

**Aviation Safety Investigation Report
199602223**

**Boeing Co
B737-400**

12 July 1996

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NOTE: All air safety occurrences reported to the ATSB are categorised and recorded. For a detailed explanation on Category definitions please refer to the ATSB website at www.atsb.gov.au.

The Bureau did not conduct an on scene investigation of this occurrence. The information presented below was obtained from information supplied to the Bureau.

Occurrence Number:	199602223	Occurrence Type:	Incident
Location:	56km W Nowra, Aerodrome		
State:	NSW	Inv Category:	4
Date:	Friday 12 July 1996		
Time:	1010 hours	Time Zone	EST
Highest Injury Level:	None		

Aircraft Manufacturer:	Boeing Co		
Aircraft Model:	737-476		
Aircraft Registration:	VH-TJH	Serial Number:	24433
Type of Operation:	Air Transport Domestic High Capacity Passenger		
Damage to Aircraft:	Nil		
Departure Point:	Canberra		
Departure Time:	1001 EST		
Destination:	Sydney		

Approved for Release: Friday, December 13, 1996

FACTUAL INFORMATION

A formation of four Skyhawk A4 aircraft had been flight planned to depart from Nowra on a low-level jet route flight over central New South Wales and then return to Nowra. The flight was notified in accordance with the Manual of Air Traffic Services (MATS) procedures and included a Notice To Airmen (NOTAM) which had been issued the day prior to the flight. The initial track of the flight was from Nowra, direct to Cowra at flight level (FL) 220, after which the formation would descend to low level, outside controlled airspace. The initial segment of the flight was to be conducted in controlled airspace which was the responsibility of a Melbourne based sector controller. The Melbourne sector controller was required to coordinate the flight with Sydney arrivals and another Melbourne sector.

The formation was to be intercepted by another Skyhawk immediately after departure from Nowra. The intention was for this Skyhawk to depart prior to the formation and to hold overhead Nowra. The pilot of this fifth aircraft would then intercept the formation as it departed Nowra. The intercept was planned to be completed by the time the formation reached a point 20 NM north-west of Nowra. This was just inside the area of responsibility of the Melbourne sector controller. The limit of Nowra military controlled airspace, on the planned track, was 15 NM northwest of Nowra. After the intercept, the fifth Skyhawk would continue on the same route planned for the formation.

Notification of the flight of the fifth Skyhawk was included as a note on the flightplan for the formation. The note advised that an aircraft with a callsign "TBA" (to be advised), would operate within 20 NM of the formation and would conduct an intercept of the formation. The flight plan did not state that there would be five Skyhawks or that the intercept would be conducted in the area between Nowra and 20 NM to the north-west. One hour prior to the Skyhawks' departure, Nowra air traffic control (ATC) contacted Melbourne ATC and co-ordinated the expected use of a block level of airspace from FL180 to FL250 for all five Skyhawks during the intercept. The actual levels requested would be co-ordinated when the aircraft taxied.

This was the first time the Melbourne sector controller had experienced an intercept situation and the degree of co-ordination necessary was significantly different to that which he had previously conducted for flights from Nowra. Another controller offered to assist the sector controller but the offer was declined. The fifth Skyhawk taxied first and was cleared in accordance with the flightplan at FL220. The Melbourne sector controller co-ordinated this clearance with Sydney arrivals.

When the fifth Skyhawk was ready to depart Nowra, ATC co-ordinated the use of a block level. The block level requested was from FL180 to FL250. Nowra ATC advised that the pilot would remain on Nowra's frequency until the intercept was completed. The Melbourne sector controller requested confirmation of the extent of the area required for the intercept and was advised by Nowra ATC that the Skyhawk may require operations between 20 NM and 30 NM from Nowra. The Melbourne sector controller concurred with the use of the block levels. The sector controller did not issue a clearance limit for the aircraft or co-ordinate the use of the block levels with Sydney arrivals.

The Skyhawk formation taxied shortly after and was cleared via the flight planned route at FL220. The Melbourne sector controller co-ordinated the clearance with Sydney arrivals. The fifth Skyhawk became airborne at Nowra and climbed overhead the airfield. Nowra ATC passed radar identification on the fifth Skyhawk to the Melbourne sector controller. Prior to the formation departing, the Melbourne sector controller twice queried Nowra ATC with respect to the actual levels to be used by the two elements of Skyhawks. On both occasions Nowra ATC confirmed that both the formation and the fifth Skyhawk would be operating in the block level from FL180 to FL250 during the intercept.

