

[REDACTED]

Part 1.6

COMMENTS BY AIR OFFICER COMMANDING NUMBER 1 GROUP

1. The Board have conducted a thorough investigation into this tragic accident, and I agree with their identification of the cause, in that the loss of ZE982 and her crew was due to controlled flight into terrain (CFIT). The Board identified many factors as to the reason why the CFIT occurred, and I believe that 3 primary elements contributed most to the accident: hazard recognition, aircraft handling and pilot experience. I do not agree with the Board's identification of distraction or well-being as being significant in this case. Staffing of the recommendations is ongoing.

Hazard Recognition

2. The route selection of this particular valley complex in the ac fit and all up weight left little room for error. The crew would not have appreciated the full severity of the terrain from the map they were using in the cockpit; indeed, it would appear that the pilot was navigating based more on his own local knowledge of the area; this could have been exacerbated by a potential visual illusion on entry or a greater focus on the valley exit. Moreover, as the formation's speed reduced in the series of turns through the valley, neither of the formation's crews appeared to be aware of the reducing ac performance available versus the turning room required in the final turn before the accident. Even the more experienced number 2 crew only narrowly avoided a similar fate in the final turn. Moreover, the numerous GPWS warnings prior to the crash, many of which went unacknowledged, including during the final turn, rather than distracting the crew possibly desensitised them to the impending hazard. All of these combined factors led to the ac being placed in a position, energy state and configuration that would not allow a safe normal manoeuvre to be flown and from which recovery was all but impossible once the final turn began.

Aircraft Handling

3. The aircraft was serviceable at impact; however, ZE982 was not optimally configured or flown as it approached the final turn. Although the Board discounted the mis-selection of 27.9 deg wing sweep, which denied the selection of manoeuvre flap, this would have contributed to the loss of energy throughout the 2 minutes of low flying prior to the accident and the lower than optimal speed for the final manoeuvre. However, this was also compounded by the pilot's throttle handling which meant that the ac began its final manoeuvre relatively slowly at about 332 kCAS. Although the particular aircraft fit had a relatively low g limit, the aircraft had insufficient energy to achieve greater turn performance by maximising the g available. In addition, the positioning of the aircraft in the centre of the preceding valley and a relatively late turn did not allow the optimum path to be flown and denied maximum turning room. This lack of turning room and the relatively low turning performance of the ac gave little or no room for error. The crew, especially the pilot, recognised the severity of their situation too late to react sufficiently.

Pilot Competency & Currency

4. Whilst the pilot was relatively current on the F3 (approximately 15 hours per month over 6 months), he was relatively inexperienced (180 hours on type) and he had conducted limited, recent UK overland low level training (2.5 hours, although an

[REDACTED]

indeterminate amount (they are not recorded) had been conducted over the sea and the Falkland Islands in the last 6 months). However, this in itself should not have been of great concern due to the relatively benign nature of the sortie and the level of supervision in the formation – a simple low level navigation exercise should have been well within his capabilities. What is more relevant is that the pilot of ZE982 had local knowledge of the area from the ground and he had flown a significant proportion of his recent flying hours (30% of his total hours in the preceding 3 months) on light aircraft. These two latter factors, combined with his relatively low fast jet experience, may have masked the recognition of the hazard to a greater extent and lulled him in to a false sense of security. What is also notable is that the pilot may have reverted to light aircraft flying techniques, as highlighted by his unusual attempted use of rudder in the final attempted recovery manoeuvre. As a result of this accident, I recommend that a Human Factor study is commissioned into the potential detrimental effect of mixed type flying, especially for inexperienced aircrew that have yet to establish a full, innate understanding and awareness of their primary aircraft's capabilities and handling.

Summary

5. The lesson is a salutary one: even the least demanding tasks require a full appreciation of the potential hazards, and the aircraft must be operated at its optimum when margins for error are small. I commend the Board for what has been a harrowing and very demanding inquiry. My deepest condolences are extended to the family and friends of the crew of ZE982.



G J BAGWELL
Air Vice-Marshal
Air Officer Commanding No 1 Group

14 January 2010