

PREFACE:

I was working at Sydney's old Terminal in February 1969, when VH-EAB was repatriated from Bahrain and while the story itself had remained low key and at arm's length over the ensuing years, the hope remained that I might get the opportunity one day to properly examine the incident.

Once I'd taken the next step towards scratching the itch - around 2011 - all my efforts to contact any of the surviving pilots came to naught, until a flukey conversation with a cousin miraculously opened the necessary doors, and put me in contact with David Howells, the First Officer on that night's QF731 flight, Bangkok to Bahrain,

These days it would be called an "inflight upset," though some might refer to it as "unauthorised aerobatics" but within Qantas it was and still is called simply "the Bahrain Bomber"

Qantas was able to keep a lid on the incident, both at the time and throughout the ensuing years, but any discussion was and still is, based on the premise that it was David Howell's presence on the Flight Deck that evening that was the difference between the jet and its contents arriving safely in BAH or the sad search for a broken aeroplane on the bottom of the Arabian Gulf, off the coastal town of Jiwani in Pakistan.

David and I had regular, fruitful hook-ups on Skype as the story took shape, and he was endlessly patient and good humoured in explaining the minutiae of high flight, to an author whose aviation experience was generally limited to frightening himself and others sharing Jandakot's airspace.

I was aware he hadn't been well since Christmas 2025, and it was with a heavy heart that I opened an email last weekend advising that David had closed his logbook, and left us during the evening of Friday 6th March.

Adrian David Howells leaves us all the poorer for his departure and I treasure the chance conversation that put us in touch, allowed me to call him a friend, and permitted me to write this story.

There is an autobiography too - "From Sea Furies to Jumbos" which can be sourced online.

Vale David

John McHarg

Perth, March 2026

When undertaking to write about odds and ends from my years with Qantas and BA I realised I should first define the boundaries of what I'd write about.

Initially I thought I'd simply listen to the voices in my head, a bit like Joan of Arc, but then, realising this might unsettle my limited readership, I sought guidance elsewhere.

I decided that I'd only write of things that I'd had some involvement with, whether centrally or peripherally.

This story draws a long bow on this requirement as my only connection with VH-EAB and the events of February 1969 comprise walking round the aeroplane's periphery while it was parked outside Hangar 131, and wondering just how this aeroplane, its crew and cabin load of battered and bloodied passengers survived.

I hope that qualifies it as "peripheral involvement"?

The incident involves a Qantas B707-338C, VH-EAB, constructor's number 19622 that was delivered to Qantas in January 1968 as "City of Canberra".

As the 747s started taking up the headline city names, she was rechristened "Winton" in August 1971.

She was leased to Ansett for a day, in April 1973, to help out with their Easter traffic, and would return to her more customary QF flight number prefixes the following day.

She was sold off the Australian register to a Leasing/Finance company, ITEL in April 1977, but before the deal could be consummated she returned to the fleet for an encore, due to the delivery delay to VH-EBN, a B747, and she'd fly a little longer with the banner "**Have a Qantastic Christmas**" painted on her flanks.



VH-EAB in December 1977, on loan from ITEL to help fill some holes in capacity

On the 18th December 1977, she'd operate her last flight with a QF prefix, to Christchurch and back, and then she'd be returned to ITEL's ownership, with 11882 landings recorded and 34274 hours in her logbook.



February 1969 found your correspondent at Sydney's old International Terminal, a newly minted Junior Traffic Officer, with a still pristine single white bar on his sleeves and epaulettes.

I'd transferred out to Traffic, as it was then called, from Reservations, in the Hunter Street building, in October 1968, in search of fame, fortune, a career and a company supplied uniform.



John at Counter 1, Sydney's old International Terminal in 1969. John found that the presence of passengers during the checkin process complicated things needlessly, and requested a transfer to the Ramp - Ed.

The place had been a-buzz with rumours for a few days about an incident involving a Qantas 707, VH-EAB, between Bangkok and Bahrain.

The aircraft had just been repatriated, empty, with a "ferry" crew, after the Boeing engineers had inspected her in Bahrain, and declared her airworthy.

She was parked on the Ramp, north of the Terminal, outside Hangar 131, and so I went for a walk.



VH-EAB was still an infant in terms of her service with Qantas, having gone into service with the white V-Jet logo on her red vertical stabiliser just 13 months before.

The 707 represented Bill Boeing's first foray into the jungle of commercial transport production and sales, and he'd "bet the farm" on the 707's popularity with the airlines, and started production with a very thin order book indeed.

The aeroplane had already started to create a reputation for sturdiness, strength and reliability once Pan Am and others had taken up the initial deliveries.

It was also a more practical proposition than its main competition, Donald Douglas's pretty DC8, which was built a lot higher off the ground than the 707, necessitating more specialised Ramp equipment than the 707 needed, to access the 5 under-floor "holds".

This drawback was to prove a blessing in disguise for the DC8 as it allowed Douglas to "stretch" the marque up to a ridiculously long fuselage in the DC8 - Super 61, which incorporated an extra-ordinary **11m fuselage "stretch"** (6m forward of the wing, 5m aft), for a total fuselage length of 157 feet (48m)

The flight was uneventful as they overflowed Karachi and headed for the Jiwani VOR in Baluchistan.

Jiwani is a small coastal town facing west over the Arabian Sea.

It's about 15kms as the crow flies from Pakistan's border with Iran or about 40kms by road.

It's pretty unremarkable except it has a Navigation Aid installed there – a VOR (Very High Frequency Omni-directional Range) which transmits a “smart” signal, in all directions, on a frequency of 112.7Mhz.

(The other not-so-smart Navaid in general use is the Non-Directional Beacon (NDB) which, like a radio station, transmits an undifferentiated signal in all directions.)

Once tuned to the Jiwani VOR, you'd hear the Morse code characters **J** and **I** through your headset, or a “. _ _ _” and an “..”

The signal's “smart” because it radiates somewhat like a wagon wheel, where the spokes are all discretely identifiable by an instrument on the pilot's panel called a Horizontal Situation Indicator. (HSI)

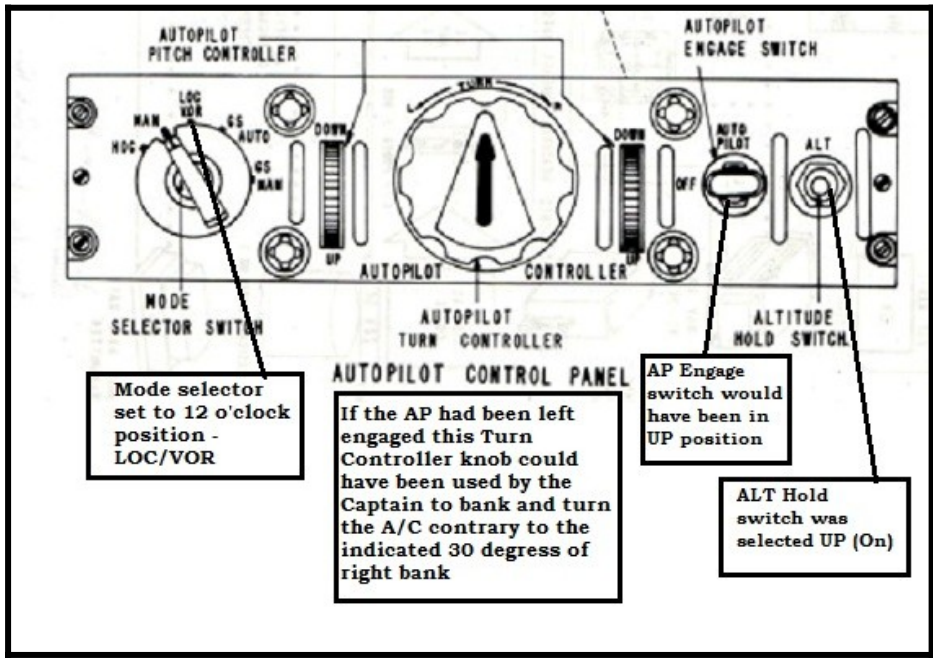
The Autopilot can be instructed to identify and fly the aeroplane up to, or away from the VOR, on a specific “spoke” called a “radial”, taking its instructions from the Course Deviation Indicators, fitted to Captain's and F/O's panels.

At around 2104Z (GMT) (Flight Safety Report 55/69) on the night of Saturday 21st February 1969 (0704 EST SYD Sunday morning) QF739.361, was approaching the Jiwani VOR, on a heading of about 281 degrees (roughly towards the West).

Once overhead the Jiwani beacon, she'd turn slightly to the left, onto a new heading of 271 degrees, and track for her next waypoint, called EGRON, somewhere out over the Arabian Sea.

She was at Flight Level 350 (about 35000 feet) in the cruise at M0.81 which in calm air would give her a ground speed and about 430kts (about 850kph),

The Autopilot was flying the aeroplane, following the pre-selected “radials” to and from Jiwani, and holding the aircraft steady at 35000 feet.



A fairly generic AutoPilot panel from the 60's. This one was situated on the pedestal, between the two pilots

She was experiencing intermittent “cobblestone” turbulence, and was flying just above a deck of alto cirrus

There was no moon, and no useable visual Horizon.

Local time Bahrain was just after midnight, and at Bangkok, the prior port, about 4.05am.

The Cabin Crew had completed the supper service, and the Cabin lighting would have been selected “off” to allow the passengers to sleep.

Looking back, it was fortunate that the meal service had finished and the carts returned to the Galleys.

It’s difficult to imagine how much damage a couple of fully loaded meal carts could have done, if they hadn’t been secured to their “mushrooms” in the galleys when the upset occurred.

The overhead racks, still without doors and latches which wouldn’t be added for another 10 years or so, were full of blankets, pillows, hand luggage and duty-free alcohol and cigarettes.

In these pre-EU days, passengers arriving Heathrow could land with 3 x 26oz bottles of alcohol.

Sony’s Walkman wouldn’t hit the shelves til 1979, so there would have been isolated pools of light and cigarette smoke throughout the cabin where some passengers had elected to read rather than sleep.

Fortunately, as it would turn out, the Company’s policy of encouraging seated passengers to keep their seat belts loosely fastened had been in place for some years, and this would later save a lot of injuries.

On the flight deck, the Tech Crew had started rotating their meal and rest breaks, and Johnny “Buddha” Greene was doing the same with his First Class Cabin Crew.

In the cockpit on the Instrument panel, the Autopilot/HSI had been selected for VOR/LOC mode, which in this situation meant the aeroplane's Autopilot would fly to and from Jiwani on the pre-selected "radials".

As the aircraft passed overhead the Jiwani beacon, there was the usual brief "clacker" sound of a "Nav Warning" as the autopilot released the inbound radial, and went looking for the outbound 271 radial, and the Comparator warning light would have illuminated briefly.