The Melbourne sector controller advised both the Sydney arrivals controller and the other sector controller that the aircraft would be conducting an intercept and operating in the block level in his sector before transferring to their sectors. The two other controllers requested confirmation that all the Skyhawks would be maintaining FL220 on entering their airspace. The Melbourne sector controller confirmed that the Skyhawks would be at FL220.

The formation of Skyhawks departed Nowra and was transferred from Nowra ATC to the Melbourne sector controller 10 NM north-west of Nowra. The fifth Skyhawk was 8 NM behind the formation and Nowra ATC requested approval to maintain the aircraft on their frequency as the pilot was taking longer than expected to intercept the formation. This was not in accordance with radar control procedures in MATS which require all aircraft being radar separated to be operating on the same frequency. The Melbourne sector controller approved the fifth Skyhawk to remain on Nowra's ATC frequency after confirming that the aircraft was on descent to FL220. Shortly after, the fifth Skyhawk entered the Melbourne sector controller's area of responsibility but remained on a Nowra ATC frequency.



The Melbourne sector controller passed the radar identification of the fifth Skyhawk to the Sydney arrivals controller and advised that the aircraft was on descent to FL220. The Sydney arrivals controller accepted control of the fifth Skyhawk at FL220 and indicated that he was concerned because of a northbound B737 at FL230 that would be crossing the track of the Skyhawks. Traffic information on the B737 was passed to both elements of Skyhawks by the Melbourne sector controller and Nowra ATC. At no stage was the clearance for either Skyhawk element amended to restrict operations, in the block level, to a level that would ensure vertical separation from the B737.

The Skyhawk formation leader sighted the B737 and the pilot of the fifth Skyhawk advised Nowra ATC that he would not climb above FL220. Nowra ATC advised the Melbourne sector controller that the aircraft would not be above FL220. All five Skyhawks then transferred to the Sydney arrivals frequency. The Skyhawks were approximately 50 NM north-west of Nowra.

The pilot of the fifth Skyhawk reported to the Sydney arrivals controller that he was maintaining FL190. This was not the level that had not been co-ordinated by the Melbourne sector controller. The Sydney controller had based vertical separation with other aircraft in his sector on the previously co-ordinated level, FL220. The Sydney arrivals controller instructed the pilot of the fifth Skyhawk to descend to FL180 due to a Saab 340 at FL190. The pilot of the Skyhawk requested FL220 and was subsequently instructed to climb to FL220 by the Sydney arrivals controller. There was no breakdown in separation but there was breakdown in procedures.

ANALYSIS

More specific explanation of the special requirements for the formation flight would have assisted the sector controller to better appreciate the potential separation and co-ordination problems with the flight. This lack of information and the sector controller's lack of experience with this type of operation did not assist in his management of the task. The sector controller compounded the situation by declining the offer of assistance from another controller. This was a further sign of his inexperience.

The expectation by Nowra ATC and the Melbourne sector controller was that the intercept would be completed prior to the Skyhawks leaving the sector controller's area of responsibility. Because of this expectation, the sector controller did not co-ordinate the use of the block levels with Sydney arrivals or the other sector controller. Consequently, as a result of the intercept not being completed at 20 NM from Nowra, the Skyhawk continuing the intercept while remaining on the Nowra ATC frequency and the controller's own co-ordination workload, he was unable to appreciate the developing situation or eventual consequences.

The operation of the two elements of Skyhawks on different frequencies compounded the situation and caused a delay when the Melbourne sector controller attempted to confirm the aircraft were vertically separated from the B737. Retention of all aircraft operating within the particular block of airspace on a single frequency would have provided an improved level of safety for all the aircraft involved.

The lack of specific limits on the airspace to be used for the intercept pre-disposed the controller to losing control of the situation. Despite his obvious apprehension with respect to what was actually planned to occur, he did not impose any limits on the activity. The use of a suitable separation assurance technique or the co-ordination of the use of the block levels with subsequent sector controllers would probably have prevented the occurrence.

SIGNIFICANT FACTORS

1. The Melbourne sector controller lacked experience of this type of operation.
2. There were limited details of the special requirements for the military flight on the flight plan.
3. The sector controller did not co-ordinate the use of block levels with subsequent control agencies.
4. Aircraft did not operate on the appropriate air traffic control frequency.
5. Adequate separation assurance techniques were not used.

SAFETY ACTION

Local Safety Action

The commanding officer of the Skyhawk squadron agreed to issue two flight plans for similar flights in the future and to ensure that more explicit details of the military requirements are provided on the plans.

