive nature of having to fly the aircraft safely while at the same time operating the radar to confirm where you were (of course night and bad weather were again the worst case) and, when operating at low level, that you had safe terrain clearance. On at least one occasion this proved too much for a pilot and sadly he ran into a hill.

Another task was air combat tactics practice. Here again there was quite some difference from the Sabre. Although you would operate the Sabre to some extent in the vertical, most air fighting

involved a lot of manoeuvres more in the horizontal plane using tight high 'G' turns while trying to achieve a guns 'kill'. With the Mirage, this was sometimes the case, but more often you would want to use the aircraft's superior performance to open the fight out by making much more extensive use of its vertical manoeuvring capabilities. That meant that in an air combat 'hassle' (as we called them) you could cover a remarkable area of sky and traverse almost the whole range of the performance envelope. I recall that at one time in Butterworth we were flying air combat tactics missions in clean aircraft and it was not unusual to see manoeuvres covering speeds that ranged from zero to Mach 1.6 and traversing over 10,000-15,000 feet, or more, of altitude within a minute or so. With lots of use of afterburner, these missions only lasted about 30 to 40 minutes. They were extremely demanding (and tiring) but boy, were they fun!

The final main task for which we regularly practised was air to air and air to ground weapons delivery. The air to air gunnery involved using the Mirage's two 30mm DEFA guns (each capable of shooting over 1,000 rounds per minute) to shoot at airborne towed banner targets. Air to ground weapons delivery was similar to the Sabre, with the Mirage having no automated air to ground sighting system. Effectively it involved an 'iron sight' and results relied entirely on the skill (and sometimes luck) of the pilot handling the aircraft. We practised bombing (low level skip, 15, 30 and 45 degree dive angles) and gunnery (15 and 30 degree dives). Our Mirages were then not equipped to fire rockets.

My Mirage flying comprised the initial training course; about 12 months at 76 Sqn at Williamtown; 12 months at 75 Sqn in Butterworth; a Fighter Combat Instructor course; and then three years instructing at 2 OCU at Williamtown. At 2 OCU as well as being an instructor, I was a flight commander responsible for ground attack training and later moved to being the flight commander responsible for air combat tactics training. When my Mirage flying finished in December 1973, I was lucky enough to have flown about 1400 hours with this beautiful French lady.

To finish, here are a couple of recollections from my Mirage flying days.

The first involves being a 2 OCU instructor and trying to teach radar navigation while flying in formation. As previously mentioned, the two-seater Mirage had no radar. So for the students to learn radar navigation, they were firstly given extensive briefings followed by practise in the Mirage simulator - which replicated all of the radar's functions and performance. After that it got interesting.

Picture two single seat Mirages flying in close formation with the instructor as the wingman. Radars are going and as we fly along the instructor, in addition to maintaining his formation station now has to look at his navigation system. He gets a rough idea of where he is and then scrolls the manual moving map display, hanging from the gunsight in front of him, to place the origin at the approximate current position on the map. All this, while continually glancing back to make sure that he maintains formation and doesn't run into his student. He then glances back at the map and picks a key feature. He diverts attention to the radar, adjusts the antenna angle and gain, and tries to pick out the feature. All the while he is sneaking quick looks to stay in formation. Then he says to the student something like: "antenna down 15 degrees, back off the gain a bit and you will see a return at about 15 degrees left at 25 miles. What do you think that is?"

And so it went on. Makes a "one-armed paper hanger's" job sound like a breeze! And that was on a good day when there was no cloud. One of the tricks you got to learn was that the student often would focus on the radar to the total exclusion of flying the aircraft. Often the first clue that this was happening was that the suck-in auxiliary air doors on the engine intakes would start to move inwards, which indicated that the airspeed was getting back to around 250 knots (from recollection). This was a sure sign of inattention when we were supposed to be doing around 400 knots. "Airspeed" was the call to wake the student.

A particular experience I had with this little exercise is indelibly imprinted on my mind. We were carrying out a medium/low altitude radar navigation instruction flight, with me instructing an experienced ex-Sabre pilot converting to the Mirage. If the training was difficult on a clear day, it was miracle-worker stuff on a day with total cloud cover. You now had the added complication of flying in formation in cloud. This meant that you also could not drift too far away or you would lose sight of the student. In addition, you had to try to split your attention even further and monitor your flight instruments to check that the student was paying due attention to keeping the aircraft under control in cloud. This turned an almost impossible task into something even worse.

On this day, we had flown the whole medium level part of the exercise in cloud and things had not gone too badly apart from the need for one or two "airspeed" calls. Then came the time to descend to the lower altitude for the low level part of the exercise. The student called that he was descending and I acknowledged. Some time later we emerged from the base of the cloud, with me smoothly maintaining close formation alongside my trusted student. The "trusted" bit suddenly went out the window as I sensed that something seemed terribly wrong. I soon realised what it was. We had emerged from the clouds but with the ground above our heads and the clouds underneath our feet. We were almost inverted – but still flying in very smooth close formation! Fortunately, we still had quite a bit of altitude beneath us to allow the embarrassed pair of us to get things upright and under control again.

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My final fighter flying anecdote concerns an amusing incident over the Woomera weapons range during my time at 76 Sqn. Three of us had taken three Mirages to Woomera to support development trials of the Rapier ground to air missile system. Our task was to fly defined mission profiles towards, or past, Rapier missile batteries to allow the Boffins to assess the effectiveness of its detection and tracking capabilities.

The mission where the incident occurred was one where I was required to fly a clean Mirage over a defined route on the Woomera range. My other instructions were to fly as low and as fast as possible. This meant an altitude of 250 feet above the ground at a speed of 750 knots. They didn't have to ask twice!

On the day, I duly covered the route at those speeds and altitudes. The sortie time was about 30 minutes because of the very high fuel usage. Flying the Mirage at 250 ft at 750 knots was an unbelievable experience. The sense of speed, coupled with the noise of the airflow on the aircraft (it sounded something like a very loud and eerie "oil-canning" type of noise) was absolutely mind-boggling. Of course the sense of speed was hardly surprising given that the Mirage was covering about twelve and a half miles a minute (or a mile in less than 5 secs). Added to this for people on the ground was the magnificent sonic boom that accompanied the aircraft, as we were well supersonic.

Now enter this poor British weapons de-fusing person. At the same time that we were at Woomera a detachment of RAF Canberras was on an exercise carrying out live firings of their Nord AS-30 air to ground missiles. One of these had failed to explode on impact and the weapons de-fusing person was out in the desert, with his hands in the missile, de-fusing it. Murphy was alive and well that day and my route took me directly over the top of him. Of course he had no chance of hearing me coming and the first he knew of my presence was when a very noisy Mirage in full afterburner flew very low over him followed by the most enormous sonic boom. He obviously thought that he was done for.

The first I knew of this was later that evening in the Mess when a slightly sozzled, very angry, and still shaking, weapons de-fusing man found me and left me in no doubt about what he thought about me and low flying supersonic Mirages.

My Mirage flying days sadly ended in December 1973 when the RAAF in its wisdom decided that I should leave fighters and fly Iroquois helicopters. There began a second chapter in my adventures as a RAAF pilot that included two stints of helicopter operations in the Sinai Desert as well as helicopter flying in Papua New Guinea, Irian Jaya and New Zealand.

Perhaps that will be the subject of another story at another time.