THE RAM
THE MAGAZINE BY & FOR SERVING & EX-RAAF PEOPLE & OTHERS
Vol 55

My Story.

Nick Ford.

This remarkable story by former RAAF Mirage pilot, Nick Ford, has a flight safety lesson for all pilots, airline and general aviation, in that it is all too easy to forget to lower your landing gear when various disconcerting factors build up to affect the pilot's train of thought at a critical time.

Nick Ford did a beautifully smooth wheels up landing on Melbourne Runway 34 into 30 knot plus head wind component. His story of this landing was published by the Queensland Air Museum.

The flying career of Mirage A3-16 came to a premature end on 24 October 1974 when the aeroplane was inadvertently landed wheels-up at Melbourne International Airport (Tullamarine). It was, according to the popular pilot definition, a good landing because the pilot walked away from it. Indeed, it came very close to being a great landing because inspections several years later revealed that they could have used the aeroplane again had there been a will to do so.

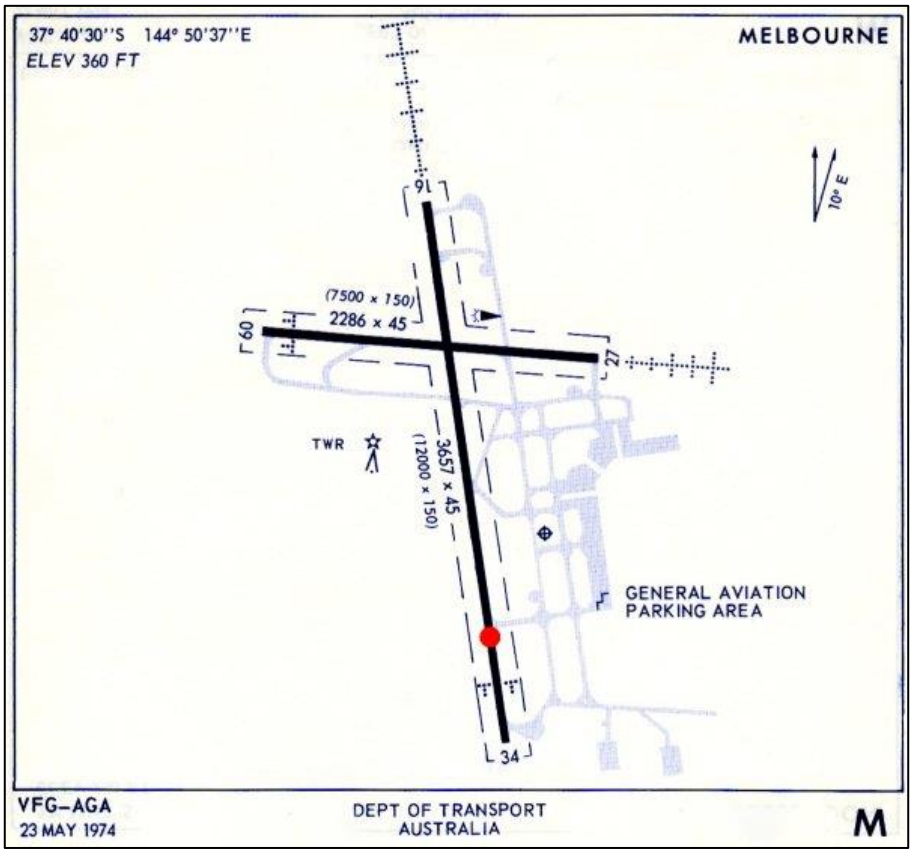
Most accounts of the accident emphasise the requirement for civil Air Traffic Control to issue a "Check Wheels" warning with landing clearances to military aircraft and the fact that such a

warning was not issued on this occasion. In the past, this requirement had led to amusing instances where pilots of fixed gear aircraft would respond "Down and Welded". Less amusing were instances of USAF C-141s going around from short final at Sydney and Alice Springs because the crew misinterpreted the "Clear to Land Check Wheels" as a warning that the Tower could not see their gear down. Nevertheless, the causes of the accident involving A3-16 were significantly more complex than the lack of a "Check Wheels" warning. As demonstrated by the following first-hand account by the pilot of A3-16, the holes in several layers of the well-known Swiss cheese safety model aligned that day!

“At approximately 1050hrs on the 24th October 1974, I landed “wheels-up” at Tullamarine Airport in Mirage A3-16. I forgot to lower my wheels which caused this accident. Since I was the only one who could have lowered the wheels, I was fully responsible for this accident.

