

**Mudry Cap 10B,
G-BXB**

**Lower Colley Farm,
Buckland St Mary,
Somerset**

12 August 2021

Accident

Investigation Synopsis

The pilot found himself stuck above cloud during a cross-country flight under Visual Flight Rules. After contacting the Distress & Diversion Cell for assistance he was transferred to the radar frequency of a nearby airport, at which the cloud base was below the minimum required for the approach offered. The pilot, who was not qualified to fly in cloud, lost control of the aircraft during the subsequent descent and the aircraft was destroyed when it hit a tree. Both occupants were fatally injured.

The investigation found that air traffic service providers did not obtain or exchange sufficient information about the aircraft and its pilot to enable adequate assistance to be provided. There was an absence of active decision making by those providers, and uncertainty between units about their respective roles and responsibilities.

Seven Safety Recommendations are made to address shortcomings identified in the provision of air traffic services in an emergency.

Safety Recommendation 2023-011

Justification

Planning the response to an abnormal or emergency situation in advance increases the chance of success, saving time and mental capacity when dealing with the emergency in flight.

Therefore, the following safety recommendation was made:

Safety Recommendation 2023-011

It is recommended that the Civil Aviation Authority publish guidance for general aviation pilots on responding to unexpected weather deterioration, highlighting the factors affecting their performance and the benefits of planning before the flight how they will respond.

Date Safety Recommendation made: 24 April 2023

LATEST RESPONSE

Response received: 21 July 2023

The CAA accepts this safety recommendation and has identified several publications, listed below, that cover handling unexpected weather deterioration including the factors affecting pilot performance, and the benefits of pre-flight planning. The General Aviation Unit (GAU) team has created a webpage dedicated to weather in GA operations, which will be populated with useful guidance for pilots, including flying in cloud.

The following publications provide useful guidance for pilots with regards to the topics highlighted in the safety recommendation.

- Inadvertent IMC Workshop replay — Astral Aviation Consulting

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- CAA8230_SafetySense_05-VFR_V5.pdf
- Weather guide to day trip planning — Astral Aviation Consulting
- Weather Forecast Decision Making — Astral Aviation Consulting
- Pre-flight planning - Airspace Safety

The GAU will continue to identify the best ways to draw pilot's attention to this guidance and will also assess the need for additional material.

Safety Recommendation Status **Open**

AAIB Assessment **Partially Adequate**

Action Status **Planned Action Ongoing Update Due 29 February 2024**

Feedback rationale

The AAIB notes that the CAA and its partners have produced documents covering pre-flight planning and, to some extent, the factors affecting pilots performance, and that the CAA General Aviation Unit intends to identify the best way to draw pilots' attention to this guidance. The response does not fully address the intent of the Safety Recommendation to publish guidance for general aviation pilots on responding to unexpected weather deterioration.

Recognising that in this occurrence the pilot had avoided flight in IMC until contacting an ANSP, and that control of the aircraft was lost in circumstances that involved flight in IMC, this Safety Recommendation addresses the need to plan and execute a safe avoidance of IMC. It is not concerned with recovery from flight in IMC.

The AAIB requests, by the end of February 2024, an update on the actions the CAA intends to take to address this Safety Recommendation, and a timescale within which it intends to complete them. (EU Regulation 996/2010 article 18 refers).

RESPONSE HISTORY

N/A

Safety Recommendation 2023-012

Justification

The Manual of Air Traffic Services Part 1 does not specifically address pilot stress reactions and the assistance which might be provided to account for it

Therefore, the following safety recommendation was made:

Safety Recommendation 2023-012

It is recommended that the Civil Aviation Authority require air traffic controllers to receive training regarding the human performance characteristics and limitations associated with stress. This should include the verbal cues that may indicate that a pilot is operating under high stress, and mitigation strategies to help controllers deal with such events.

Date Safety Recommendation made: 24 April 2023

LATEST RESPONSE

Response received: 21 July 2023

The power to amend the legal requirements for the training of air traffic controllers rests with the Department for Transport (DfT).

The current, initial training syllabus for civilian air traffic controllers already includes recognition of stress and its symptoms, in self and in others (UK Regulation (EU) 2015/340). Equivalent training for military air traffic controllers, which would apply to any Distress and Diversion ("D&D") cell controller, is outside the scope of the CAA's oversight.

In addition to the existing material for civil air traffic controllers, the CAA recognises that additional educational material to highlight the verbal cues that might indicate stress could be beneficial, and will consider such material in the context of acceptable means of compliance to UK Regulation (EU) 2015/340 and our nascent work with the UK Flight Safety Committee to update CAP 745 - Aircraft Emergencies: Considerations for air traffic controllers.