The Comparator warns of discrepancies greater than 5 degrees between the Artificial Horizons (or Horizon Director Indicators) on the Captain's and F/O's panels.

By 2105Z the Captain had finished his break and had re-claimed the left hand seat, displacing the Second Officer (S/O), who had moved to the First Officer's (F/O) right hand position, while the First Officer was having his break in the Crew Rest area, about 3m aft of the Flight deck door.

Three minutes after the Autopilot had acquired the new radial and turned the aircraft onto its new heading, and while the Captain was looking at the Autopilot panel (on the centre pedestal below and to his right) the "Nav Warning" alarm "clacker" unexpectedly sounded again

Unbeknown to the three pilots at this point was the fact that EAB had a recent history of "Comparator" warnings between the Captain's and FO's Horizon Director Indicators (HDIs) which I'll refer to interchangeably as HDI's or its older label, Artificial Horizon (AH)

If greater than 5 degrees this discrepancy is highlighted by an aural warning "clacker" and visually by a red warning light.

Normally, faults or power failures in the primary flight instruments are accompanied by a warning "flag" which partially obscures the offending dial.

In this case the discrepancy is then "arbitrated" using the Standby HDI which operates independently of the other two and sits on the pilot's main panel, just to the right of the Captain's panel, but still visible to the pilot in the RH seat.

This problem had been observed and reported in the Aircraft's Tech Log into Singapore, but as the engineers had signed it off as "serviceable" or "evaluate further" the Flight Engineer hadn't mentioned the entry to the Pilots while on the ground.

Similar entries in the Maintenance Log had been made on the 18th and 19th of February.

So the Captain looked up and left to his own primary flight instruments and saw that his Horizon Director Indicator (HDI) was showing the aircraft in a **30 degree uncommanded bank to the right.**

No warning "flags" were showing on his or the F/O's HDI but the Master Navigation Warning light was flashing, and the "Horizon" light was at high intensity

He didn't register that both the F/O's equivalent HDI and the Standby Artificial Horizon were showing straight and level flight.

A Flight Ops Info & Safety Bulletin issued in April 1969, thought that the physical turning of the Captain's head from the Auto Pilot (AP) panel to his own primary instruments might have generated a Coriolis illusion, causing slight spatial disorientation that tended to confirm his belief that the aeroplane *was* banking right.

In this split second the Captain automatically fell back on the fundamental premise of Instrument Flight – ignore your senses...trust your instruments.

Assuming the Autopilot had placed the aircraft in a bank to the right, the Captain disconnected the AP either using the red button on the LH “horn” of his control yoke, or by “blipping” the stabiliser trim rocker switches under his left thumb, and applied control inputs to correct the indicated bank.

This rolled the aeroplane to the left, gently at first, then through the vertical to inverted and VH-EAB entered a steep spiral dive with rapidly increasing airspeed and severe positive and negative G loads on the airframe and occupants.

The four thrust levers were left at their cruise position throughout the upset.

During the next 40 seconds, 19000 ft of altitude was lost (at about 500fps), and G loads of +4.57 and -0.63 were recorded.

Airspeed peaked at 465kts or round Mach 0.93 (This contrary to popular belief that the aeroplane had been briefly supersonic – see later qualification)

These figures are from the Flight Data Recorder traces (Black Box) and were reported in Qantas’s Flight Safety Report 55/69 in October 1969.

Elsewhere, in another report, astonishingly high *transient* rates of descent of **84000fpm or 1400fps**, 16 miles per minute, or 960mph were reported

If true, this puts VH-EAB in a category she shares with one other aeroplane, a DC8-43, deliberately flown supersonic over Edwards AFB in 1961. (See Footnote)

The aircraft turned generally left throughout the upset and was on a heading of about 220° when she pulled out of the dive and then continued to turn left during the two porpoising manoeuvres which followed.

Once EAB was settled, straight and level, she was heading pretty much due East.

A good thing this.

To have continued turning left would soon have had EAB in Persian Airspace without authorisation, with more complications for the Crew than they really needed.

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“Buddha”, his Senior Steward Ed Kirkland, and F/H Maureen Bushell were near the jump seat at the forward left hand Passenger door, deciding who’d take the first break when the upset occurred. (Ed Kirkland)

Maureen was on her way to London, to take “London Leave” and tour Europe with her sister for a couple of weeks.

London Leave was a “perk” offered Tech and Cabin crews that was only approved if their pattern fitted that of someone returning from London Leave who could take up their Roster for the trip home.

While the Cabin Crew at the forward jump seat were deciding how to play the rest breaks, Ed noticed and felt the aeroplane’s nose drop very slightly.

In less than a second, the aeroplane started to roll to the left, and pitched steeply nose down. |

Maureen, whose birthday fell on the following day, noticed something similar.

She'd just finished a "walk through" the cabin to check all was well, and was talking to "Buddha" Greene and Ed in the vicinity of the main forward passenger entry door.

She'd come to Qantas via Queensland Air Lines and Ansett, had been flying in the current cacky aqua Flight Hostess's uniform with Qantas for 2 years.

She had enough time in her logbook to realise quickly that the slight pitch down and "wobble" she felt wasn't normal, in the "cruise" and 7 miles up.

As the aircraft started its roll to the left and the nose pitched further down she headed for the Cabin Crew jump seat, with restraint for two crew members, at door 1Left.

Buddha had the same idea, leaving Ed with no option but to head for the Crew Rest area, a couple of metres aft, and to his right.

He didn't get there as the G loads increased rapidly, and he was thrown violently left, right, up and down.

Up and down would become pretty hypothetical orientations during the next 40 seconds.

VH-EAB was now heading for the shallow waters of the eastern Arabian Sea at around 500 feet per second.

The Mach Warning Bell on the flight deck started its insistent ringing and would continue to sound throughout the descent.

On the 707s, the Crew Rest comprised a small "cubby" which accommodated 6 people with individual restraints, 3 seats facing 3.

Just as Ed got to the Crew Rest, the F/O who'd just started his break came "barrelling" out of the rest area, intent on getting back to the Flight Deck.

He collided with Ed in the process with all the sensitivity of an All Black forward heading into a ruck, breaking Ed's nose, and two fingers on his right hand, although Ed wouldn't know this until he arrived home a week or so later.

I suppose at that point, the prospect of arriving home even with multiple fractures, dislocations, and carpet burns must have seemed an attractive proposition to Ed, and everyone else on board, as the aeroplane rolled inverted and dived.

Maureen remembers thinking "I'll never get my London Leave now" and in the same heart beat "so this is how it ends..."



Initially, the F/O, awoken from a doze in the Crew Rest, thought the aircraft was turning away from BAH due to weather, to return to Karachi for more fuel to permit holding for improved conditions at BAH.

He realised it was much more serious than a simple "turnback" as the turn continued and once the Mach Warning Bell started to ring.

This warning bell is installed and programmed to start its clamour just before the aircraft accelerates to speeds approaching V_{NE} (never exceed speed) where there's a very real risk of sustaining terminal structural damage.

It started to ring, and just kept on ringing.

Soon after the collision with Ed, the F/O would be pinned to the aircraft's floor by the positive, rapidly building G forces and would be able to crawl only as far as the flight deck door initially, until the G forces eased momentarily.

By now VH-EAB was in a nearly vertical spiral dive.

The F/O (and some Cabin Crew members) recall throughout the incident, the screams, and fearful shouts and yells from the pax, and breaking glass against the awful background sounds of an aeroplane in pain; a soundtrack lifted straight from an old Hollywood war movie.

A howling, strident wall of noise.

Unbeknownst to anyone at the time, many of the exterior inspection panels had "popped" during the descent, and these were adding their own percussive soundtrack to the background noise as they flapped wildly in the airflow.

One of the Cabin Crew, John Davis, working in the Economy Galley, has a persistent memory of being pinned to the floor, in the aisle adjacent to the last row of seats, with the privacy curtain brushing backwards and forwards over his face as he struggled against the 4.5 positive G's that dictated that his head now weighed about 40kgs and body around 400kgs.

Like Maureen Bushell further forward, John wondered whether this was where it would end, and found himself thinking of his fiancée and the wedding that might never be.

John saw too the blizzard of galley equipment, join the contents of the overhead racks and make its way progressively further up the cabin, as it banged and rattled against the cabin's ceiling and side wall.

He too remembers the soundtrack, as something lifted from an old War movie.

At one point he recalls looking round and seeing several passengers who'd chosen not to fasten their seat belts, with him, pressed to the plastic ceiling mouldings.

Oxygen masks were swaying and whipping from side to side, like some crazy cartoon animation, and in places he saw the overhead racks buckle so badly they actually touched the headrests on the seats below.

Up on the flight deck, things were becoming very untidy.

The F/O, had managed to open the Flight Deck door and regain the vacant Second Officer's chair, behind the skipper.

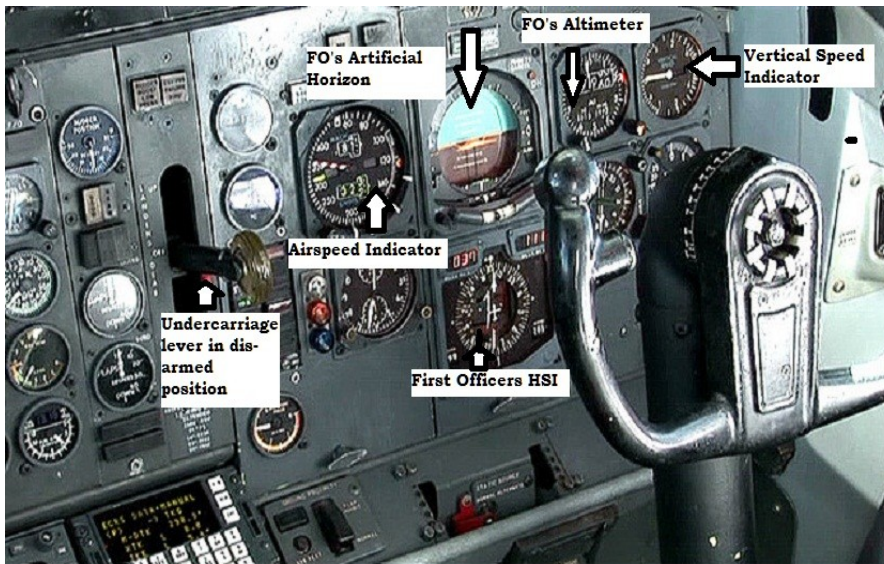
Luckily, this incident happened long before 9/11 and locked cockpit doors, or the F/O would still be waiting for someone to let him in.