Because I'm a man, when I lock my keys in the car, I will fiddle with a coat hanger long after hypothermia has set in. Calling RAC/NRMA is not an option. I will win.

I also had the dubious “honour” of becoming the first Mirage pilot in the world to survive a “wheels-up” landing. The RAAF had been told that several French pilots were killed attempting to land “wheels-up” before the French made it compulsory to eject rather than land. As a consequence, RAAF pilots were forbidden to intentionally land “wheels-up”. Accompanying this advice was a macabre description of the death of these pilots, their spines were driven up into their brains. Having survived my landing, I now doubt the veracity of much of this French tale.



This diagram at right of the Tullamarine runways appeared in a 1974 Visual Flight Guide (VFG). The red dot shows the approximate location where A3-16 came to rest on Runway 34 having used only 2,300 feet of the total length of 12,000 feet.

The Board of Inquiry found that my aircraft touched down at the 480 foot mark from the end of the runway three feet left of the centreline (my intention was to land at the 500 foot mark on the centreline). The total landing roll, or should I say landing “slide”, was 1820 feet. After the French tales, which talked of the Mirages slamming into the runway, surprisingly the nose of my aircraft contacted the ground at the 1000 foot mark in this slide showing that the nose was in effect lowered onto the runway by me during the landing. There was no slamming!

The aircraft came to a stop in good shape. It was resting on its two supersonic wing tanks and an empty bomb beam attached to the centreline of the aircraft. On vacating the aircraft and walking around the aircraft, I found there was a small fire (an area of a quarter of a square metre, flames 5-7cm high) under the rocket bay tank. The rocket bay tank was the first part of the aircraft to make contact with the runway and in the process a fuel line had been cracked and was dripping fuel into this small fire.

This small fire was put out by the firemen when they arrived on the scene. I will talk a little more about the actions of the firemen later.

Because I'm a man, when I catch a cold, I need someone to bring me soup and take care of me while I lie in bed and moan. You're a woman.
You never get as sick as I do, so for you, this is no problem.

Because Laverton’s runways were too short, all Mirage operations (by both RAAF and GAF pilots) were flown out of Avalon airfield (below). In the case of an emergency or bad weather the only suitable alternative airfield was Tullamarine Airport. Unfortunately, because this civilian airfield did not have a TACAN or a precision radar to allow a GCA, Mirage pilots had little that could be used to allow a safe landing at Tullamarine in bad weather.

The only available option was to use the approach radar to line us up with the centreline of the runway and have the air traffic controller tell us the distance out from the threshold. Using this radar, it had been found that an experienced controller could line us up with the centreline of the runway plus or minus 150 metres. An inexperienced controller’s error could be plus or minus 500 metres. Pilots would organise their own descent and hopefully, on breaking out of low cloud,

they could correct the left/right errors and land safely. The larger the error the harder it was to land safely.

On this day I was authorised for a “General Flying” sortie. There was good weather, no cloud (CAVOK), with 30-40kts northerly winds with some gusts up to 50kts. I was told to make one radar controlled approach to Tullamarine to help train the approach controllers. It was suggested I do this first before returning to the Avalon area for the rest of the sortie.

Straight after take-off, the Avalon Tower controller passed me to the Melbourne Approach controller who controlled me until late finals when he passed me to the Tullamarine Tower controller for my landing.

The pattern we were required to fly at Tullamarine was a very large rectangle overlaid on the runway. It was at least two times larger than our military patterns. However, this pattern gave the controller ample time and distance to precisely line us up with the centreline of the runway. Since that was the primary aim, we did not complain about the size of the pattern although it consumed a lot of fuel, something fighter pilots are sensitive about. In all my time at ARDU, I had never done a “straight in” approach on runway 34.

As Avalon and our training areas were south of Tullamarine, we would always approach from the south. If we were landing to the south (on runway 16) we would be flown to a path well west of the airport that was parallel with 16. This was in effect a “downwind leg”. We were then turned east through 90 degrees on a long “base leg” which was then used to turn south and intercept the extended centreline about 15nm out from the threshold of 16.

Landing to the north, which was to happen on the accident day, the pattern was more laborious as it consisted of flying on all four legs on the large rectangle. Once again we would be flown west of the airport, then turned east to eventually turn south ending up well east and parallel to the runway as a “downwind leg” for runway 34. The approach to runway 34 was complicated by the light aircraft corridor that ran approximately east west, and from memory was approximately six miles south of the runway.

