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INTRODUCTION

1. This accident occurred in relatively fine weather on a day when Cadets of 1004 Sqn ATC from Pontypridd were being flown in Tutor aircraft from RAF St Athan on Air Experience Flights. Tragically, two of these aircraft were involved in a mid-air collision and all 4 persons on board were fatally injured. The Service Inquiry Panel (SIP) has been very thorough and conscientious in their efforts to identify the main causes of the accident and have highlighted a number of issues that, although they may not have contributed directly to the accident, will be investigated further to improve safety and help ensure that risk is minimised. Of critical importance, the Panel have made a number of recommendations that will help prevent recurrence of a similar accident and I will ensure that each of them are considered in detail.

THE ACCIDENT

2. I agree with the Panel's findings that the cause of the accident between G-BYUT and G-BYVN was the controlled flight of both aircraft into the same airspace at the same time as a result of both aircraft captains being unaware of the position and proximity of the other aircraft. Stated simply, the pilots did not see each other and the Panel have provided rational and convincing reasons why not.

THE INVESTIGATION

3. As the two aircraft involved were both civil registered, the accident was also subject to investigation by both the Civil Police and the Department for Transport Air Accident Investigation Branch. From the outset, both of these organisations assisted the Panel in all respects and I would like to sincerely thank them for their close cooperation. Furthermore, without the total honesty and integrity of all the witnesses and those individuals who provided expert advice, we would not be in a position to learn as much as we have from this accident. The RAF Investigation has to remain totally independent from other investigations and consequently my comments refer only to the findings, conclusions and recommendations of this SI. Additionally, I accept that in some instances it has not been possible to determine with absolute certainty the precise sequence of events and consequently some assumptions have had to be made.

4. The Narrative of Events, Part 1.3 of this Report, is comprehensive in detail and I am content that the Panel's interpretation of the actual sequence of events on the day of the accident is as accurate as possible, given the circumstances. Furthermore, the Findings, Part 1.4 of this Report, are similarly thorough and in some instances justifiably challenge our training methodology and question the adequacy of equipment. My comments on these areas of the Panel's report are as follows:

a. Regulations. It is evident from the Panel's Findings that both aircraft captains were qualified, competent and current to conduct Cadet Air Experience

Flying and their sorties were flown in accordance with the regulations that were extant at the time. I also agree that there were no breaches of flying discipline and that supervision was exercised to the standard expected; they were not factors in the accident.

b. Equipment. The Panel was satisfied that aircraft systems integrity and maintenance were not factors in the accident. However, they also considered the effect of Tutor conspicuity and highlighted two areas of concern.

(1) Firstly, in some circumstances the Tutor is difficult to see and on the day of the accident there would have been very little contrast against a bright background of cloud. This is not always the case as under different light conditions the white/blue colour makes the Tutor very easy to see and was deemed to be the best solution when it entered service. Nevertheless, we will re-validate the current Tutor colour scheme to confirm that it is still the most appropriate.

(2) Secondly, the Panel found evidence to suggest that a conspicuity study in 2004 recommended that the optimum solution recommended the fitment of a collision warning system. However, the Panel could find no evidence of any work subsequently conducted to consider, evaluate or fit a collision warning system. I have directed that the fitment of a suitable collision warning system is to be evaluated and if trials prove successful, funding will be sought to fit the system to all military operated Tutor aircraft.

c. Survivability. It was not possible to determine whether any of the occupants were injured or incapacitated during the collision although the panel concluded that, as both pilots had released their seat harnesses at some stage afterwards, they were conscious. After the collision, both aircraft were totally out of control and the crews were probably suffering from shock, disorientation and faced with an extreme situation from which successful abandonment was perhaps not realistically possible in the height and time available. It is highly likely that the aircraft captains were assisting the cadets to abandon the aircraft but the traumatic circumstances undoubtedly conspired against them and sadly they were unsuccessful in their efforts.

d. Training.The pilot of G-BYVN either intentionally exited the aircraft at a very late stage or was thrown out of the aircraft as a result of violent aircraft movement. The Panel thought that during the very short period of time available to him, he may have found it difficult to locate the parachute deployment handle. It is not possible to determine if this was the case but in such difficult circumstances it is vital to react promptly, instinctively and correctly; our training must prepare individuals for this. Action will be taken to identify where improvements to egress training on the Tutor might be made; this will be extended to include all other aircraft within 22Gp.

