

## **77 Squadron Aerobatic team - The Deltas - Bill Simmonds**

Squadron Leader Jim Treadwell had been the Temporary CO of No 77 Squadron since it had been reformed in mid 1969. I was appointed CO in early December. The Squadron was the last to be equipped with Mirages. Consequently it inherited aircraft from the other four units painted in their squadron colours, ground support equipment that nobody wanted and by and large, untrained airmen. Despite Treadwell's best efforts and through no fault of his own 'Malfunction Junction' as it was jokingly referred to, was a shambles.

The senior engineering warrant officer, unquestionably the most important individual in the maintenance organisation had come from a maritime squadron in Townsville. He had absolutely no experience in organising multiple aircraft departures several times a day. One of my first tasks was to brief the entire squadron in one of our hangars. My message was quite clear. The squadron had earned an envious reputation during WW2 and in Korea and I was not about to let it remain 'Malfunction Junction'. Anyone who fell short of expectations would be posted elsewhere.

At a meeting with the Base Commander soon after, I explained the situation to him and what I intended to do about it. His unqualified support, including the immediate replacement of my engineering warrant officer was very reassuring. Two years later after a Technical Staff Inspection by a team of officers from Headquarters Operational Command, Group Captain Lynn Compton said to me-'Congratulations- two years ago the engineering standards of your squadron was such that it shouldn't have been allowed to operate. Now of the 16 RAAF Operational Squadrons, it is No 2.

At the end of January the squadron was deployed to Tindall for the first ever fighter aircraft exercise during a 'wet' season. The two hour flight from Townsville to Tindall was flown for the most part in cloud, despite a cruising altitude of 40,000 feet. Following a radar controlled let down I was relieved to see the runway immediately ahead. Weather conditions at that time of the year can be horrendous, with the tops of cumulonimbus clouds in the Darwin area reaching 65,000 feet at times.

Tindall was little more than a 'bare base' at that time with no permanent buildings to speak of. We were accommodated in tents, not very pleasant when the weather was wet day and night. I recall finding a green frog in one of my flying boots one morning after a night of heavy rainfall. Due to the prevailing weather conditions the long range fuel tanks remained on the aircraft to enable us to divert to Darwin if necessary at the end of each sortie. Incidentally the name of the exercise was 'Castor Oil.' Very apt indeed.

My crew room like many buildings at Williamtown at that time could best be described as a wooden shack, No 2 Operational Conversion Unit having the

only permanent headquarters. At a meeting with the pilots it was decided to do something about its dilapidated condition. Our very talented Dave Robson had the idea of creating an English style pub- not surprising really, after all he was born in England. Our single living in officers worked at weekends for the next few months to transform the original building into something we could be proud of. It was unique. It was no longer a pilots' crew room-all of the squadron's officers were encouraged to use it. On occasions it was the venue for social functions in preference to the Officers' Mess. Some years later after completing the Test Pilot Course, Dave was responsible for an even more authentic crew room at the Aircraft Research and Development Unit at Laverton.



**The Squadron Crew Room**

Following a morning aircrew briefing in mid 1970 Air Commodore Ian Parker told the commanding officers of the three Mirage units under his command, Numbers 76 and 77 Squadrons and No 2 Operational Conversion Unit, the news that HQOC had directed that a 4 Mirage aircraft aerobatic team was to be formed to celebrate the Golden Anniversary of the Royal Australian Air Force the following year. It was yet to be decided which unit, including the two squadrons at Butterworth, Nos 3 and 75, would be given the task.

My immediate response was that I was not particularly interested and I advised Air Commodore Parker that I would not be vying for the honour. I

explained my reasons, which were many and varied. I had performed quite a lot of demonstration flying in the past; including the lead role in the No 20 Squadron RAF part time aerobatic team in Germany. I was very much aware that formation aerobatics in high performance aircraft couldn't be done safely and competently on a part time basis. Furthermore, in my view, the Mirage was not particularly suitable for formation aerobatics, especially with only four aircraft in the formation.

When on exchange duties with the United States Air Force I had been invited to join the Thunderbirds Aerobatic Team on one of their regular deployments. This experience provided me the opportunity to assess just how much effort and resources are required to support a professional aerobatic team. To develop one for our Golden Jubilee year could not be done on a shoestring. It would require months of concentrated full time effort.