The altimeter was unwinding like a lift indicator in a high rise building and the needle on the VSI (Vertical Speed Indicator) to its right had completed half a revolution anti-clockwise, had stopped against its peg and could travel no further.

There's nothing in the Company's post incident Investigation to indicate that the 4 thrust levers had been retarded, and the F/O recalls them **still at cruise thrust settings**.

The FO's instrument panel (currently in front of the Second Officer) should have looked like this, but without the labels obviously.

(I personally find it helpful to fly with similar labels in my Cessna)



Instead, the Airspeed Indicator needle was well into the “red” and past the barber’s pole maximum value. The bar separating the turquoise (sky) and black (ground) of the Artificial Horizon was nearly vertical and showing mostly black anyway.

Back in the Cabin, Ed, bloodied from his encounter with the F/O and pinned to the floor, is wondering how much longer he has before his First Interview with the Prime Mover, the Great Shekinah, YHWH etc. He blacked out momentarily.

This is probably what’s now called G-LOC or Gravity induced Loss of Consciousness, where there’s not enough blood getting to the brain, which “browns out” before shutting down.

He regained consciousness to find himself pinned to the ceiling, face down, with a bar box beside him, trying to batter its way through the aircraft’s plastic mouldings and pressure hull.

Below him, there were aircraft fittings and hardware flying everywhere, as the aeroplane accelerated downwards, still banking steeply and Ed could hear the sounds of a aeroplane heading into unknown territory as the fuselage continued to groan and complain at the abuse it was absorbing.

Ed remembers it as a place he never wants to visit again, as the G loads that had pinned him to the ceiling reversed, and he headed for the floor again.

He had the presence of mind, on the way down to try to grab the lip of the overhead racks round Row 1, in the hope he could flop into a vacant seat and get some restraint on his battered body.

He missed, and his shoes come into violent contact with the face of the passenger seated below him, who just happened to be Sir Mark Oliphant (later Governor of South Australia).

Neither could know it at the time, but both would survive to joke about this encounter, when their paths crossed many times later in both lives, after Oliphant was appointed to the role of SA’s Governor by Don Dunstan.

Up on the Flight Deck, the Captain and S/O were fighting to save VH-EAB, without having the wings and empennage off in the process.

The F/O was trying to strap himself into the S/O's seat, and interpret what the primary flight instruments and standby AH, were telling him, while ignoring the input from his middle ear.

As a military trained pilot, the F/O was obviously taught how to fly on instruments only, but also without access to a working HDI/Artificial Horizon.

Until about 5 years ago these techniques were still taught by the RAAF at their Number 2 Flying Training School at Pearce AFB, north of Perth.

It was called "Limited Panel" flying.

The F/O was able to see and compare the 3 Artificial Horizons/HDI's from where he was sitting. The S/O's instrument and the Standby Instrument, centred between both Captain and S/O agreed with each other even though they showed a orientation rarely seen on non- aerobatic aircraft.

The captain's instrument still showed the aeroplane in a 30 degree bank to the right.

From his Navy training, the F/O was able to shout instructions to both pilots who had their hands on the control yokes, and feet on the rudder pedals or lateral brace bars, that helped start the aircraft's recovery.

At some point towards the bottom of the dive, on a hunch perhaps, or suspecting it was a faulty gyro supplying incorrect info to the Skipper's HDI, the S/O managed to select Vertical Gyro #2 instead of "normal", but it's not reported whether this re-selection restored the Captain's AH/HDI to normal.

The aeroplane was still descending, almost vertically.

Together, the Captain and S/O managed to level the wings first although this was an approximate concept as the aeroplane was travelling almost vertically and then they turned their attention to arresting the dive.

EAB now entered a pretty steep climb showing +ive 2.5G on the Flight Data Recorder trace, which was quickly corrected with the G meter registering -ive 0.63 for about 10 seconds in the process.

The FO's written recollections of the event diverge significantly here from the Qantas account, **which puts the F/O off the flight deck, prone at the flight deck door until after the Captain and S/O recovered the jet.**

Having later regained the Flight Deck (the Observer's Seat not the vacant S/O's chair) , the Qantas Safety Report goes on to say he (the F/O) **"assisted the Captain by giving his appraisal of the disposition of the flight instruments"**

Once back at SYD, when the Flight Data Recorder (the aeroplane's Black Box) was opened and analysed, the trace would show VH-EAB's speed peaked at M0.93 or 93% the speed of sound although this is somewhat at odds with some of the transient rates of descent registered on the Flight Recorder trace.

During the recovery both pilots had the presence of mind to realise that's it wasn't just a simple matter now of pulling out of the dive.

This incident would reveal just how strongly Boeing had designed and built its product, but they were never intended for aerobatics, although Tex Johnson, Boeing's Test Pilot on the 707 program, poked the envelope somewhat with his two barrel rolls over Lake Washington, in the prototype B367-80.

Any sudden back pressure on the control columns, while the aeroplane was rolling steeply, might have the wings and empennage off her, so it had to be as gentle as the ground's approach would permit.

But somehow they did it.

They first stopped the roll with the aeroplane approximately “right side up” and then started work on arresting the dive.

I’ve flown the RAAF’s 707 Simulator a couple of times.

The first time I was surprised at the stick “loads” in the cockpit, even under normal flying conditions, although it’s probably stretching credulity to classify any of my flying as “normal”.

It was/is a very heavy aeroplane on the controls – only the rudder has any “boost”, and all the other controls are linked directly to the control surfaces they move and need plenty of muscle even for normal manoeuvring.

I remember thinking as I vacated the 707’s cockpit, to allow the RAAF Techs time to rebuild it for the next session, that it was amazing the crews didn’t have forearms like Popeye.

EAB recovered from the initial spiral dive at around 16800 ft, but ascended quickly from that altitude to 21500’ and a transient +ive G load of 2.5, before she started to descend again, exposing everyone to another brief episode of negative G

Two full minutes after the “upset”, and after this “porpoising”, the Crew had the aeroplane sorted out, and level at about FL200 (20000 ft) the Captain then decided to climb back to FL350 (35000 ft) and continue the sector to Bahrain, using normal cruise power settings.

In the dive from her pre-upset altitude of 35700 ft (FL357) VH-EAB had sacrificed 18900 ft, and the half revolution she’d completed during the dive and recovery now had her heading pretty much due east – about 90 degrees.

This plunge was an *aileron roll* followed by a *powered dive*, **not a stall followed by a spin**.

The aeroplane was “flying” throughout the manoeuvre, “clean” (no flaps or spoilers deployed) and her thrust levers were still set at the pre “upset” position for at least part of the descent, so for a while at least her four engines were still delivering significant amounts of thrust.

Gravity alone will cause an object falling through the atmosphere to accelerate to a limit referred to as Terminal Velocity, where the resistance of the atmosphere itself will exactly match gravity’s attraction, and the object will continue its plunge without further acceleration.

A novice parachutist, falling face down, with arms and legs akimbo or outstretched, will accelerate to about 120mph (about 190kph) and no faster.

He or she will reach this speed within about 5 seconds of stepping out of their aeroplane.

A professional’s speed, falling “clean” with arms and legs tucked in, and headfirst, will peak at about 190mph (300kph), which is about the same speed as a peregrine falcon will achieve when “stooping”.

Interestingly, that’s about the same speed as that of a bullet, discharged skywards from a gun, will reach as it returns to Earth.

If you happen to be in the Middle East, where they seem to be pre-disposed to discharging their weapons into the air during celebrations, take cover.

But if you want to go really fast, you’ll have to hire a balloon and gondola, and a cute pressure suit with its own oxygen supply.

A pair of warm socks and a thermos flask of tea are also good ideas.

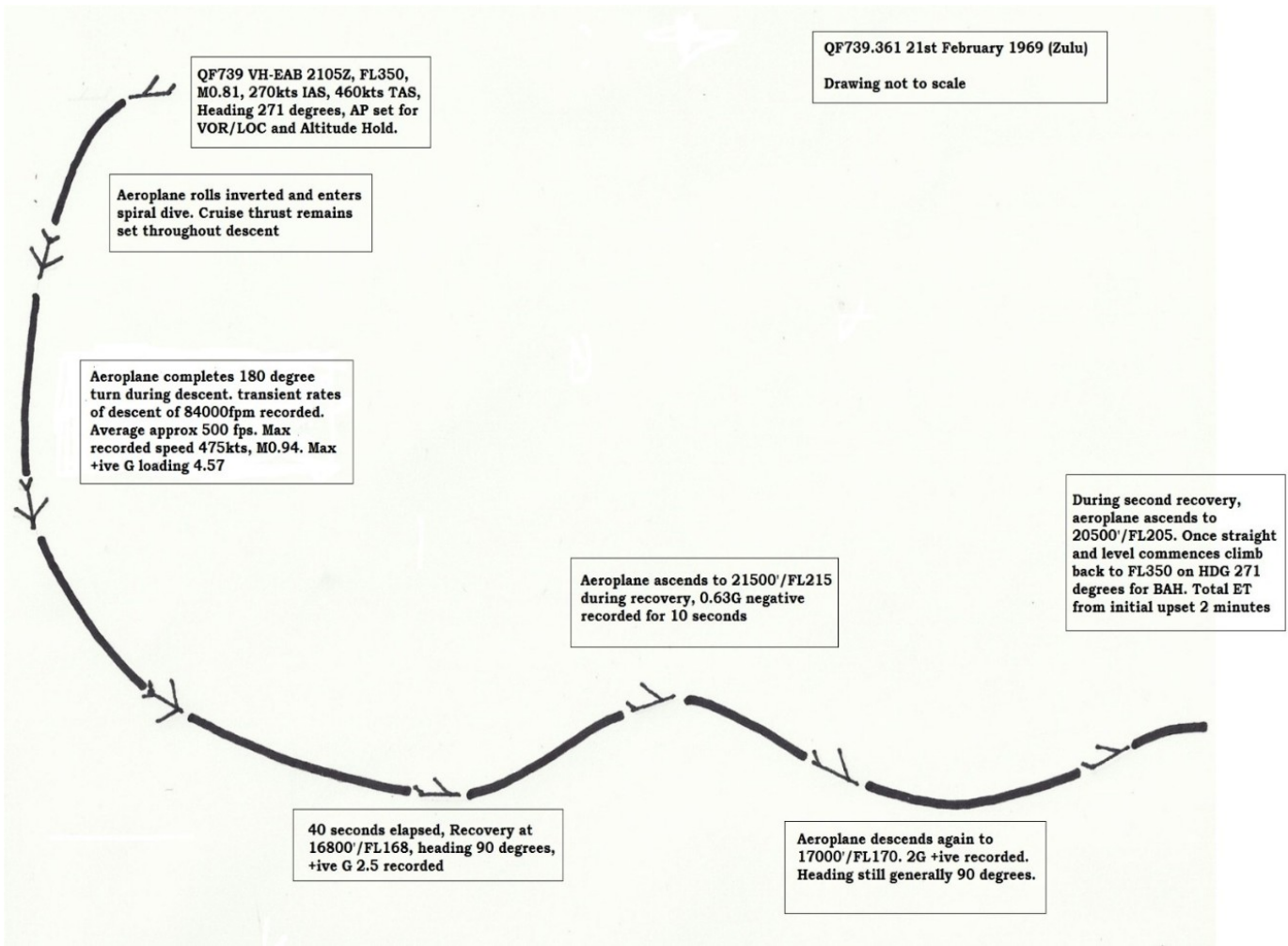
You'll need to file a flight plan, before ascending to about 102000 ft (31kms).