By taking us east, this path allowed us to avoid the light aircraft corridor, allowed us to descend to 1500 feet, and gave the controller the greatest distance, although limited, to accurately line us up on the extended centreline of the runway.

Unfortunately for a lot of people, this pattern was not used on the day of the accident.

Airport Information
YMML (Melbourne Intl) JEPPESEN *JeppView 3.5.2.0*

General Info
Melbourne Vl, AUS
S 37° 40.4' E144° 50.6' Mag Var: 11.6°E
Elevation: 434'

Public, Control Tower, IFR, No Fee, Rotating Beacon, No Customs
Fuel: 100-130, Jet A-1
Repairs: Major Airframe, Major Engine

Time Zone Info: GMT+10:00 uses DST

Runway Info
Runway 09-27 7500' x 148' asphalt
Runway 16-34 11998' x 197' asphalt

Runway 09 (83.0°M) TDZE 395'
Lights: Edge
Stopway Distance 197'
Runway 16 (160.0°M) TDZE 432'
Lights: Edge, ALS, Centerline, TDZ
Stopway Distance 197'
Runway 27 (263.0°M) TDZE 407'
Lights: Edge, ALS, Centerline, TDZ
Stopway Distance 197'
Runway 34 (340.0°M) TDZE 330'
Lights: Edge, ALS, Centerline
Stopway Distance 197'

Communications Info
ATIS **132.7**
ATIS **114.1**
Melbourne Tower **120.5**
Melbourne Ground Control **121.7**
Melbourne Intl Clearance Delivery **127.2**
Melbourne Approach Control **132.0**
Melbourne Departure Control **129.4** (263°-93°)
Melbourne Departure Control **118.9** (264°-92°)

How Did This Accident Happen?

This is the most often asked question about this inexplicable accident. Having put just a few thoughts into answering this question during the past few decades, I find it helpful to use a flight safety tool called the “Causation Chain of the Accident”. Every accident has a causation chain made of links that led to the accident. If any one of these links had been broken the accident might not have occurred. Two points need to be made when using a causation chain.

First, it is not to be used to attribute blame – especially in this accident. I was the only person that could put down the undercarriage. I failed to do so, and caused the accident all by myself! Secondly, one of the major roles of flight safety is to prevent more accidents. So they use the causation chain to identify areas that can be improved which will prevent future accidents. They do not attribute blame using this tool.

THE CAUSATION CHAIN

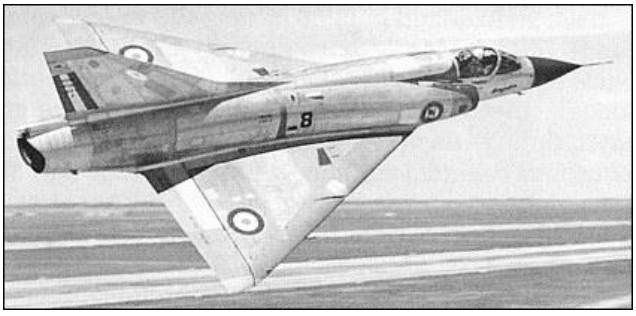
On my accident, the Flight Safety people identified a causation chain that had the following six links;

1. Inappropriate CAA Rules for Mirage Operations.
2. Non-standard Landing Pattern.
3. Non Standard descent profile.
4. Late handover of the aircraft between Approach and Tower controllers.
5. Non Standard “Clearance to Land”.
6. Light Aircraft Corridor.

1. CAA Rules for Mirage Operations:

Before discussing this causation link, two characteristics of the Mirage need to be understood.

The Mirage was built for speed – high speed. It was a beautiful aircraft, but it only reflected its graces when it flew over 300 knots. Below that speed the delta wing produced drag – lots of it. This characteristic encouraged pilots to refer to it as a “flying speed brake” when it was below 300 knots. Below 300 knots this drag caused it to chew up fuel. Because of this high speed design it probably had the fastest take-off and landing speed of any operational fighter aircraft in the world.



The second characteristic was the first part of a two part system that helped prevent pilots from unintentionally landing “wheels-up”. The upper speed limit for lowering the undercarriage was 240 knots. The aircraft had a large flashing red undercarriage warning light that came on once you were below 240 knots, without the

undercarriage down, and if the engine was not at high power. In these conditions the aircraft "thought" you wanted to land and would remind you that you had not lowered the undercarriage. This was a fairly standard warning light system used in most aircraft. There was no aural warning system.

Because I'm a man, I can be relied upon to purchase basic groceries at the store, like milk or bread. I cannot be expected to find exotic items like "cumin" or "tofu."
For all I know, these are the same thing.

