

PART 1.6 CONVENING AUTHORITY COMMENTS

1. I am content that the Panel have conducted a thorough and objective Inquiry into a technically challenging accident and I accept their Findings and Recommendations. My role in reviewing the Report is to draw the key lessons together and attempt to highlight the most important areas to everyone involved in Air Safety, with the aim of preventing recurrence.

2. This Inquiry has raised a number of significant issues. First amongst these is whether or not the aircraft could have been saved. Where there are discrepancies between witness' recollections of events in relation to in-cockpit actions and the technical evidence, I have to rely on less disputable technical and CVR evidence. Clearly, a more comprehensive verbalization of his actions by the pilot during the accident sequence would have helped here. Nevertheless, as it stands, I do not believe it can be determined positively from the evidence available as to whether or not the aircraft was recoverable for a period following the initial mechanical failure. What comes through unambiguously though, yet again, is that time and the application of the correct immediate actions are of the essence in dealing with a Tornado RB199 mechanical failure.

3. I acknowledge the likely effect of the initial shock at such a significant emergency occurring, without warning, in a comparatively benign phase of flight. Nevertheless, it is to mitigate just such an effect that routine emergency training is conducted, whether academically, in the flight simulator, or in the air. The purpose of such training is to elicit systems knowledge and induce near-instinctive drills and procedures that can be applied promptly and reliably in the initial stages of a serious emergency, offsetting to a degree the surprise and potential confusion that may arise in parallel. An added dimension in a crew aircraft is the critical role of CRM, to best focus available resources on the problems at hand and to avoid unintended conflicts in thinking, understanding or actions. Whilst, by definition, an instructor may be expected to be able to shoulder more of the responsibility for analysis, decision making and actions in the event of an airborne emergency, this does not, and should not, preclude good communication within a crew and effective employment of the available resources.

4. In this instance, the audio evidence indicates that this vital communication was inadequate. The initial diagnosis of the emergency was less precise than it might have been and perhaps demonstrated a lack of appreciation of the potential seriousness of the situation; the pilot's subsequent actions did not follow convention and training in terms of verbalizing them and cross-referring with the WSO; and critical decisions, such as remaining with the aircraft whilst it burned,

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in contravention to explicit ACM and FCC direction, and attempting to relight an engine that had already suffered a Mech Failure, were both flawed and ill-advised.

5. The student WSO was inexperienced and, therefore, it is perhaps understandable that he adopted a relatively passive role in the face of the nature and circumstances of the emergency and the inevitable cockpit gradient. Nevertheless, the Tornado is a crew aircraft and the WSO was not a passenger. He had been trained in emergency handling and he might have been expected to play a stronger role in supporting the pilot's handling of the situation, whether called upon to do so or not. Challenge and response procedures and confirmatory actions are there for a reason. Whilst flying training students should not be expected to perform as effectively as a seasoned operator, every effort should be made to help them understand their responsibilities as active members of an aircraft's crew and they should be encouraged to exercise them.

6. Nonetheless, the foregoing is unlikely to reflect an intentional lack of professionalism by this crew. Therefore, the key question arising from the above is why the crew's responses, as evidenced by the audio record, were not a better match for the seriousness of the situation they faced and, consequently, what wider training or supervisory issues should be scrutinized. The evidence from simulator instructors portrays a gradual and, given resource pressures, perhaps understandable drift in the TGRF from a clear focus on understanding the nature of specific aircraft emergencies and practising how to handle them promptly and precisely, to one on the delivery of operational capabilities relevant to current operations. However, this cannot be a zero-sum game and an appropriate risk balance needs to be struck between core training in systems knowledge, emergencies handling and airmanship, and operational capability generation and sustainment. Moreover, it is entirely possible that this crew's delay in abandoning the aircraft, and a similar tendency demonstrated by those TGRF crews involved in the Panel's simulator trials, reflects a different calculus arrived at by aircrew now accustomed to operating over hostile territory and which has resulted in a 'deviance' that, whilst understandable in specific circumstances, may be becoming normalized across the population in question. Notwithstanding, either the direction to abandon an aircraft in response to continuing signs of fire is reasoned, appropriate and should be obeyed, or it is not, in which case the ACM and FCCs should be amended to reflect this. In any case, a drift away from core competencies is likely to be insidious, over a period of time and in response to incremental pressures combining. The mitigation of such risks, particularly, requires proactive and questioning supervision, at up to and including senior levels.

7. Finally, engine mechanical failures leading to Titanium fires are far from a new phenomenon for the RB199 engine. It is not clear that all necessary and available actions to mitigate the associated risks have been identified and undertaken with sufficient priority and determination.

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Moreover, the shortcomings identified in the Tornado PT's hazard log are a concern and the PTL, in company with and on behalf of the ODH, must work diligently to review and improve the log and, when and where appropriate, to pursue appropriate mitigations. With possibly up to a decade more of Tornado operations to play out, it does not seem satisfactory to assume that there is nothing more that can, or should, be done to ameliorate the extant risks associated with RB199 mechanical failures. As has been the case before, more than once, the outcome of this Mech Fail occurrence could have been even worse.