RECOMMENDATIONS

5. In determining their recommendations, the Panel considered all the information that they had gathered during the SI and identified those actions that can be taken to reduce the chances of a similar accident happening again; it was not their responsibility to determine whether the recommendations were either practicable or affordable. That is my responsibility and I will ensure that each recommendation is carefully considered to identify what we need to do differently to ensure that the risks associated with Tutor flying are kept as low as practicably possible. I have the following specific comments to make on the recommendations:

a. Deconfliction Procedures. During the early stages of this Inquiry, the Panel made an interim recommendation that as a matter of urgency, the deconfliction procedures for Tutor operations be reviewed. As a result, new and robust procedures are now in place. The effectiveness of these procedures will be reviewed in due course to establish whether further improvements are possible. This recommendation is fully supported.

b. Collision Warning System. I am convinced that the provision of a suitable collision warning system for the Tutor would make the single greatest contribution towards preventing recurrence of a similar accident. Furthermore, I am aware that such benefits may well be applicable to other aircraft within 22Gp and will direct that the provision of a suitable system be investigated for all aircraft under my command; this recommendation is fully supported.

c. Tutor Cockpit Field of View. The Panel has highlighted 2 design features of the Tutor that with modification would improve the Field of View (FoV); while I agree that such modifications are technically viable, they may not be feasible. Nevertheless, work will be conducted to assess the practicality of these modifications.

d. Tutor Conspicuity. A review of Tutor conspicuity options will be conducted to determine what colour scheme is optimal; this recommendation is fully supported.

e. Future Aircraft Cockpit Design. Cockpit design should consider the pilot's FoV and where practicable, deficiencies should be addressed; this recommendation is supported.

f. RAF Lookout Training. A full review of RAF Lookout training will be conducted by HQ Central Flying School and will address each of the issues raised. However, current teaching does place great emphasis on effective lookout techniques; it specifically identifies "blind spots" caused by the aircraft structure. Furthermore, I am not convinced that minimising the reliance upon visual lookout as a means to ensure aircraft separation is the way ahead, although I do agree that alternative options should be exploited; Part 1.6 Para 7e refers. Nevertheless, I am sure that improvements are possible and I fully support this recommendation.

g. Vision Correction. The policy for the provision of contact lenses for aircrew will be reviewed; this recommendation is fully supported.

h. Survival Training. The Panel has identified that improvements can be made to Tutor egress training and this recommendation is most strongly supported. Furthermore, I have directed that HQ Central Flying School review the egress training for each aircraft type within 22Gp and identify where similar improvements may be made.

i. Tutor Flight Data Capture. The provision of accident and voice recording facilities for the Tutor will be investigated and a review of the functional use of the DGPS ground station will be conducted; this recommendation is supported.

j. Orders and Instructions. All orders and instructions relating to the fitting and use of LSJs and parachutes will be reviewed with particular emphasis placed on aligning the information provided; this recommendation is fully supported.

k. Work Instructions. The procedures for cadet briefing and handling by VT SE personnel will be reviewed and included in TOR, Job Profiles or Work Instructions; this recommendation is fully supported.

l. AAIB Liaison. Liaison with the AAIB has already been formalised and I have taken personal responsibility for ensuring that there is a mechanism in place to facilitate future cooperation; this recommendation is fully supported.

m. Human Factors Training. In addition to the Panel's recommendations I also support the recommendation at para 86c of the RAF Aviation Psychologist Report, Annex AE of this report. Specifically that all AEF pilots should receive Human Factors Training in line with JSP 551.

CONCLUSION

6. The Panel have been meticulous in conducting this Inquiry and I am content that they have thoroughly examined all the available evidence; there is no evidence of breaches of flying discipline. Additionally, they have researched numerous theories, impartially questioned our operating practices and made some recommendations that when implemented will undoubtedly minimise the risk of recurrence. This tragic accident occurred when two aircraft collided and the Panel have comprehensively explained the most likely reasons why they did so. They have also highlighted areas where work can be done to enhance the visual detection of aircraft; the benefits of which may well be applicable to types other than the Tutor. As the Aircraft Operating Authority I will ensure that we learn as much as we can from this accident and, where practicable, adopt the SI's recommendations.

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