However, operating within 50 nm of Tullamarine and below 10,000 feet, CAA required all aircraft to fly under 250 knots to help air traffic controllers manage aircraft movements. This restriction had little effect on most military or commercial aircraft but did have two significant impacts on Mirage operations.

The bulk of Mirage operations flying out of Avalon were carried out within this restricted area. Consequently, Mirages were mostly flown below 250 knots as "flying speed brakes" using a lot of fuel which significantly reduced sortie lengths. A speed of 300 knots would have been more appropriate as this was the minimum drag speed.

More importantly, by flying below 250 knots the undercarriage warning light was on most of the time and, after a very short time of operating out of Avalon, Mirage pilots learnt to ignore it. In my accident flight, shortly after take-off when I cut the afterburner and pulled back power to stay below 250 knots, the undercarriage warning light came on and probably remained flashing for the whole of my sortie. I don't know for sure because, like all other Mirage pilots operating in Melbourne, I had learnt to ignore this warning light.

In conclusion, by requiring Mirages to fly below 250 knots within their operating area, inadvertently the CAA had significantly reduced the effectiveness of one of the two systems designed to prevent wheels-up landings in Mirages.

2. Non-Standard Landing Pattern:

On the day of the accident, because of the strong winds, I knew I would be landing on runway 34 and I expected to fly clockwise on every side of the large rectangular pattern before lining up

with the extended centreline of the runway. I was very interested in how well the radar controller executed this last part of the flight but was facing a fairly boring 60nm trip at 240kts getting to this point. After leaving Avalon, the Approach controller initially directed me to the west indicating that I was to fly the standard pattern.

However, while still some way south of the standard pattern, the controller turned me right which had me pointed at the eastern side of the rectangular pattern. I assumed there must be an aircraft on the west side that they wanted to avoid and I assumed that they were taking me east to go around the standard rectangular pattern counter clockwise instead of clockwise. I settled down as I still had a 60nm slow trip ahead of me. Unbeknown to me, my controller was a student with an instructor standing behind him. This student was not going to use the standard pattern I was expecting.

I was flying at 3,000 feet to go over the light aircraft corridor which was perfectly normal. The first indication that something abnormal was about to happen, came as I was approaching the light aircraft corridor. The controller turned me left which had me pointing at the threshold of 34. He then started the hard work of fine tuning the direction changes to keep me on the extended centreline.

Because I'm a man, when one of our appliances stops working, I will insist on taking it apart, despite evidence that this will just cost me twice as much once the repair person gets here and has to put it back together.

Several things dawned on me all at the same time. First, we were no longer going around the whole standard rectangular pattern - he was directing me for a straight in approach. Second, we were already at a very short distance from the threshold of runway 34. Third, he was keeping me high to avoid the light aircraft corridor which meant I was going to have an exciting descent to get back to the normal glide path at the right speed for me to be able to do a “touch and go” landing. In summary, I went from full “ho hum” mode of a boring 60nm trip to a “get yourself organised ASAP” mode, if I was to have any chance of landing at Tullamarine.

My concerns started to grow when we cleared the light aircraft corridor but he continued to hold me at 3,000 feet. As a student, he was probably being cautious making sure he was well clear of the light aircraft corridor before allowing me to descend and was slow to adapt to the faster Mirage speed.

The Flight Safety people pointed out at this stage that every pilot uses a generic landing pattern and performs his landing checks at the same position in this pattern every time. For example, a Mirage pilot that “pitches out” into the circuit will be triggered to do his landing checks on downwind when his speed comes below 240 knots (NB. At the same time the undercarriage warning light starts to flash). If he is doing a straight in approach a Mirage pilot slows down and puts the undercarriage down about 10nm point from the runway.

This routine helps the pilot to “remember” to do these checks. The controller, on this occasion, had bypassed both these points. This would mean that under a high workload or with any sort of distraction the pilot would be less likely to remember to do his landing checks.

3. Non-Standard Descent Profile:

A normal descent profile for a Mirage starts at 5nm from the threshold at an altitude of 1,500 feet. Depending on winds this would have a Mirage descending at approximately 700 feet per minute.

However, on this day, with the delayed permission to descend, I was already within 5nm and then was only allowed to descend to 2,000 feet. When I was three miles from touchdown I was allowed to descend to 1,500 feet. Shortly afterwards I was cleared to descend and was passed over to the Tower controller at two miles from touchdown. At different stages of this staggered descent I was descending at rates up to 3,000 feet per minute. This would have been difficult, if not impossible, for most other aircraft but luckily I was in a “flying speed brake”. Although challenging, the Mirage aerodynamics made this possible. I finally arrived on the correct flight path at the correct speed one mile short of the threshold.