At that height, you'll step out into a very hostile environment indeed, with the air too thin to support respiration, and the OAT (Outside Air Temperature) will be around -200C.

You'll fall for about 4 mins 30 seconds, using a small "drogue" parachute for stability, before opening the main canopy.

Your "speedo" will peak at about 610mph (980kph).

For safety's sake, you should also have a flashing red light on your "beanie".





So theoretically, VH-EAB's speed should have stabilised around this value, but remember she brought a lot of speed into the "upset" and her 4 JT3s were all still producing cruise thrust.

After the investigation and a review of the FDR (Flight Data Recorder) Qantas announced that her speed had peaked at 475 knots (550mph/890kph) or M0.93.

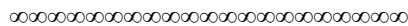
The FDR also revealed that "transient" rates of descent as high as 84000fpm had been reached although the average value was about 25000fpm.

The Airspeed Indicator, like the Altimeter and Vertical Speed Indicator, applies Bernoulli's Theory describing the way a fluid's pressure varies in direct relation to its velocity, by comparing the pressure in a moving volume of air at the pitot tube head, to a static volume, and interprets and displays this as Airspeed.

At the speeds reached by EAB, compressibility issues around the entry to the pitot tube would have caused the gauge to read conservatively, and her speed was probably greater than that displayed on the gauge or recorded on the FDR trace.

She absorbed a maximum positive G loading of 4.57, and during the recovery, a maximum negative G value of -0.63

On delivery, Boeing encouraged their customers to try to operate within an envelope defined by +2.5G and -1.5G, and I'll return to these limits later.



After the Flight Engineer had trimmed the thrust levers for a M0.81 cruise, the Skipper made a P/A system announcement to the Cabin and left the Flight Deck to check on the passengers, leaving the F/O back in his usual right hand seat, and the S/O occupying his normal place, behind the now vacant Captain's chair.

To spend too much time sorting themselves out, on a northerly course would have meant unauthorised use of Iranian Airspace, without a clearance, and it's possible the Persians, prickly about such issues at the best of times, would have sent up a couple of Phantoms to investigate the violation.

Just what the Tech Crew needed.

Back in the Cabin Ed has himself sorted out, is seated and restrained, and the aeroplane seemed to be back in level flight after several "porpoising" manoeuvres which loaded passengers, crew and aeroplane up again with positive and negative Gs

The cabin was still in semi darkness, with the lighting best described as "intimate" and the shouts and requests for help continued unabated, from aft of the divider between FCL and YCL.

Many of the Perspex panels enclosing the "fluoro" strip lighting along the sides of the cabin, had popped off during the wild descent, and in places the tubes themselves had fallen out of their sockets.

About 2 minutes in total had elapsed from the initial upset to final recovery, during which the aeroplane had plunged from FL350 to FL160, a loss of about 19000 ft.

In response to the YCL Senior Steward, John Davis's calls for help, Ed left his seat, with an apology to Sir Mark, and earnest reassurances that Cabin Crew only kicked in the head those passengers whom they respected, headed for the YCL Cabin, but couldn't open the concertina dividing door.

It was blocked by debris from the YCL cabin and had to be ripped from its mountings to allow Ed access to the rear of the aircraft.

As the Cabin Crew tried to restore something like normal lighting in the Cabin, they probably decided that the earlier subdued light levels were preferable.

There were broken Duty Free bottles, and glass everywhere, and throughout the cabin, the pervasive smell of an old carpet in a seedy Bar, complete with vomit nuances.

The rear of the Cabin wasn't a place to linger too long either.

At least one of the Economy Class toilets at the rear had discharged its contents along with the blue antiseptic Racasan, and the tide was definitely high around the rear Galley.

Somewhere too, a tin of Johnson's Baby powder had lost its lid, and the faces of passengers seated in a couple of rows looked like disembodied ghosts

Buddha was organising the distribution of the Basic First Aid kits the aeroplane carried.

One went forward to the Cockpit, and the others hardly seemed adequate to treat the minor injuries in both Cabins.

Amazingly, there only seemed to be one passenger seriously hurt, possibly a Mr George Crowhurst, and two of the Cabin Crew attended to a deep scalp wound, the result of violent contact with one of the seat arm rests.

The passenger was calmly drawing on a cigarette, his face a mask of blood, while the two stewards tried to close and bandage the wound that looked like someone had taken a machete to his forehead.

Mr Crowhurst laughed when the stewards finished bandaging his injured head, and found in the process they'd also managed to bind one of the steward's hands to the side of his head.

As the bandaids and gauze ran out, some of the cabin crew started serving that universal airline panacea, orange juice.

There was no point trying to organise hot drinks. All the Cory flasks were broken or buried in the mounds of rubbish throughout the cabin.

While they were serving the juice, and before he left the Flight deck, the Captain made a P/A announcement, along the lines that there was no cause for alarm – everything was just fine and followed this up with a walk through the Cabin.

Perhaps the Captain learned his P/A skills at the same Academy as Eric Moody, the Captain on British Airways BA9 that lost all four engines for about 10 minutes, after inadvertently flying into Mt Galunggung's ash cloud in 1982.

Eric's masterful announcement went something like..

“Ladies and gentlemen, this is your captain speaking. We have a small problem. All four engines have stopped. We are doing our damndest to get them going again. I trust you are not in too much distress”

While the Captain was off the Flight Deck the F/O was uncomfortable with the Skipper's decision to proceed to BAH with normal cruise power set.

At this point no-one on board had any idea of what damage VH-EAB might have sustained during her plunge, although some of the Cabin Crew reported the aeroplane seemed much noisier in the cabin than normal.

The First Officer asked the Engineer to re-trim the thrust levers for a more modest cruise, about 25kts slower than previously set.

This was done, and the Captain concurred, on his return to the Flight Deck.

Things were now a little calmer in the passenger cabin, although the Asian nanny travelling with her family, on what was her first flight, was still intermittently hysterical.

Some passengers needed to use the toilets which were in a pretty disgusting state, but the Cabin Crew were able to tidy one to the point of being usable, using blankets to mop up the top dressing from floors and cabin walls.

The debris was tossed into a couple of toilets that were then locked, as the lavatories were simply too foul to clean up.

At some point before Top of Descent into BAH, a young woman, seated around Row 14 and travelling alone, told the Cabin Crew she had “lost” her baby.

The Crew was puzzled.

She seemed rational enough, and didn't seem to be pregnant nor did there seem to be any “post partem” debris around.

She explained that she'd been nursing her infant at the time of the upset, but now couldn't find it.

So they started looking, and finally found the child, still asleep, at the bottom of the pile of debris that had accumulated at the F/Y divider.

Asleep and uninjured.

There's a strange and inexplicable divergence of memories here in what a couple of the Cabin Crew recall of the minutes after the flight's recovery, and the F/O's written recollections.

Both Ed K. and John D. are emphatic that at some point they were asked by the pilots to open all the window “blinds” and get as many of the Cabin lights working as possible, as a couple of RAF aircraft, exercising in the vicinity, were coming to offer assistance.

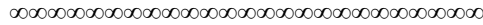
They both believed that EAB was burning her landing lights too, to facilitate visibility.

Yet the F/O in his Autobiography makes no mention of this, nor could he verify the Flight Steward's recollections in our discussions.

I specifically asked him whether there'd been a “PAN” broadcast made on the Pakistani Area Frequency, which might have alerted the two RAF aeroplanes to EAB's situation, and he could recall no such radio transmission.

A PAN transmission lacks the urgency of a MAYDAY call, and is intended to highlight a mechanical or operational situation that could develop into a MAYDAY situation. It's believed to derive from the French word “panne” meaning mechanical fault.

Equally, it could simply be an abbreviation for “Possible Assistance Needed” or “Pay Attention Now”



Around TOD (Top of Descent) and about 30 minutes short of BAH, the Tech Crew would have made the usual radio call, this time to ASGUL, the Handling Agents in BAH.

ASGUL would have been given a firm landing time accompanied with basic details of the upset, and a request for the airport's RFF (Rescue and Fire Fighting) vehicles to be on standby for the landing.

ASGUL would also have called out the Company Doctor to meet the arrival and possibly alerted the staff at the RAF's Base Hospital nearby.

VH-EAB was obviously unserviceable and would be for a while, so arrangements were made to unload and return the passengers' baggage to them, and re-allocate them where they could, to other airlines to complete their journey.

Middle East Airlines offered to delay their London flight to accommodate those passengers who wanted to continue, and John D. recalls most opted for this alternative.

BOAC also offered seats on their London Service.

That would explain why there was some coverage of the incident in the UK Press on Monday 24th February.

A few were obviously reluctant to get back on the horse so quickly, and these would have been offered accommodation, in Manama the Capital, which at the time had a chronic shortage of suitable hotels.

The debris that had accumulated at the YCL/FCL bulkhead and other unclaimed items were bundled into blankets by the Cabin Crew and carried into the baggage claim area, to allow the passengers to sort through.

Once on the ground in Bahrain, the Tech Crew would have disembarked and walked around EAB, but at 0100 LT it was difficult to assess the extent of any external damage.

After collecting their bags and Allowance Sheets, they would have headed for their transport for the journey from Muhurraq, the more northerly of Bahrain's two islands, to the main Island – al Bahrain, and the Delmon Hotel.

When the incident occurred, the newly constructed Gulf Hotel wasn't quite ready for the crews they'd contracted to accommodate – the Crew Room facilities weren't complete, and both Tech and Cabin Crews were still at the smaller Delmon Hotel

The F/O remembers the 30 minute journey as being a quiet affair as each of the crew members tried to keep a lid on the adrenaline in their systems, and come to terms with just how hard they'd pushed the 707's performance envelope.

The Flight Engineer may have stayed at the Airport for a while, running through his entries in the Maintenance Log with BA's local Engineers, before transferring by taxi to the Delmon but the F/O recalls they all made the journey in the same Crew bus.