I assumed that my views on aerobatic teams would have been the end of the matter as far as 77 Squadron was concerned. However, several weeks later I was called to the OC's office to be told that my squadron had been selected to participate in the nation wide air displays in celebration of the Royal Australian Air Force's Golden Jubilee. Effectively I had been given a carte blanche insofar as aircraft numbers and squadron reorganisation were concerned. It was a very satisfactory outcome.

For many of us, flying displays and accidents are synonymous. For this reason display pilots must be selected very carefully. Above all they should be volunteers. Total flying experience, hours on type although important are not in isolation essential selection criteria. As it happened there was no shortage of volunteers and remarkably all those pilots who were given the opportunity for selection made the grade.

With barely six months to prepare for the Golden Jubilee celebrations time was not on our side. The team eventually comprised twelve officers, seven flying the aerobatic sequences, a team manager, one spare pilot, an engineering officer and a flight line warrant officer engineer. They were:

|                               |   |
|-------------------------------|---|
| Delta 1                       | Squadron Leader Bruce Grayson                   |
| Delta 2                       | Flying Officer John Archer                      |
| Delta 3                       | Flying Officer Chris Mirow                      |
| Delta 4                       | Flying Officer Nick Ford                        |
| Delta 5                       | Flying Officer Alf Allen                        |
| Solo 1                        | Wing Commander Bill Simmonds-Squadron Commander |
| Solo 2                        | Flight Lieutenant Dave Robson                   |
| Spare Pilot                   | Flight Lieutenant Jack Smith                    |
| Team Manager and Commentator- | Squadron Leader Hugh Collits                    |
| Team Engineer-                | Squadron Leader Pete Watson                     |

Equipment Officer-Flying Officer Garth Buick  
Flight Line WOE-Warrant Officer Ron Easton

Conveniently, one of the squadron's tasks at that time was photographic reconnaissance. It was therefore very easy to organise the squadron into two distinct roles- formation aerobatics and photo reconnaissance.

Our real challenge was to develop a flying sequence to impress the spectators. The Mirage was fast and noisy, essential ingredients for display flying. Unfortunately it also required a lot of airspace, especially for vertical manoeuvres.

This meant that after each aerobatic manoeuvre, there would be a lengthy delay before the team was able to reposition before the spectators. To avoid what appeared to be a series of seemingly disconnected events it was essential to have aircraft in front of the spectators throughout the display. Our solution, by no means unique, was to use two solo pilots performing co-ordinated aerobatic sequences. In this way it would be possible for the spectators to observe two, five, six or seven Mirages within the airfield boundary at any one time.

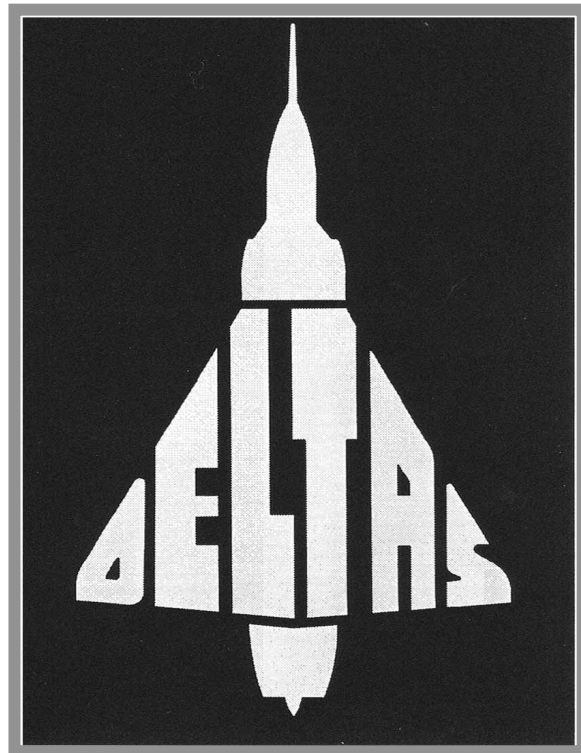
In the words of Dave Robson 'the Mirage in a formation aerobatic display was unforgettable. The flight controls, thrust, field of view and precision available to the pilot was unmatched'. Notwithstanding, initial progress was disappointingly slow, but not unexpected. Each pilot was required to fly a series of individual sorties with the leader. Eventually, three, four and finally five Mirages practiced together. Meanwhile the two solo pilots were developing their own sequence, which would eventually have to be integrated with the five aircraft display.