Because of the Approach controller’s inexperience, the non-standard approach and the Mirage’s faster speed, this student was getting “behind the eight ball”. As a result, he transferred me to the Tower controller at a very late stage on finals (i.e. 2nm). Unbeknown to both of us, this Tower controller was also a student with an instructor standing beside him. This late transfer immediately put this other student under pressure.

The Flight Safety people believed that if I had been on a standard descent I would have realised that I was using significantly less power to remain on the glide path. Then I might have realised the aircraft had less drag, which in turn would then have led me to discover my undercarriage was still up.

However, I was on a non-standard descent profile – in fact one that I had never seen before. Consequently, I was unable to recognise any indications that my undercarriage was still up.

4. Late Handover of the Aircraft between Approach and Tower Controllers:

Both the student Approach controller and the student Tower controller were above average students. However, as all inexperienced students are, they were cautious as they tried hard to do the right thing, and were slightly slow in their decision making and making their radio calls. This slowness gradually snowballed and put them under more pressure exacerbating their poor responses.

Through all this, my Mirage was travelling at a faster speed than speeds they were used to, which contributed to accelerating this snowballing effect.

For example, the student Approach controller should have decided earlier to make a "straight in" approach which would have allowed him to position me on the centreline, say at 15nm (instead of 6nm). This would have eased his workload considerably and may even have triggered me to do my landing checks realising much earlier that I was on a "straight in" approach.

He was slow in clearing me to descend, and then staggered this descent, which then put him under pressure to make a timely transfer to the Tower controller. The very late handover to the Tower controller (2 nm out) immediately put that controller under pressure to complete his job in a timely manner. I was half a mile out at 100 feet about to "go around" when I was finally given clearance to land. This clearance would normally have been given 4-5nm out. With more time, the Tower instructor could have corrected his student's error of omitting the "Check wheels" call and told me to "go around" which would have prevented the accident with time to spare.

As the pilot, I was "champing at the bit" to receive a descent clearance, a transfer to the Tower, and to receive a clearance to land. All this was delayed and was a distraction that was not needed in this accident.

5. Non Standard "Clearance to Land":

The Mirage aircraft has a "fool proof" system to prevent unintentional wheels-up landings. I can see you smiling as you realise that these words were written by a fool that beat the "fool proof" system. However, even after my accident, I still believe it is the best system in the world. And to back up my boast, I should point out that I am the only "fool" to beat the system. An understanding of the history of attempts to prevent wheels-up accidents is needed.

First, pilots were on their own and had to remember to lower the undercarriage – there were many unintentional wheels-up landings. The engineers then provided both visual and then aural warnings to the pilot when it was thought he might have unintentionally left the undercarriage up. This reduced the number of accidents.

Then a significant breakthrough was made when air traffic controllers were asked to have the pilots check their wheels before landing. On the introduction of this procedure, the American civilian

and military operators measured a significant reduction in accidents. This was attributed to the fact that a person outside the “environment” of the cockpit was involved and could not be distracted by whatever was happening in the cockpit leading to such accidents.

To produce their "fool proof" system, the Mirage engineers introduced a third party to further enhance safety. When a Mirage pilot is cleared to land and is asked to "Check wheels", he does not answer on the radio – he leans forward and presses a button on the front instrument panel. This button is on a circuit that passes through the undercarriage system and the radio in use with the Tower controller.

If the undercarriage is both down and locked correctly, the pressing of the button sends out a sound (a beep) on the radio that both the pilot and the Tower controller can hear. The human input and its error prone behaviour is bypassed completely. The aircraft (i.e. the third party) confirms that the undercarriage is down and locked. Without hearing the "beep" the Tower controller will not let the aircraft land.

Responding to the "Check wheels" challenge becomes a Pavlovian response for Mirage pilots - they automatically reach out and press the button. From personal experience of not hearing a "beep", when there is a problem, is stunning. To hear silence instead of a "beep" is akin to being hit in the forehead with a hammer. It really focuses your attention.

Because I'm a man, I must hold the television remote control in my hand while I watch TV. If the thing has been misplaced, I may miss a whole show looking for it, though one time I was able to survive by holding a calculator instead (applies to engineers only)

Civilian Tower controllers did not have to say "Check wheels" for commercial and other civilian aircraft. In contrast, it was mandatory for all military aircraft and they were trained to hear and respond to the Mirage’s beep.