Safety Recommendation Status Open

AAIB Assessment Partially Adequate

Action Status Planned Action Ongoing Update Due 29 February 2024

Feedback rationale

The AAIB acknowledges the action the CAA intends to take and requests an update by the end of February 2024.

General note on Safety Recommendations 2023-012, 2023-013, 2023-014, and 2023-015:
The AAIB recognises that the CAA does not regulate the D&D cell.

The report has made separate recommendations to the DfT regarding the organisation of ATC assistance to civil aircraft in an emergency, and notes that the MOD intends to address the intent of Safety Recommendation 2023-012, 2023-013, 2023-014, and 2023-015 made to the CAA.

RESPONSE HISTORY

N/A

Safety Recommendation 2023-013

Justification

The ATC units involved do not appear to have considered what options were available to the pilot, to have communicated them effectively to each other, or to have gathered sufficient information to inform this process

Therefore, the following safety recommendation was made:

Safety Recommendation 2023-013

It is recommended that the Civil Aviation Authority specify the types of information that air traffic controllers will obtain and record when responding to aircraft in an emergency to ensure that pilots' needs are met and reported correctly if communicated to other air traffic control units.

Date Safety Recommendation made: 24 April 2023

LATEST RESPONSE

Response received: 21 July 2023

The types of information that shall be contained in the emergency message passed by pilots are described in the Radiotelephony Manual (CAP 413) (Chapter 8 Paragraph 8.13). This information is reiterated in the Manual of Air Traffic Services (MATS) Part 1 (CAP 493), which is the manual used by civil air traffic controllers. Civil air traffic controllers (being those over which the CAA has oversight) are therefore advised through MATS of the pertinent information and are instructed through courses of basic and initial training to recognise pertinent data and to record it appropriately; this is a basic competency for air traffic controllers. This provides sufficient flexibility for an air traffic controller to consider what information they require from the pilot in an emergency and, importantly, when it is appropriate to obtain that information taking into account the human factors involved in such a situation.

However, a Distress and Diversion (D&D) cell will often, as in this case, be the first point of contact in an emergency and the Military Aviation Authority (MAA) is responsible for their oversight. The CAA is aware that Acceptable Means of Compliance 3201(1) to MAA Regulatory Article (RA) 3201(1) states that air traffic services provided by the Ministry of Defence should be provided in accordance with the Radiotelephony Manual (CAP 413) and the RA 3000 series: Air Traffic Management Regulations; these latter Regulations being broadly analogous to the CAA's MATS Part 1. As such, any military air traffic controller (including any D&D Cell controller) should be aware of the required content of a pilot's emergency message.

Safety Recommendation Status Open

AAIB Assessment Not Adequate

Action Status Not Enough Information

Feedback rationale

The response does not address the intent of the Safety Recommendation.

Safety Recommendation 2023-013 seeks to improve the gathering and exchange of information by ATC units responding to aircraft in an emergency so that those units can consider the practical options available to the pilot. This may include information, for example about ground facilities and weather conditions, that are not known to the pilot.

The AAIB acknowledges the CAA's view that this task is considered a basic competency for air traffic controllers. Shortcomings in the performance of this task by two separate ATC units indicate that the existing provisions are not sufficient.

The AAIB requests that the CAA provide an update on its intended response by the end of February 2024.

RESPONSE HISTORY

N/A

Safety Recommendation 2023-014

Justification

More formal use of checklists may assist the conduct of routine and emergency ATC procedures

Therefore, the following safety recommendation was made:

Safety Recommendation 2023-014

It is recommended that the Civil Aviation Authority encourage the use of checklists in air traffic management operations when dealing with abnormal and emergency situations.

Date Safety Recommendation made: 24 April 2023

LATEST RESPONSE

Response received: 21 July 2023

The CAA acknowledges the potential safety benefits from the use of checklists in many (comparatively predictable) circumstances. Such checklists are already widely used by civil air traffic services providers.

The CAA expects civil Air Navigation Service Providers (ANSPs) to review the use of checklists (if used) during their internal investigation of accidents and incidents and requires civil air traffic controllers to undertake training in Abnormal and Emergency Situations (ABES). The CAA will consider whether to highlight the benefits of checklists in the context of our nascent work with the UK Flight Safety Committee to update CAP 745 - Aircraft Emergencies: Considerations for air traffic controllers.