**L to r: Chris Mirrow, Alf Allen, Hugh Collits, Bruce Grayson, Bill Simmonds, John Archer, Dave Robson, Nick Ford**

For the solo pilots co-ordinated head on manoeuvres with closing speeds of 1000Kts plus, timing was a real challenge. Fortunately the Mirage had two radios, which enabled the solo pilots to talk to each other, while monitoring the team leader. As Solo 1 was required to maintain speed and altitude with extreme accuracy. Any unavoidable airspeed variation was conveyed to Solo 2 who made an appropriate adjustment. With practice, it was amazing how accurate these high speed cross overs became.

All aerobatic teams have their own name. Ours was the result of a very democratic selection process. Many names were suggested but the final choice was the 'Deltas'. The squadron's general hand Wayne can take full credit for actually suggesting that the logo should take the form of the Greek letter, Delta. This was refined to match the specific plan form of the Mirage rather than a generic shape.



### The Deltas Logo

I was quite surprised at the amount of effort required to establish a really first class team. And I was not prepared to accept anything less. Based on previous experience with other jet aircraft I imagined that generating smoke, for example, would be very straight forward. Not so. In afterburner the Mirage exhaust temperatures were simply too high to achieve a satisfactory smoke trail, consequently the ground staff had to devise a method of injecting oil at a point beyond the tail pipe where the temperature was lower. This alone took a great deal of time and effort. Special flying suits for the team and overalls for the ground staff had to be designed and manufactured. Dave Robson's effort in this regard was invaluable. We also experimented with red, white and blue smoke, which was only used during one practice sortie. The chemical fallout incurred the grave displeasure of the Base Squadron commander, so that was the end of that and I can't say I blamed him! Without coloured smoke we decided to make our aircraft drag chutes, which we deployed during landing, look like large roundels. This experiment was rather more successful. Reminiscent of the middle ages small banners in the squadron colours replaced the usual red pitot tube covers.

As Williamtown was the busiest operational base in the Air Force, it was impractical to practice there day after day. Besides I had decided to forgo flying over the airfield until we were ready, a decision that wasn't received very well by all the potential critics at the base. Instead most of our practice flying towards the end of our workup period was over a lonely beach north of Nelson



Bay. These practices were always observed by one or two of our pilots flown there in a SAR helicopter.

Williamtown was the only major base not to have a Jubilee Flying Display. We did hold a brief, Deltas only, display for the families of the squadron and base personnel. It was a great day and a small gesture of appreciation for the incredible effort contributed by all of Williamtown. Later in our crew room we enjoyed chicken and champagne-an appropriate christening for the Team.



**Self and Bruce Grayson**

Of all the RAAF bases Pearce required the most amount of deployment effort. The Mirages had to be configured with long range fuel tanks, which had to be replaced with smaller tanks for the display after arriving at Pearce via Alice Springs. This procedure was then repeated for the return flight. Disappointingly despite the effort required to cross Australia our display was marred by terrible unseasonable weather. Disappointing too no doubt for the Duke of Edinburgh who was the guest of Honour. The team was restricted to a limited low level display, and although the two solos taxied out to the runway there was no way we could safely coordinate with the formation, so we taxied back to the flight line.

Our next display was at Fairbairn, probably our most spectacular. The weather was absolutely ideal; no cloud or wind and with the Brinbabella Mountains in the background it was a perfect setting.



**At one of our displays**

The French Military attaché was one of the distinguished guests at Fairbairn. He must have been quite impressed with our performance because a short time later there was an unofficial inquiry from the French Embassy about the possibility of the Deltas attending the Paris Air Show. Apparently the Armée de l'Air had experimented with a Mirage aerobatic team, but had decided the aircraft required too much airspace. I was aware that the French were prepared to let us use their Mirages so there would have been no logistics problems flying to France and return. Having also examined a number of deployment options I believed our participation at the Paris Air Show later in the year would have been difficult but certainly feasible. Sadly there was no high level approval.

Our second east coast display was at Richmond, once again in perfect weather before a massive crowd estimated in excess of 200,000. The following weekend the Deltas performed at Edinburgh on Saturday and at Laverton on Sunday. The runways at Laverton were too short for regular Mirage operations and so we had the unique opportunity to use Tullamarine Airport only days before it opened for commercial use. On our return to Williamstown from



Tullamarine we rendezvoused with a Vulcan near Nowra for a formation flight over Sydney.

The following Saturday, we flew our display at Amberley, refuelled and headed for Townsville. Sunday was ANZAC Day and the Deltas' final performance. We had flown 331 aerobatic sorties, 328 flight hours and performed before an estimated three-quarters of a million spectators-an unforgettable experience