As is normal following incidents like this, the complete Tech Crew would have been automatically withdrawn from further flying duties, pending the findings of an official Enquiry back in Sydney.

Once at the Hotel they separated, with the Captain heading off to write his Voyage Report and request the Hotel switchboard try to locate the Flight Captain, Ken Meares via Ops Dispatch in the Admin 1 building in Sydney.

In these pre satellite days, phone calls were chronically unreliable and full of static and “atmospherics” and I’m speculating here.

The Skipper may or may not have considered the possibility of one or more of the passengers talking to family or friends back in Australia, and the likelihood that the incident could have finished up in the evening papers before the Company had a chance to decide what their posture should be.

This in fact happened in the UK, but the Company’s Rep there seems to have been pretty well briefed and able to “hose” down any whiff of a story.

Buddha Greene had performed some sleight of hand with the Bar Books and abstracted 4 bottles of scotch from the Bar, probably writing the withdrawal up as “Medical supplies” and given a bottle to each of the Tech Crew.

They’d stay unopened that day.

The Tech Crew would spend about 5 days in BAH, and their presence there would overlap with the arrival of the two teams of Engineers, and the DCA Airworthiness and Incident Investigators.

In Sydney and Seattle engineers started packing their bags for the trip to Bahrain.

Later in the day, at the hotel, the F/O recalls waking from a deep sleep, sweaty, disoriented and shaking.

The Chief Steward and the inbound Cabin Crew, allocated separate transport, would have stayed with their passengers until they’d been properly dispersed to the RAF’s nearby hospital for treatment, or to hotels that had the capacity to accommodate them, helped by the joining Cabin Crew.

The Company Doctor, Hec Thompson, who 8 years later would look after my family when we were posted to Bahrain, was called out by the local Handling Agent, to help with triage, for passengers and crew

The Bahraini Customs people must have been pretty understanding, or Buddha very persuasive, or both, as the crew was allowed to remove grog from the Bars that would normally have been placed under Bond in ASGUL’s Catering Centre.

As the day wore on, and supplies wore out, Buddha and Ed would take turns to take taxis to the Airport, to liberate more liquor from the Bars, to facilitate everyone’s recovery....sorry I meant re-hydration.

I expect the Cabin Crew would have abandoned their bags in the Hotel lobby and headed straight for the Delmon’s Crew Room, a couple of adjoining rooms on the Hotel’s First Floor, with all the amenities of home, including a couple of poker machines.

Once there, they’d try manfully to complete the demolition job on the bars that had started over Jiwani a few hours earlier, and were still at it, when the southbound crews started to arrive at the Hotel around 6.00am.

One of the FCL passengers that night, Noel Barber, would write a book and include his memories of the episode.

He'd observe the same blizzard of flasks, cutlery, china, glassware and other assorted items from the aeroplane's cabin and galley hurtle forward until their progress was interrupted by the FCL cabin's forward bulkhead.

Barber reports that about 60 people needed minor medical intervention at Bahrain, and while the passengers were in the Terminal, they were advised that unclaimed items found in the cabin were available for reclaim in a grassy area outside the terminal.

It was there he found his briefcase.

He did spot a shoe that looked remarkably like one of a pair that his boot maker in Bangkok had made for him.

Looking down he realised that he'd been walking round with one of his feet unshod, and so he reclaimed the shoe that had been wrenched from his foot during the upset.

There were also 4 sets of false teeth that had come adrift during the incident.

They're probably still in the Bahrain Baggage Services office awaiting collection.

Not surprisingly, Ed's memories and those of the other Cabin Crew members I've spoken to, of the night and the aftermath, are still vivid, as you'd expect for anyone involved in a life threatening and life changing episode.

The Cabin Crew (and Tech Crew for that matter) were left to deal with the memories and trauma without any professional help, by an Employer, either indifferent to or more concerned with burying the incident, as deeply and quickly as possible.

And VH-EAB?

After the cabin had been tidied up, galleys removed and all the deadload – cargo, mail and bags offloaded, she was towed to Gulfair's Maintenance area to await the arrival of the engineering support crews from SYD and Boeing's plant in Seattle.

On instructions from SYD, the Flight Deck door would have been sealed, as would the passenger and galley doors

Perhaps, as I did a couple of weeks later, the more curious might have wandered round her, wondering at the ripples round the rear doors and upper wing surfaces.

If they'd been allowed on board, they would probably have noticed immediately the pervasive smell of stale alcohol, vomit, sewerage, fright and Racasan in the cabin, and couldn't have missed the bowed and bent overhead luggage racks.

In Bangkok, the paperwork associated with QF739's departure, the Loadsheets and Balance Chart particularly, would have been quarantined, in case the aeroplane's trim or weight turned out to be a factor in the upset.



The Cabin on an all Economy B707. The overhead racks pretty much from where the photo was taken, aft, were badly buckled and bowed.

Once in Bahrain, the ground engineers, under DCA Supervision, would have removed the FDR (Flight Data Recorder) and CVR (Cockpit Voice Recorder) and these would have been returned to SYD as “Cat A” Company Stores on the next available southbound Qantas flight.

Before the Tech crew was repatriated, and a day or so after the support crews had arrived, the Captain took a phone call at the Delmon from one of the Sydney-based Instrument fitters, saying he thought he’d been able to duplicate the fault, and could they all come to the Airport please?

The crew took their seats on the Flight Deck as the engineer descended, via the floor hatch, to the “Lower 41”, an electronics bay under the cockpit.

After a bit of banging and swearing, he called out “Is that what you saw?”

The Captain’s FDI was indicating 30 degrees of right bank, unsupported by the F/O’s instrument or the standby AH, which were both indicating normally.

The aural “clacker” was sounding and the red warning light, indicating an instrument discrepancy was illuminated but no Warning “flags” were showing.

When his head appeared through the hatch, they asked him how he’d duplicated the fault, and he told them there’d been a loose wire in the power supply to the Captain’s instrument.

So the Tech Crew repacked their Samsonites and headed home, leaving VH-EAB to the mercies of the engineers whose main job was to decide whether she was safe to fly and if yes, what conditions should apply to the Ferry Flight.

After a couple of test flights, she was assessed airworthy, and subject to a series of fairly rigorous conditions, allowed to return home.

These conditions were developed jointly by Qantas and the Boeing delegation and mandated at least one successful, problem free Test flight.

Temporary repairs needed to be made to her starboard “fillet” flap, and a “one off” M_{MO} (Max Operating Mach Number) and V_{MO} (Max Operating Speed) of $M0.82$ above 10000 ft and 320kts IAS below 10000 ft were imposed.

There was a bit of a “hiccup” in Singapore, during the transit there, when No. 2 engine refused to “light” until a higher-than-normal N_2 reading showed, but with a bit of “jiggling” of the Start lever, this problem was overcome.

It’s a very precise art this flying.

Aftermath

If you worked for Qantas in the 60’s through to the 80’s you were always aware that as an employer, it had occasional shortcomings.

So long as you were vertical, had a pulse and a core temperature of about $38^{\circ}C$ they weren’t very interested in you.

Most of us accepted this as a reasonable trade-off for a job that was generally engaging and varied – for some of us it was like having a hobby that included a regular monthly or fortnightly transfer to a nominated Bank Account.

If we knew and accepted our Employer’s shortcomings in our day-to-day comings and goings, we also knew, from firsthand experience or observation, that when things became untidy for someone, the Company would generally pull out all the stops to make things right.

In Traffic we’d see it first hand in the way the Company looked away whenever its rules got in the way of its care for Kathy H, a colleague fighting a lethal melanoma, diagnosed far too late for any meaningful intervention.

So it was that I read, with feelings somewhere between discomfort and disbelief, Ed’s account of the Company’s handling of the returning Cabin Crew, who’d done nothing wrong except handle an impossible situation with care and a professionalism of which they could all be justifiably proud.

Maureen confirmed some of Ed’s recollections.

Certainly, the crew at both ends of VH-EAB expected some disciplinary fallout for the Tech Crew, whose actions had not only saved EAB’s bacon, but precipitated the incident in the first place.

Here too the Company would demonstrate a ham fistedness worthy of a Podium finish in The Clusterf*ck Olympics, in their handling of the Tech Crew Inquiry and outcome, which would leave a legacy of bitterness that endures to this day within the ranks of retired Tech Crew members.

The Cabin Crew returned, as a crew, after two nights at the Delmon Hotel.

They were accommodated on an inbound scheduled service, with the more senior crew members getting lucky with the few First Class seats available, as was their entitlement, with the rest of the Crew “down the back”.

According to both Maureen and Ed K’s accounts their luck didn’t hold beyond Singapore, when to the bemusement of all, they were transferred to an inbound “all Economy” migrant flight, from Europe to SYD and MEL, probably a QF172 service.

I suppose this transfer would have given the more experienced crew a preview of the wheels that were turning in Sydney, to minimise Press coverage of the incident.

In those days, Qantas's Press and Info Department was a very potent force indeed, adept at hushing up incidents that might tarnish the Company's carefully buffed public image.

They showed this again in the 80's, in the way they handled an incident at Heathrow, when one of the 3 pilots operating a QF2 service, turned up drunk at the Briefing.

By the time this story started to circulate within the LHR Press ranks, it was stale and no longer news.

I reckon Press and Info could have kept the lid on WW2 until about 1943.

Upon arrival Sydney, the flight, with its Cargo of New Australians and QF739's Cabin Crew, was either towed or marshalled away from the old Sydney Terminal (roughly where Qantas's current Domestic terminal is now sited) and over towards the Cargo Warehouse, and next to the old Medical Centre, where everyone disembarked.

No Brass bands, handshakes, stirring speeches or keys to the City for the crew, just a cordon of unsmiling Company Security Officers, COMPOL (Commonwealth Police – forerunners to our current AFP) and Managers from Flight Operations and Cabin Crew.

Ed K recalls Bob R. who managed the male cabin crew, and Marge de T, who looked after the female crew, were there and broke lines, to hug and shake the hands of Buddha and his Crew.

Marge de T. pretty much summed up the previous week for all of them with her comment “...you all look like shit!”

Hardly surprising, given the state of VH-EAB's Economy toilets.

I hope Ed, Buddha and the others who did such a special job with their injured and traumatised passengers, didn't expect too much in the way of embarrassing demonstrations of the Company's gratitude.

Handshakes and a form letter were about all they got.

There was nothing offered or provided in the way of physical or psychological help at all.

They were simply stood down to their normal post duty rest period, and expected to get on with their lives as if nothing had happened, and Ed K is convinced this lack of any post incident care, shortened a few lives within the group.

In the few days since the incident Maureen had made some notes that she intended to make available to Qantas during the debrief.