In my accident, the student Tower controller did not use the challenge "Check wheels" and consequently did not trigger my Pavlovian response. Between the both of us I became world famous as the fool who beat the "foolproof" system because we managed to bypass the "foolproof" system completely.

The Tower instructor noticed the student’s error straight away and reminded the student that for military aircraft he had to say "Check wheels". Continuing the conversation as he picked up his binoculars he said "But you will see that he does have his wheels down ...". While I was landing ever so gently on the runway this instructor was grabbing the microphone from the student to tell me to "go around" as my wheels were still up. I still feel for this instructor and his student to this day. They didn’t need the hassle that my accident caused them in the following months.

Flight Safety pointed out the obvious that if the standard military landing clearance had been used by the Tower controller, it could have prevented the accident.

J

6. Light Aircraft Corridor:

Flight Safety also pointed out that several problems could have been avoided if the light aircraft corridor had been situated even 2-3 miles south of its position that day. The corridor had been there for years before Tullamarine Airport had been built and no-one had ever considered moving it after the airport was built.

When Did I Realise?

I cannot over-emphasise how strong my conviction was that my undercarriage was down. I also cannot understand where that conviction came from – but it was there and it was very strong.

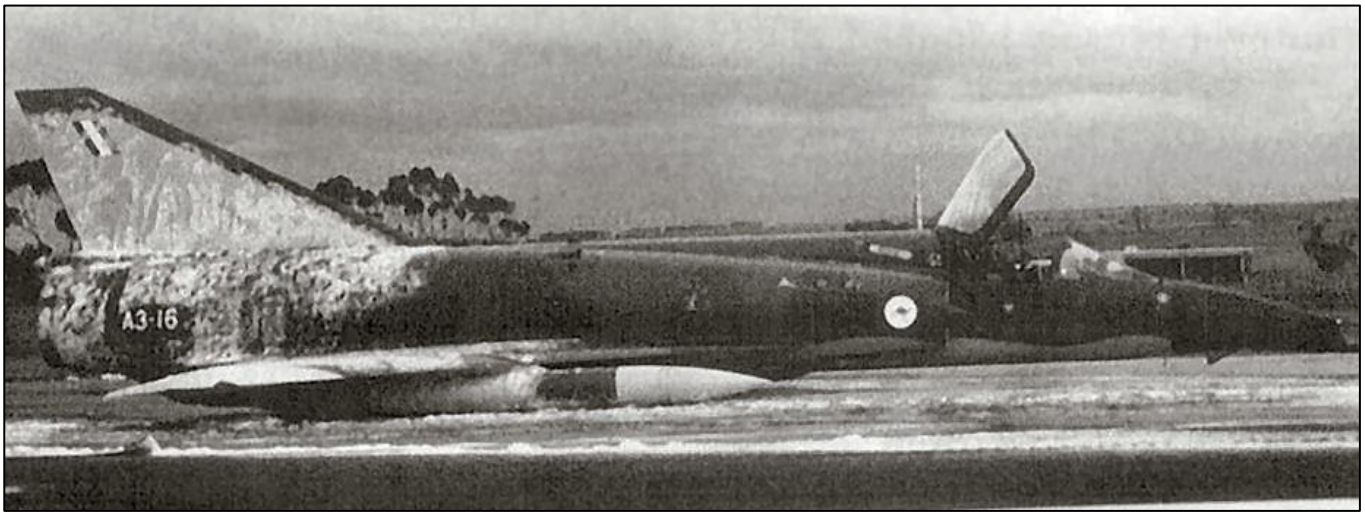
When I touched down I felt and heard a high frequency vibration which was not alarming but did tell me something was wrong. Instead of doing a "touch and go", I knew I had to land so I deployed my drag chute.

My thoughts were that the only parts of the aircraft that were in contact with the runway were the main wheels so they must be causing the vibration. So I immediately thought I had blown both main tyres. If I had only blown one tyre the aircraft would be pulling right or left. Because the aircraft remained on the centreline I assumed I had blown both tyres.

Because blown main tyres were said to cause a rapid deceleration, I was not concerned with the above average deceleration that was occurring. In the last few hundred feet of the landing, the aircraft drifted off the centreline. I tried to correct this deviation using my wheel brakes. In hindsight, it was not surprising that they were not working too well! I knew that blown tyres significantly degraded braking so, once again, I was not surprised.

