



Loss of Phantom A69-7203

Near Evans Head Qld, 16 June 1971



Photograph by Ron Cuskelly

AT 1813 hrs on 16 June 1971, Phantom A69- 7203 took off from Amberley with a crew of two, as the lead aircraft in (Carbine) formation, on a navigational exercise and night bombing on the Evans Head bombing range.

At 1915 hrs, after an apparently normal Navex, the formation contacted the Range Safety Officer (RSO) for clearance onto the range. Due to a navigational error the lead aircraft overflew the range while his No 2 joined the bombing pattern normally.

During the bombing phase, the No.2 aircraft in the formation suffered a suspected hang-up of one bomb so a decision was made to return via the alternate route to base with No.2 aircraft flying as leader.

The No.2 aircraft reported off the range at 1943 hrs, heading 120 M and climbing out to 6,500 ft. As he (the lead aircraft) was passing 2,500 ft the RSO instructed the formation to maintain 1,000 ft due to conflicting traffic (Cordite formation). The instruction was acknowledged by No.2 and he commenced a descent to 1,000 ft, turning to port onto a heading of 010 M. No.1, at this stage, was in the process of rejoining his No.2 on the inside of the turn from about three miles astern.

While the leader was levelling at 1,000 feet, he entered a patch of low cloud causing the rejoining aircraft to lose visual contact. The leader then stopped his turn until he emerged from the cloud and the joining aircraft regained visual contact. The leader then resumed his port turn and rolled out on the desired heading. He then looked behind to see lights, which he thought to be the other aircraft, at his 8:30 position and very low. Almost immediately the lights disappeared.

Subsequent attempts to contact the aircraft were unsuccessful and an immediate search was implemented. At 0841 hrs the following morning a SAR Orion sighted debris in the sea that was later recovered and identified to be from the missing aircraft.

Crew details

The pilot had a total captain experience of 2,536 hrs and held test pilot and instructor qualifications. He had flown 237 hrs in F-4E aircraft and held an 'above average' assessment.

The navigator was also assessed 'above average' and had a total of 199 hrs flying experience on the Phantom.

The pilot held a medical category A1G201Z1 (aural protection in noise) dated 10 May 1971. The navigator's category was A1G1Z1 dated 15 October 1970. There was no evidence to suggest any medical condition of either crew member contributed to the accident in any way.

Aircraft serviceability

The aircraft was signed off in the E/E500 as fully serviceable for the flight with the exception of the No 7 fuel tank feeding too early. However, the B4 and B11 servicings (relating to the oxygen system) were overdue by nine days due to an omission, but no evidence could be found to show that these omissions had any bearing on the accident.

The aircraft was being operated within AUW and C of G limitations.

Weather

The forecast weather for the Evans Head area was cloud varying from 2/8 to 6/8 between 800 ft and 20,000 ft with southwesterly winds of 20-30 kts. The visibility was 10 nm reducing to 2 nm in showers. Eyewitnesses said the night was very black with nil visible horizon and on the afternoon of the 16th June and the following morning, several waterspouts were sighted in the area. No 2 of the formation reported the actual cloud cover in the bombing range area to be approximately 3/8 - 5/8 stratocumulus base 2,500 ft with isolated patches of lower cloud down to 1,000 ft. Moderate turbulence was evident at 1,000 ft.

Briefing and authorization

After the normal squadron briefing for the night flying and bombing exercise, the formation leader conducted a comprehensive briefing with his No.2. This covered not only the first part of the flight but also the procedures to be observed on the bombing range and the return flight to base with No.2 as the leader.

The change of lead was to be accomplished after the aircraft completed the bombing and were departing the range. No. 2 was to maintain 120 M and initiate a climb to 6,500 ft at 350 kts. He was then to make a left turn onto 015 M in the climb so as to roll out on the desired heading above 5,000 ft in order to maintain separation from the following formation approaching the range from the north. No.1 was to join up from a 'radar trail' in the climb.

The sortie was correctly authorised in the Unit Flying Authorisation book.

Description of the flight

The flight progressed according to plan from take-off until the latter stages of the bombing detail.

As the aircraft were completing their last passes, the next formation reported in and obtained clearance to enter the range. At this stage, they were approximately 20-40 nm to the north.

No.2 described the following events: 'Once over the target I turned onto 120 M and climbed to 2,000-2,500 ft, due to low cloud base and slowed to 350 kts. The No.1 then called "off-safe" with visual contact. Ten to fifteen seconds later he called "switches off - sight caged". The range acknowledged and I called "sight caged - switches safe".'

'The range then told me not to climb above 1,000 ft. I acknowledged and started a descent back to 1,000 ft. I also started a left turn. During the turn (30° bank) I entered cloud and No.1 called lost contact. I rolled wings' level and called my heading of 030 M. Shortly after, I broke out of cloud and he said "confirm heading 030". I replied "affirmative". He then said "contact, we're in your left eight o'clock, continue your turn".'

'I then rolled left to a heading of 010 M (only about 20° of bank was used). After No.1's call, my navigator advised me that he had the aircraft in sight and that he was moving into position.' 'Once I was steady on 010 M, I looked to the left and saw what I believe was an aircraft in my left 8.30 position, very low on me. This almost immediately disappeared...'

No.2, having lost all further contact with No.1, assumed a radio failure in the other aircraft and alerted all ground stations while he was returning to base, However, at 2009 hrs when No.2 landed, he was alone, so a search was initiated for the other aircraft. At 2043 hrs the duty controller noted that No.1's endurance had expired.

Wreckage examination

Only minor pieces of the aircraft were recovered, namely:

- foam rubber from the fuselage fuel tanks;
- the right wingtip;
- the seat cushions from the ejection seats; and
- minor fragments of metal together with small bits of insulation material.