There was no debrief.

Not quite the Qantas my peers and I had come to expect when the rubber hit the runway.



QANTAS AIRWAYS

CE:080

26 February 1969

Flight Hostess Maureen Bushell
Passenger Services Department
MASCOT

Dear

Maureen,

Following the incident to VH.EAB prior to landing at Bahrain, passengers on this flight have praised the actions and attitudes of the cabin crew.

I would like to let you know how much we appreciate this sort of service under such unusual circumstances. Although we tend to expect this from our crews it is most reassuring to know that it has been carried out so well.

On behalf of Qantas Management, I would like to thank you for your excellent performance.

Yours sincerely,

John Hudson Fysh
Manager
Customer Services

Only an inveterate optimist within the pilot's ranks would have expected that all three pilots and Flight Engineer would escape retribution.

The 4 Tech Crew would be held out of service for about 2 months altogether.

No limitations were imposed socially, either within the group or outside.

The skipper had them all round to his house for a BBQ on one occasion, so there wasn't any Corporate paranoia about collusion.

They were in Flight Ops regularly enough, as part of the Enquiry process, and to collect their mail, and even here life went on normally enough, although some of their colleagues kept them at arm's length as if they were carriers of some sort of contagion.

The Company conducted the post incident processes with a strange blend of carelessness, compassion and casual hamfistedness, which leaves a legacy of bitterness still, within the thinning ranks of retired B707/B747 aircrew.

The investigation confirmed what all the crew, and some passengers, seemed to know already.

Sometime in the interval between the skipper returning to the left-hand seat from his break in the Crew Rest area, the movement of the second Officer from Captain's seat to F/O's, and the F/O starting his own break, the Captain's Artificial Horizon/Horizon Director Indicator failed.

Before reacting to the failed/failing instruments, the Pilot Flying (PF) is expected to compare his suspect instrument to any other ones available to him.

In this case, the F/O has an identical instrument, and there's also a standby horizon positioned such that both pilots can see it with too much difficulty.

He didn't.

He disengaged the Autopilot, currently set to VOR/LOC and, and providing altitude hold, and input control movements intended to correct the aeroplane's indicated roll to the right, in the process bringing the wings to a vertical position and beyond.

A figure of 170 degrees roll, and 80 degrees nose down pitch has been mentioned.

There was nothing to correct of course.

The aeroplane was as happy as a clam, straight and level, and it was the Captain's actions that caused the aircraft to roll inverted, and enter what could easily have been a terminal, spiral dive.

The Captain, as the Pilot Flying, was expected to carry the can for the incident, and for him it might have been a straw in the wind that would lead later and following another incident, to his losing his Command, and spending the rest of his flying career a First Officer.

The general belief seems still to be that the Captain lost his Command over the Jiwani incident although his part in the incident may have drawn unwanted attention from the then Chairman, a dwarfish and difficult man, who, before coming to Qantas, signed the Nation's Banknotes for a while, when Secretary of the Treasury.

He was called, amongst other things, "the frozen faced Tsar of the Treasury" and may have influenced the later decision to demote the Captain.

Staff members who crossed him were equally complimentary.

According to the F/O's Autobiography, on which I've drawn heavily (with his consent) in writing this story, the Inquiry recommended some additional training for the Captain before returning him to the flying Roster, *as a Captain*.

It was while this penance was being served and following an incident involving a landing and multiple deflated MLG tyre assemblies, that he lost his command.

According to the Company report, the First Officer was absent from the Flight Deck when the upset occurred, and only managed to return to his seat on the Flight deck after the Skipper and S/O had recovered the jet.

This is directly contradicted in the chapter the F/O devotes to the incident in his book.

It's certainly likely, given the aeroplane's inherently heavy controls, that "muscle" from both pilots would have been needed to bring VH-EAB out of its dive, preferably with its wings and empennage still attached.

707's were built with a lateral "brace" bar which ran from left to right across the top of the rudder pedal recess, and I expect both pilots took advantage of Boeing's thoughtfulness as they wrestled the controls.

The Second Officer may have approached the enquiry with some confidence, given he didn't contribute in any way to the upset, and through his own actions, and the Captain's, was able to recover the jet.

The First Officer, who, according to the Company's account, missed most of the excitement while either in the Crew Rest, or prone on the floor outside the Cockpit, could reasonably have felt the same way.

While he may have been a bit nervous and apprehensive about going into an inquiry during which he'd probably have to testify to his Captain's actions, he can hardly have been prepared for what he actually encountered.

He was made the "patsy".

He was censured and reprimanded by Flight Operations Management for what I suppose you'd call Insubordination.

The removal from Flying duties for over 2 months obviously slowed the F/O's progress through his Command Checks that were under way at the time of the Jiwani Episode, but it was the presence of the critical Letter on File that really rankled.

It was in the way the Company handled the F/O's resumption of his Command training, that they showed an unexpected access of compassion, by allowing him to compress several sectors of Command checks into the one tour, SYD-LHR-SYD, an unusual concession.

He'd go on to a command on 707s, and later convert to the 747, from which Fleet he'd retire in 1994, as a Check Captain

The F/O's problem?

There's no apparent justification in the Company's paperwork, that I've seen anyway, for the censure although the F/O, in his autobiography and in our conversations, says it was for his unilateral decision to change the Captain's decision about the speed to be maintained Jiwani -Bahrain, while he was off the Flight Deck with the passengers and Cabin Crew.

Even though the Captain had been later advised of and concurred with his F/O's decision to reduce the aeroplane's speed by 25knots, the Company, almost as an afterthought, decided it was insubordinate, and put a Letter on the F/O's file

As far as Qantas Flight Ops was concerned, he was off the Flight Deck for most of the upset, and the Company reported it thus ..

"The F/O was (later) able to make his way to the jump seat where he assisted the Captain by giving his appraisal of the disposition of the flight instruments..."

Strange words.

The F/O's written record puts him back on the Flight Deck during the descent, in the S/O's seat during a momentary easing of the G loads, but still during the dive, and it was then that his "Limited Panel" training as a military pilot, enabled him to better interpret the primary flight instruments, and advise on the appropriate corrective control inputs.

Interestingly too, many employees who worked in Flight Ops with the crews, still believe that the F/O, more than any other single pilot, was responsible for the jet's recovery.

Their inputs included phrases like...

"There's no doubt that F/O H. saved the situation..."

Another, in an email passed on by a friend, said

"...even though it was the operating F/O's actions that saved this flight"

A colleague of the F/O's, who already had his command on 707s at the time of the incident, and whose help I asked for with this story, assisted as far as he felt able, then withdrew with the comment...

"...there is more to the Bahrain Bomber incident aftermath, but it be best left alone."

There was and still is a widely held view too, that EAB was supersonic for a period during her spiral descent, which contradicts the Mach .93 conceded in the Company's report.

At the speeds reached by VH-EAB, compressibility issues at the pitot head, which provides half of the information the ASI needs to calculate the aeroplane's speed can cause the airspeed indications shown by the Air Speed Indicator to under-read, and EAB's actual speed was probably greater than conceded for this reason.

So were the Inquiry's findings edited to shine a more acceptable spotlight on the incident?

Who knows?

The Skipper kept his command, even though it was a split-second lapse on his part that caused the upset.

No criticism attracted to the S/O or the Flight Engineer.

The former finished his flying career as the Company's Manager, Flight Simulators.

The latter as a Senior Check Flight Engineer, a position that has since been discarded by most of the world's airlines, sacrificed to the march of technology.

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After the Aftermath

The F/O was quite understandably unhappy with the Company's reprimand decision, reached after an hilarious counselling session during which the Company "Rep" outlined the results of their Enquiry.

The AFAP (Australian Federation of Airline Pilots) had recommended that each of the crew members have a witness with them in any sessions with the Company that might lead to unwanted outcomes, and the F/O had an old friend with him, a brother pilot known since their days together on the London Basing.

The Company Representative opened his presentation by addressing the F/O as "**Engineer Officer H**".

From this point on, the interview descended into farce as the F/O, intent on interjecting and clearing up the misunderstanding, was on the receiving end of a series of kicks under the table from his "second".

Both pilots were puce and nearly apoplectic with suppressed laughter by the time the Interview finished.

The Maximum Takeoff Weight on one of Qantas's later B747-438's was 394625kgs (870000lbs), so for periods during her descent and recovery, this amazing old aeroplane, just over 1/3 the size and empty weight of a 747, "weighed" more than a fully laden Jumbo.

When preparing the paperwork for any RPT flight's departure, a statement must be produced showing how all the load on board, including fuel, is distributed, and from that distribution, infer the new position of the aeroplane's Centre of Gravity.

This paperwork, for VH-EAB on departure Bangkok, would have been produced manually.

These days, the legwork is done by purpose-built software that produces results to a level of accuracy simply not possible with pencil and ruler.

For all that, there's nothing whatsoever to support any belief that VH-EAB's woes were in any way compounded by an error in the paperwork.

Whether using a mainframe computer, or pencil, paper and ruler, the person producing the documents for the Captain's review and signature is obliged to compare actual weights to published maximum values at three critical points in the process.

Once he's accounted for all the weight added to the aeroplane, including the empty weight of the aircraft itself, this total must be equal to or less than the Manufacturer's specified Maximum Zero Fuel Weight sometimes called Maximum Empty Tank Weight.

Above this value, any weight added to the aeroplane can only comprise fuel.

Most of an aeroplane's fuel is carried in the wings, and this maximum value is applied to limit stress on the aeroplane at the wing roots, as the wings, that produce all the lift, struggle to support the fuselage which contributes nothing much to the process.

The other two limiting weights are Maximum Takeoff Weight (also called Maximum Brakes Release Weight by the Brits) and Maximum Landing Weight.

The latter is an absolute value, and may only be violated if the alternative is a potential accident. It will push the aeroplane's undercarriage well out of its safety zone, and the aircraft will spend time in the Hangar afterwards, while the integrity of the landing gear is checked.

The former – MTOW or BRW – can be routinely changed, but only by reduction. Factors such a high temperatures, runway length and aircraft defects can reduce MTOW and it then becomes a Regulated Takeoff Weight.

I place these items before you in compliance with Kipling's Dictum that one must not only entertain, but inform too.

It's really the MZFW that interests me and its role in limiting the stresses at the wing roots.

I'm guessing here, but if VH-EAB's Gross Weight at the time of the upset was 96000 kgs, I'd think that if we'd unbolted the wings, we'd find they weighed, with internal fuel, about 30000kgs, leaving the aeroplane's hull and contents with the balance, about 66000kgs

The wings would be untroubled supporting their own weight.

They'd also handle the 66000kgs in the fuselage without too much bother – they'd flex a bit at the tips.