Three days before my accident, I landed at Avalon and during that landing roll the nose wheel tyre gradually deflated. It felt as if I had a square tyre and my head was being repeatedly bashed against the canopy. So much so I was later checked out for concussion. Because of the French tale of wheels-up landings, everyone was telling me the landing must have been really bad. I had difficulty convincing them it was very smooth. If they were concerned about harsh landings I advised them not to have a nose wheel deflate on them. This incident might have predisposed me to assume I had a problem with my main tyres.

When the aircraft stopped, I completed all my after landing checks shutting down the engine that was working perfectly well, and finished by turning off all the electrics. I thought I better get up and make sure the ejection seat was safe before anyone else arrived. I looked over the edge of the cockpit and realised that God had lifted the runway up and it was a lot closer to me than usual. Reality then started to dawn on me.



I looked in to check the undercarriage indicator hoping to see "three greens" and my heart sank when I saw they weren't there. I then realised that all the power was off so there would be no indications. While this reasoning was taking place, my hand subconsciously went to the undercarriage lever. It was up, and reality blossomed.

I made the ejection seat safe and climbed out of the aircraft to wait for the firemen who were on their way. "Reliable" eye witnesses claimed I climbed down a ladder getting out of the aircraft. I still cruise Bunnings fruitlessly trying to find a ladder that will fit in a Mirage cockpit. I did not need a ladder – I just stepped over the side of the cockpit.

Because I'm a man, there is no need to ask me what I'm thinking about. The true answer is always either sex, cars, sex, sports or sex. I have to make up something else when you ask, so just don't ask.

I was most impressed when the first fireman raced up and climbed into the cockpit. I thought to myself these guys are really well trained – he must be trying to make the ejection seat safe. As I walked up to tell him I had already done this, I saw him with a hose pulling and pushing it through the top loop of the ejection handle – thank God it was safe. I asked him what he was doing.

He said he was trying to secure the hose so it would not flap around too much when he turned on the hose to fill the cockpit with foam. My horrified look stopped him in his tracks, and I told

him there was no need to do that and the only small fire was down the back of the aircraft not in the cockpit. He climbed out of the cockpit looking totally disappointed.

His boss arrived then and announced that instead they would fill the engine up with foam. For those that don't know, fire extinguisher foam destroys the metal in all jet engines. Once again, I was horrified as I could see these guys progressively destroying a perfectly good three million dollar aircraft. I was becoming sensitive that I was the amateur telling the professionals what to do. So I backed off a bit, calmed their boss down, so he could see my logic.

I convinced him that the engine was working perfectly well and as I had shut it down it would cool down normally. I convinced him his highest priority was to extinguish the fuel fire at the back of the aircraft and keep foaming any fuel leaking out of the rocket bay. Finally, the unusually hot bits that might cause problems were under the supersonic tanks and the bomb beam. They then foamed these areas and waited and watched ready to respond if needed.

Much later, the ARDU maintenance staff sincerely thanked the fire crew for doing such a professional job and saving the aircraft with minimum damage – diplomatically not referring to all the gratuitous advice I had given them.

The Effects of the French Tale.

I don't doubt that the French lost aircraft and their pilots were killed when attempting to land wheels-up, but I disagree with their explanation. The French believed that the Mirage's notable high angle of attack when landing caused the aircraft to "slam" into the runway – killing the pilot and destroying the aircraft.

My accident showed that this explanation cannot be true. My Mirage only suffered minor damage and I survived unhurt – with the landing being quite pleasant! I believe the explanation lies in the different ways the French and Australian pilots land a Mirage.

Depending on the weight of the aircraft, the French pilots' landing speed was approximately 150 knots and the Australian pilots' landing speed was approximately 170 knots. Australians used the additional 20kts to allow them to flare the aircraft like every other aircraft. I am told that the French land with a positive descent rate which can be as high as 200 feet per minute. This is a similar type of landing used by aircraft landing on aircraft carriers. I personally think this is an abuse of the word "landing" – it is in effect a controlled crash.

The robust undercarriage on these aircraft is the sole reason both the pilots and the aircraft survive these "controlled crashes". Using this technique to land without the undercarriage is

bound to kill the pilot and destroy the aircraft. Even if the pilots landed with "only" 50 feet per minute descent, I would suggest there would be a similar outcome. Imagine it is like dropping a ten ton aircraft from a 15 foot high wall – it is bound to be devastating for both aircraft and pilot.