Examination of the wreckage indicated the aircraft impacted the water right wing low and approximately in a five degrees nose low attitude. It broke up immediately as the foam rubber in the fuselage tanks would indicate. The damage sustained by the ejection seats' cushions could not have occurred during a normal ejection, therefore it was concluded that both occupants were in the aircraft at the time of impact.

Since the major part of the aircraft was not recovered, no further information could be gained from the wreckage.

Evaluating the evidence

During the investigation, the route flown by the formation on the night of the accident was reconstructed, using two other Phantom aircraft. The pilot of the rejoining aircraft reported the following observations.

'Coming off the target in 3 nm trail, No.1 was easily identifiable and my navigator advised me that we were climbing. I instructed my navigator to obtain a radar lock-on so he could assist the rejoin by giving me a closure rate.'

'As No.1 commenced the descending left turn, I attempted to match his angle of bank and remain in the same plane as his wing. To do this I had to be at a lower altitude than No.1. Although I had prior knowledge that No.1 was to descend and there was a good visual horizon on this day, there was no sensation of a descent when remaining in the same plane as No.1's wing.'

'When No.1 made the "lost contact" call, I immediately went onto instruments (at this time I had 30° left bank, passing through 050° M). After confirming the heading of No.1 as 030° M, I increased the angle of bank to 45° so I could roll out on 030° as quickly as possible. As I had adequate lateral separation from No.1 at the time of the "lost contact" call, I knew that if I paralleled No.1's heading there would be no risk of a collision. When No.1 went into the 20° left bank turn onto 0100M, I matched his angle of bank and when I noticed that he was rolling wings level, I rolled into a 30° right bank turn to effect the rejoin as I was approximately one mile from No.1 in his low 8 o'clock position. My altimeter at this point indicated 3,000 ft. No.1 was still at 4,000 ft.'

The procedure was repeated twice with similar results on both occasions. When the pilot was questioned later about monitoring the altimeter during the short period of instrument flying after the 'lost contact' call, he replied:

'No, because I knew I had sufficient height and as I anticipated that I would have visual contact with No.1 in approximately 8-10 seconds time, I was more intent on paralleling No.1's heading and then searching for No.1.'

Due to the lack of evidence, the possibility of some mechanical failure, ie:

- a. flight instrument failure;
- b. electrical failure;
- c. engine failure; or
- d. air-conditioning failure

cannot be discounted. Phantom aircraft have previously suffered flight instrument failures (ADI) and an air conditioning failure which resulted in the cockpit filling up with a mist that fogged up the canopy, instruments and the pilot's visor. However, if any of the above would have happened at height, the incident need not have been fatal.

In view of the pilot's previous experience and his reputation for a mature approach to flying, it was considered that he would not have attempted to carry out a visual rejoin at such a low altitude under marginal conditions of visibility if he had been aware of his true height.

The primary cause of the accident, therefore, was considered to be the pilot inadvertently flying at such a low altitude that he struck the water. The probable chain of events could then be reconstructed. The removal of any of the following events from the chain would probably have averted the accident.

- The RSO misinterpreted the call from the approaching formation and believed they were coming from the south.
- The RSO, seeking to ensure altitude separation between the approaching (Cordite) Section (1200 M), imposed a 1,000 ft restriction on Carbine Section.
- The leader of Carbine Section had briefed that he wanted to join up quickly to penetrate cloud as a pair.
- The No.2, who was inexperienced as a leader and who expected advice from No.1, accepted the altitude restriction.
- The leader probably did not hear the RSO's restriction of 1,000 ft or the acknowledgment due to a possible intermittent radio malfunction, or due to talking with his navigator, or he did not interpret the call as being for their section due to the similarity in callsigns.
- The No.2 began a descending turn from 2,500 ft to 1,000 ft without advising his No.1 that he was descending.
- When No.1 lost visual contact, No.2 was in thin cloud and No.1 probably expected to regain contact quickly. Believing he had sufficient height and expecting to see his No.2 quickly, he may have checked only his heading and bank before again looking for the other aircraft.
- The radar altimeter low level warning light is not effective and was out of the pilot's field of view.
- The navigator was probably engrossed in assisting a radar rejoin, and was not monitoring the flight instruments.

The combination of the above resulted in the aircraft being very low, and at this point there would appear to have been three possibilities,

- a. The aircraft flew into a waterspout.
- b. A technical failure occurred such as the failure of the ADI or the air-conditioning system.
- c. The pilot allowed the aircraft to fly into the sea while attempting a rejoin.

Conclusion

Since no technical evidence of a malfunction contributing to the accident was available, the cause of the accident was undetermined.

However, the probable cause was that the pilot failed to notice the development of a dangerous situation and allowed the aircraft to fly low enough to hit the water. Contributing factors to the accident were:

- the poor design of the radar altimeter low level warning light; and
- failure of the pilot to receive the RSO's restriction and act accordingly.

Comment

Several lessons can be learnt from this accident.

1. The safe conclusion of a flight is largely dependent on the proper observance and compliance with standard radio procedures.
2. Proper crew coordination as a mutual back-up system is essential, especially during periods of heavy work load under adverse conditions.
3. Experience is no safeguard against disorientation.

In this case it is highly probable the pilot was disoriented. He concentrated mainly on keeping the other aircraft in visual contact with no other outside sources of visual cues, and the descent was so gradual that he had no physical sensation of it. His apparently normal radio call 'contact we're in your left 8 o'clock, continue your turn', only a few seconds before the crash, would indicate he was under a mistaken belief of his true height and that he did not hear the RSO's restriction. This accident is more tragic when considering the relatively minor points that combined to cause the loss of an experienced crew and a valuable aircraft.