I find it hard to comprehend though, what I might have seen if I looked out one of VH-EAB's windows with a flashlight and along the wing that night, while she experienced transient G loads of +4.57G, giving the ***fuselage alone a factored weight of 305580kgs.***

The wing- tips must have deflected upwards by 2 -3 metres.

No wonder one of my friends, when discussing the only real option when talking about the comparative merits of big aeroplanes, always concludes his argument with the statement "Book me on a Boeing!" or "if it's not a Boeing, I'm not going!"

The incident obviously troubled the F/O for some time afterwards, not just because of the appeal process to remove the written reprimand, but also the classic accident model, where it's possible to identify a succession of "what if" moments leading up to the event itself.

He identifies five such moments.

1. At the time, and before the incident, the Company's Simulators could not "synthesize" the combination of instrument failure *and* absence of any warning "flags".

Had the Simulator been able to replicate the strange combination of aural, visual warnings and erroneous unflagged instrument displays for crews under training, then they may have been better equipped to respond more appropriately.

The Inquiry's findings included recommendations that Simulators be modified to properly synthesize instrument failures like this.

2. The instrument itself and its pedigree.

Although it would be an electrical fault in the Vertical Gyro (VG) wiring that caused the erroneous readings on the Captain's HDI, there had been other, similar but unrelated incidents in which the finger of suspicion pointed at the capricious VG's.

There was widespread concern within the Industry about the reliability of the 2 Bendix units, which lived in the aeroplane's Lower 41 Instrument Bay, but at the time of the incident those suspicions hadn't yet fully crystallised.

There was anecdotal evidence that a long, slow bank of around 5 degrees, right or left, could upset the Bendix VG's and some airlines had specifically prohibited such manoeuvres.

There was also a rumoured incident involving a Pan Am B707, fitted with the same instrument combination as VH-EAB, which could have ended in tragedy.

The PA aircraft was in a holding pattern at Kennedy in IMC (Instrument Meteorological Conditions) and probably flying lazy turns, when something similar to that which occurred to EAB happened.

The crew were on the edge of losing control completely when luckily the aeroplane broke out of the overcast and they were able to fly visually, a luxury not available to EAB's crew that night over Jiwani.

In the Clean Room of what was then called the ROS (Repair and Overhaul Shop – now EOS I think) a young Avionics specialist who understood all was not right with the Bendix VG units, was trying to nail an inherent flaw that would cause the instrument to fail as it did in the way Pan Am's had, but his breakthrough, with the help of the Technical Services Department would come after the Bahrain Bomber incident.

The fault was discovered in the erector switches. If the aircraft was flown in a long slow turn of approximately 5 degrees AoB (Angle of Bank), the Vertical Gyros could “topple”.

The identification of this latent fault resulted in Ops issuing a Flight Standing Order instructing crews to avoid such manoeuvres until all switches were modified.

The Bendix unit had in fact been removed from VH-EAB, after misbehaving, but before the BAH incident.

Attempts had been made to duplicate the fault and erratic display on the bench, without success, so it had been returned to the serviceable shelves.

The young Instrument Specialist I referred to, would later convert to an equally competent Flight Engineer, and would retire from Qantas as a very senior F/E/O as the last of the jumbos needing on board engineers were sold or stored.

Interestingly too, around the time of the EAB incident, there was a move within Qantas, to discard the standby HDI, powered from a separate source than the primary HDI's, to save money.

Had this project been initiated and completed before the Bahrain incident, then the F/O would only have been able to base his recommendations to the Captain and S/O, using the instrument on the FO's side of the cockpit, with no independent validation.

Interestingly too, after the incident, the moves to discard the Standby units were shelved, and they were replaced with non-Bendix units – SFENA products (now Thales/Thompson) that were the same as those fitted to the RAAF's Mirage fighters.

The policy of having a third HDI was continued into the B747 acquisition and fitout process.

3. The HDI had misbehaved **into** Singapore, and had been written up in the Maintenance Log as requiring investigation. The problem related to several “nuisance” warnings of a discrepancy between the Captain's and F/O's instruments. In those far off times, such items would have been classified as Engineering Info only, and wouldn't have been passed on to the pilots.

While each of the episodes had been written up in the aeroplane's Maintenance Log, none of the Tech Crew on VH-EAB that night were aware that similar malfunctions had occurred on the 18th and 19th of February, or 3 and 4 days prior the Jiwani incident.

Nowadays, post the Flight Engineer Era, the pilots would go routinely through the Log like they were hoping to find next week's winning Lotto numbers.

The Inquiry's findings included recommendations to find more positive ways of keeping such failures more “visible” in the Maintenance Log

4. The weather and timing were players too. There would have been minimal instrument lighting to preserve the Crew's night vision, and outside the cockpit, it was as black as your hat, with no Moon or usable horizon, so an involuntary glance outside the aeroplane at the moment of upset, wouldn't have helped the situation.
5. As the aeroplane passed overhead the Jiwani VOR, and the Autopilot went looking for the 271⁰ outbound radial, the other pilot on the Flight Deck, the Second Officer (in the F/O's seat) was writing up and transmitting a position report, in the modest illumination supplied by the small map light fitted to the cockpit wall.

He would have expected to hear a brief Nav Warning as the Autopilot “hunted” for the outbound radial, and the “COMP” (Comparator) warning light on the main annunciator panel would have

The F/O, dozing in the Crew Rest, about 4m aft of the Flight Deck, sensed the beginnings of the upset and headed for the Flight Deck almost immediately.

Did the S/O, seated 3' to the Captain's right not look up from his NavCom Log (NCL) when he heard the second, unexpected Comparator Warning (reported in the Qantas Inquiry papers), wonder why and see his Captain looking down and to his right?

Was there another aural warning, as the Captain disengaged the Autopilot which might have engaged the S/O's attention? (The pilot disengaging the AP can, in the same action, suppress the warning tone)

Or did he continue to write up the NCL clipboard, without clarifying the Warning, and not notice his Captain turn back to his own instruments, seeing for the first time his failed Artificial Horizon?

Was it a lapse in Airmanship that caused the Captain to blindly follow the failed instrument, perhaps ignoring common sense and react as he did?

The instrument failed just after the Captain returned to the Flight Deck from his break.

Was he fully awake? If so, why the lapse, and why too the continued application of left aileron even though his HDI didn't respond as it should have?

If it was a lapse some could argue that he got off lightly with the Enquiry's recommendation that he only undergo more training.

Was there any attempt to retard the thrust levers during the upset?

Why the written reprimand for the F/O for a pettifogging infringement, making the reduction in thrust that a prudent Captain may have made in the first place and then a few minutes later, "clearing his yardarm" with the Captain who concurred with his F/O's decision?

And perhaps the most chastening thought of all for which there's no real answer except to simply invoke the intervention of Lady Luck.

Boeing's Aerodynamicists said afterwards that they believed EAB would have broken up at around 25000' had she been about 20 tonnes heavier at the moment of the upset.

What if there had been another 60 passengers and baggage on board, and Bahrain's weather forecast marginal, requiring additional fuel reserves or diversion fuel?

These two variables could easily have added the critical 20 tonnes to EAB's gross weight as she passed over the Jiwani VOR.

And what if her positive or negative "G" recordings had been a little more extreme?

In these circumstances, there may have been no happy ending, and instead of Boeing and Qantas Engineers positioning to Bahrain to inspect EAB and hopefully declare her airworthy, it may have been DCA's Accident Investigators instead who coordinated the search for the aeroplane's wreckage and her FDR and CVR.

There'd be no Dustin Hoffman extolling the accident-free record of Qantas in the movie *Rainman*, and the oldest Airline in the English-speaking world would have entered the Jumbo age with enduring damage to her reputation and confidence.

Families at both ends of the Kangaroo Route would arrange memorial services for loved ones, and there'd be empty chairs at the tables of 11 crew member's families in Australia.

And while the Investigators were waiting and hoping that the FDR was findable and recoverable, what would they make of the accident?

All they'd have to build their investigation on was an apparently routine position report, passed by the S/O as EAB transited the Jiwani VOR, confirming FL350 and a heading for EGRON with an ETA at that waypoint.

Remember, these were relatively innocent times, where the first reaction to an aeroplane dropping off the radar was *not* to suspect an act of terrorism involving a bomb.

Even the recovery and interpretation of the FDR wouldn't have added much to their meagre fund of knowledge.

It would show normal traces for all flight parameters up until the critical instant, when it reported the commanded AP disengagement followed immediately by control inputs, seemingly without any reason, to roll the aeroplane robustly to the left.

During the plunge, some of the traces would venture into territory not normally seen on jet transports, and then the traces would simply cease.

The FDR doesn't record aural inputs so there'd be no clues whatsoever as to why QF739 simply rolled and fell from the night sky.

I doubt too, whether there'd have been any witnesses either on the ground or afloat.

The other onboard source of information to Accident Investigators would have been the Cockpit Voice Recorder, an Australian invention (1957) and mandated as essential equipment on all Australian airliners after 1960, following the loss of a TAA F27, making its third approach to Mackay Airport, at night and in fog.

Early recorders stored several voice channels on wire, later ones on continuous loops of magnetic tape, allowing the storage of the last 30 minutes of conversation, radio transmissions and cockpit environment noises.

Nowadays the medium is digital, and most record the last 2 hours.

In EAB's case, the CVR would have disclosed a completely routine flight, handovers of control as pilots came and went from the Flight Deck, the transmission of EAB's position report to the Pakistani ATC authorities and the expected Nav Warning as she transited the Jiwani VOR.

What would the Investigators have made of the second Nav Warning as the Captain's HDI failed?

What too of the Autopilot disconnect warning if it sounded?

Was there any conversation between Captain, S/O and F/E/O at this point? An exclamation or expletive?

Then the sound of the Mach Warning alarm, continuing in the background against a chorus of aural complaints from a badly stressed airframe, the awful sounds of an aeroplane breaking up and then silence.

Long after the aftermath...

And what of VH-EAB, City of Canberra, Constructor's Number 16922?

She's still with us.

She now wears the matt grey lo-vis paint job of a USAF J-STARS aeroplane.

J-STARS is short for Joint Surveillance Target Attack Radar System.

Her very smart radar system, housed in a fairing under her forward fuselage, allows Theatre Commanders to have real time access to all traffic, surface and airborne moving within his ambit.

If you look closely at one of the NLG (Nose Landing Gear) flipper doors you might see the characters "P1" stencilled, indicating she was the first 707 modified by Northrop Grumman to the E-8C J-STARS config.

On her vertical stabiliser she's numbered 92-3289 and the GA above the number indicates she's based at Robins AFB Warner-Robins in Georgia.

She was photographed as recently as April 2011 at RAF Mildenhall.