Flying a Mirage at 150 knots is worse than flying a "speed brake". At that speed a Mirage becomes a brick held up with power. I cannot emphasise too strongly to non-Mirage pilots the tremendous drag this aircraft could generate. An example might help.

If your engine flamed out in a Sabre aircraft, the rectangular flame-out pattern to land allowed you to land if you entered the pattern at 3,500 feet. The Sabre will glide around this pattern losing very little height. The Mirage does not glide - it falls out of the sky.

The Mirage flame-out pattern is a tear drop pattern starting over the threshold of the runway. You have to arrive over the threshold outbound at 15,000 feet. When you are "gliding" in a Mirage you are falling out of the sky at 8,000 feet per minute. On turning onto finals and lowering the undercarriage the rate of descent increases to 12,000 feet per minute. You begin your flare to land and arrest this rate of descent at 400 feet above the threshold.

Because I'm a man, you don't have to ask me if I liked the movie. Chances are, if you're crying at the end of it, I didn't... and if you are feeling amorous afterwards . .
then I will certainly at least remember the name and recommend it to others

Consequently, I do not envy French pilots trying to land wheels up at 150 knots with any positive rate of descent.

This French tale had a surprisingly dominant effect on all who studied my accident. Rather than accept the realities of my accident, far too many tried to distort such realities so it matched their preconceived views of the French tale. Few questioned their assumption that the French tale was correct. They spent far too much effort trying to force elements ("square pegs") of my accident into the "round holes" of their assumptions based on the French tale.

Three Examples:

The Perfect Landing:

As I had survived, I must have been a "miracle pilot". Apparently my landing was more than perfect. Wrong!

I carried out a normal landing that any Mirage pilot could have achieved. I was not attempting to do something special – this was meant to be a normal "day in the office". Any pilot can land

wheels up in a Mirage safely with minimum damage to the aircraft – it doesn't take a perfect landing.

A3-16 Was Not Permanently Damaged:

The French tale had everyone looking and then imagining damage in my aircraft that was not there. Initially, the aircraft was written off with CAT 5 damage.

Five years later when the French tale effect had dissipated, it was decided that the aircraft could easily be repaired and the damage was reclassified as CAT 3. After the accident, a faulty mensuration check had people believing the fuselage had been bent when the aircraft "slammed" onto the runway. They had incorrectly carried out the mensuration check on the fuselage without the engine. A proper mensuration check, with an engine installed, showed the fuselage was not bent.

Board of Inquiry Finding:

One of the findings of the Board of Inquiry was that I had landed at 300 knots. Their twisted logic was as follows. If you land a Mirage normally with wheels up, the pilot dies and the aircraft is destroyed (The French tale). For Nick and his Mirage to survive, Nick couldn't have landed normally – even though Nick told us he landed at 174knots. To avoid the "slamming" effect, the angle of attack had to be reduced to zero which occurs at 300 knots. Therefore, Nick must have landed at 300kts.

This laughable finding was easily discredited by ARDU test pilots by taking photographs of a Mirage at 300 knots which showed the rocket bay would not touch the runway let alone be damaged while landing at this speed. The damage to the rocket bay could only be done by landing at the lower speed. The Board had claimed I had flown the last 5nm at 300knots. With an exact flight path and times provided by Tullamarine ATC, the test pilots could show that, if that was true, I must have flown the remainder of my flight from Avalon at an average speed of 150kts (which was below take-off speed!)

Because I considered this finding dangerous for all Mirage pilots if they ever decided to use this technique to intentionally land wheels-up at 300 knots, I put in a formal Redress of Grievance (12/A/12) to have this finding reversed. Five years later it was reversed.

I have put this notation here for two reasons. Either I am not sure of my memory and the facts need to be checked, or I am relying on someone else who has told me this. Once again it could be checked.

O

A3-16 was the first all Australian built Mirage. A total of 114 Mirages were built in Australia, which flew front line service from 1963 until replaced by F/A 18 Hornets in 1984.

Classic Jets Fighter Museum's (Adelaide) Mirage A3-16 survived scrapping and was acquired by Classic Jets in 1992. Despite enormous difficulties in finding Mirage airframe parts sufficient components were gathered to restore this beautiful supersonic fighter aircraft.

Click HERE for the complete history of A3-16

Because I'm a man, when the car isn't running very well, I will pop the hood and stare at the engine as if I know what I'm looking at. If another man shows up, one of us will say to the other, "I used to be able to fix these things, but now with all these computers and everything, I wouldn't know where to start." We will then drink a couple of beers and break wind, as a form of holy communion.