E-8C J-STARS aircraft 92-3289, nee VH-EAB at RAF Mildenhall in 2011

Some of the kids who are flying her now aren't even shaving and probably weren't even born when she racked up a bit of time at Mach Numbers normally not seen on the Flight Decks of Commercial Transports and left the Boeing engineers who inspected her afterwards, shaking their heads.

Quite the lady.

John McHarg, Denmark and Subiaco WA November 2011

While researching this story I encountered the problem that must confound and frustrate anyone trying to piece together a story from the collected memories of participants or witnesses. It's amazing how different people, consciously or unconsciously, retain and emphasise different elements of the same incident, right down to a forensic level.

I found one such example early, in reconciling the account of one of the pilots, with the Company's post incident report,

I decided to go with the Pilot's recollections.

Acknowledgements.

My thanks to Ed K for permission to quote from his online recollections, and his help with the detail in the final draft of the story.

Ron Cuskelly's website www.adastron.com was its usual cornucopia of reliable info and my thanks to Ron for his help with this and other articles.

My thanks too to the apprentice Instrument fitter, later Senior F/E/O for his help, direct, and indirectly in "proofing" some of my feeble attempts to properly handle the technical aspects of the incident.

Maureen Bushell, now married and a Grandmother, supplied the press cutting and John Fysh's letter

A couple of retired Qantas pilots helped with much of the Technical and procedural stuff, both here and in other pieces, but asked to remain anonymous. Thanks.

Without the help of the First Officer, and access to his book, which now sits on my bedside table, this story would have been mostly speculation.

The book "From Sea Furies to Jumbos – a Pilots Story" is out of print but still available through several online used book sites.

There's a lot of detailed Qantas History covered in its 280 pages, and I'm looking forward to reading it in full.

A colleague, researching his own book, and trawling through the Safety Department's old records, came upon their file on The Bahrain Bomber, and mentioned its existence to me.

I asked Group Safety whether they'd allow me access to the file, and they agreed, but since then I've heard nothing further from them.

HDJL, retired Qantas and Singapore Airlines 707 and Jumbo pilot was endlessly patient and resourceful in a very literal way. He combed his old B707 Flight Manual to provide advice, text and schematics to help keep the story accurate and reliable.

Clive Potter, cousin and regular Qantas longhaul flyer, helped out with some golf course diplomacy, and put me in contact with the F/O.

I was also able to track down two other Cabin Crew members, Paul White, and John Davis who provided an Economy Class perspective on the “Bahrain Bomber”, the mayhem in the cabin, internal memos, and Press clippings.

John left a “speech to text” message on my phone, courtesy of Telstra which read in part “...**this is John Davis...I’m calling about the bar in Burma...**”

That’s close enough to “Bahrain Bomber” to fool a computer I suppose.

Plane dive passengers were “floating”

“I awoke to find myself floating near the ceiling.

“I then remember falling, but must have knocked myself unconscious. I have no idea how I cut my head.”

Mr. George Crowhurst, of the Royal Brunei Police, was describing the predicament he found himself in when a Qantas Boeing 707 made an unexpected steep dive early on Saturday.

The Sydney to London jet was carrying 38 passengers when it suddenly dived steeply injuring four passengers.

The pilot of the Boeing 707, Captain Bill Nye, of Perth, W.A., attributed the mishap to gyro malfunctioning which occurred one hour this side of Karachi.

The plane landed safely at Bahrain and the injured were taken to the Royal Air Force base hospital.

Mr. Crowhurst was released from hospital in Bahrain on Sunday.

He had boarded the plane in Singapore with his wife for three months’ home leave and travelled on to London yesterday.

Turbulence

The majority of the passengers left for their destinations on Sunday morning, but Mr. and Mrs. Robert Eady, of Sydney, and their daughter, Chrissie, decided to stop over in Bahrain.

Mr. Eady said: “I merely thought we had struck excessive turbulence and automatically fastened my seat belt. Chrissie was sleeping across two seats and it

was not till I saw her floating about two feet above them that I realised that something unusual had occurred.

“She was unharmed,” he added.

Both Mr. Eady and Mr. Crowhurst praised the captain and cabin crew.

Mr. Eady said Captain Nye did a marvellous job.

He said: “The cabin crew were terrific in reassuring everyone. Everything had come off the racks and the cabin was a bit of a shambles, but there was no panic and everyone helped everyone else.”

Captain Nye commended his chief steward, John Green, of Sydney.

“He was as cool as he could be and held everyone together,” he said. — AAP-Reuter.

I wasn't able to establish the provenance of this cutting, nor determine whether it was in the London or Sydney press. My thanks to John Davis for making it available. The quality problems are mine, not John's

Airliner in steep dive: 4 hurt

BAHREIN, Sun – The automatic pilot in a Qantas Boeing 707 malfunctioned for some unexplained reason yesterday and sent the plane into a steep dive before the pilot could regain control.

The plane was on a flight from Sydney to London with 36 passengers when it suddenly dived steeply towards the Persian Gulf Sheikdom of Bahrein.

Four of the passengers were injured.

A Qantas spokesman in London said the plane landed safely at Bahrein and the four injured passengers were taken to hospital for treatment.

The others left for London on later flights of Middle East Airlines and BOAC.

“The aircraft was approaching Bahrain Airport at 35000 feet, when there was a malfunction in the auto-pilot system” the spokesman said.

“This caused a sudden steep descent before the pilot could take over the controls”

“He then made a safe landing”

No Interviews

The Qantas spokesman said later

that the passengers had reached London and had dispersed “all over the country”

He said that none had remained over night in London and none had given press interviews on arrival.

The spokesman said only one passenger had remained in hospital in Bahrein for treatment.

He was identified as a Briton, Mr G. Crowhurst from Singapore.

He had cut his forehead.

The other three injured passengers had suffered bruises.

A Qantas spokesman said no passengers from Sydney were injured.

The Commander of the aircraft was Captain William Nye, of Harbord, Sydney.

The spokesman said the aircraft was being retained at Bahrein “until our engineers are happy they have located the trouble and cured it”

He did not know how long the investigation into the autopilot malfunction would take .

He said “It’s a fairly unusual thing to happen to an airliner – I can’t recall such a thing happening before. – UPI, AAP-R (from the London Daily Telegraph, Mon 24th Feb 1969

Footnote:

In much the same way that Boeing and Airbus are butting heads now in the market for new airliners, so too did Boeing and their only major rival, Douglas, in the 50's, 60's, 70's and 80's.

Back then it was Seattle vs Long Beach California and Boeing's major competition for their 707, was Donald Douglas's lovely DC 8, and they'd continue to slug it out with the B727 and B737 vs the DC9 and then the 747 vs the DC10.

Until this rivalry started, Bill Boeing and his factory on the Duwamish River in Seattle had believed his Company's fortunes lay with the design and construction of military aeroplanes.

Thank God for that I hear one of my 5 readers exclaim. Without Boeing and his extraordinary B-17 and B-29 bombers, we'd still be trying to win WW2

Jimmy Stewart would instruct on the type before flying more than twenty missions to Germany in B-24's, Gene Roddenberry (the creator of Star Trek) would fly nearly 20 missions as a B-17 Captain in the Pacific War, and Clark Gable would man a waist gun position on 5 missions to Germany.

Without the B-17 for inspiration, Bill Boeing would have had to look elsewhere for a platform for his C-75/B-307 Stratoliner passenger aeroplane.

It was the first into service with a pressurised cabin, and the first to include a Flight Engineer.

Without the B-17 we mightn't have seen the B-29

Enola Gay Tibbetts would never have had an aeroplane named after her, and her son Eugene would have had to find another way of getting "Little Boy" to Hiroshima on the 6th August 1945.



In mid 1961, and about 3 years after starting up the DC 8 production line, Douglas finished building a Series 43 DC 8, C/n 45623, that was destined to go onto the Canadian Register in Canadian Pacific's livery.

She was powered by 4 RR Conway engines, as fitted to BOAC's Super and Standard VC10's, or Iron Ducks, as their crews occasionally called them.

On the 21st August that year, with Douglas's Chief Test Pilot, Bill McGruder at the controls, and with a modest fuel load of about 12000lbs, she departed Long Beach for what is now Edwards Air Force Base, in the high Mojave Desert of California.

En route, she climbed to 52000', which still stands as a record for a commercial production jet.

Apart from some special electronics, fitted especially for the mission, she was in standard trim.

Overhead Edwards AFB, and after McGruder had confirmed all was well with his aeroplane and passengers, he gently "bunted" the aircraft, pushing the controls until she was 30° nose down, and at the same time advancing the thrust levers to settings normally seen for take off.

By 41000' she was through the sound barrier without the expected "buffet" and she maintained M1.012 til McGruder raised the nose at around 36000' easing the power back to normal cruise settings.

As she settled back to sub sonic speeds, the buffet expected earlier was experienced, and the crew noticed a very high oscillation in the rudder and aileron trim tabs transmitted through to the control column and pedals.

While she returned to Long Beach, the blokes down the back with the plastic pocket protectors, Staedler propelling pencils and slide rules determined she'd reached a true airspeed of 662.5mph/1066.2kph/576kts.

Throughout the flight over Edwards, she was shadowed by one of Lockheed's more spectacular products, specially fitted out with the instruments needed to properly calibrate the flight.

This was Lockheed's F-104 Starfighter, called while in service with Germany's post war air force, "the Widow Maker", and little more than a chair bolted to a General Electric J79 engine.

For young boys, your correspondent included, growing up in the 50's, this aeroplane was the stuff of day dreams, and models of the aeroplane hung from many a boy's bedroom ceiling.

It looked a million bucks, did its best work at M1.5, and made lots of noise and smoke.

As I'd find out later, it too was a product of Lockheed's Skunk Works, and if it had been a painting, would have carried somewhere the signature of the extraordinary Clarence "Kelly" Johnson on it.

It was a pretty ecumenical occasion. The other chase plane, with the cameras on board, was a North American "Super Sabre"

A couple of weeks later, with a small Super Sonic badge on her vertical stabiliser, she was flying for CP, with the registration CF-CUD on her tail and flanks, and she'd continue to serve Canadian Pacific for another 70,000hours, before being retired and scrapped in 1980.



Qantas Engineering Staff who positioned home on VH-EAB BAH-SIN-SYD

John Corby – Aeronautical Engineer

Ray Davies – Aircraft Servicing Foreman

Bill Jones – Sheet Metal Shop Foreman

Barry Pullbrook – L/Hand, Aircraft Servicing

Oscar Harper – Aircraft Servicing, Sub Foreman

Fred Cox – Aircraft Servicing, Sub Foreman

Dave Warbrick – Avionics Foreman