The use of checklists within Distress and Diversion (D&D) by military air traffic controllers / assistants is a matter for the Military Aviation Authority (MAA).

Safety Recommendation Status Open

AAIB Assessment Partially Adequate

Action Status Planned Action Ongoing Update Due 29 February 2024

Feedback rationale

The investigation found that the formal use of checklists was not established in the relevant ATC units, and that there may be a view that checklist are not helpful in dynamic situations. This indicates a misunderstanding of the value of checklists, especially in those situations.

The AAIB requests, by the end of February 2024, an update on the actions the CAA intends to take to address Safety Recommendation 2023-014. (EU Regulation 996/2010 article 18 refers).

RESPONSE HISTORY

N/A

Safety Recommendation 2023-015

Justification

The current arrangements for interaction between civil and military units in the provision of ATC services to civil aircraft in an emergency may be reducing its effectiveness

Therefore, the following safety recommendation was made:

Safety Recommendation 2023-015

It is recommended that the Civil Aviation Authority determine the effect the D&D Cell's executive control has on civil ATCOs and inform civil ATCOs of any differences in their responsibilities whilst executive control is exercised.

Date Safety Recommendation made: 24 April 2023

LATEST RESPONSE

Response received: 21 July 2023

Executive control is an aspect of the Distress and Diversion (D&D) Cell's services which are provided as a State obligation under agreement between the Department for Transport (DfT) and Ministry of Defence (MOD), not the CAA, and for which the primary delivery is through the D&D cell. Executive control is exclusively a function of the D&D cell, and the CAA does not believe that this concept has a material impact on the operational control of an aircraft, which rests with the unit (whether civilian or military) in contact with the pilot. Where operational control is passed from one unit (whether civilian or military) to another, a full handover should take place.

Notwithstanding the above, the CAA will engage with the Military Aviation Authority (MAA) to undertake a review of the applicability of the D&D term executive control and to clarify any effect that the D&D controllers believe the use of this term may have on civil air traffic controllers' responsibilities. This activity will be commenced once the DfT has concluded its review/activity in relation to SRs 2023-16 and 2023-017.

Safety Recommendation Status Open

AAIB Assessment Not Adequate

Action Status Planned Action Ongoing Update Due 29 February 2024

Feedback rationale

The intent of Safety Recommendation 2023-015 is that the Civil Aviation Authority inform civil ATCOs of any differences in their responsibilities whilst executive control is exercised by the D&D cell. Whilst action to address Safety Recommendations 2023-016 and -017 may change the arrangements for providing assistance to aircraft in an emergency, Safety Recommendation 2023-015 is intended to address shortcomings in the existing arrangements in the areas identified.

The AAIB therefore invites to the CAA to specify, by the end of February 2024, how it intends to address the intent of Safety Recommendation 2023-015.

RESPONSE HISTORY

N/A

Safety Recommendation 2023-016

Justification

The investigation indicates that the need to review the effectiveness of arrangements for the provision of ATC service to civil aircraft in an emergency.

Therefore, the following safety recommendation was made:

Safety Recommendation 2023-016

It is recommended that the Department for Transport review the current provision of emergency communications in the UK to determine if the involvement of a dedicated emergency air traffic service unit is the most effective way to assist civil aircraft in an emergency, and publish its findings.

Date Safety Recommendation made: 24 April 2023

LATEST RESPONSE

Response received: 25 July 2023

The Department for Transport (DfT) accepts this recommendation, and will consider how best to undertake this review.

Safety Recommendation Status Open

AAIB Assessment Adequate

Action Status Planned Action Ongoing Update Due 29 February 2024

Feedback rationale

The AAIB acknowledges that the Department for Transport intends to conduct the recommended review and requests an update on its actions within 6 months.

RESPONSE HISTORY

N/A

Safety Recommendation 2023-017

Justification

There is no formal agreement between the Department for Transport and the Ministry of Defence defining the responsibilities of the D&D Cell in providing services to civil aviation

Therefore, the following safety recommendation was made:

Safety Recommendation 2023-017

It is recommended that the Department for Transport specify and publish details of the emergency air traffic service it requires the D&D Cell to provide.

Date Safety Recommendation made: 24 April 2023

LATEST RESPONSE

Response received: 25 July 2023

The Department for Transport (DfT) accepts this recommendation. The function of the Distress and Diversion (D&D) Cell is noted in the Strategic Overview of Search and Rescue in the United Kingdom of Great Britain and Northern Ireland, published January 2017. This sets out the role of D&D insofar as it is relevant to the fulfilment of the UK's SAR responsibilities; however, it does not represent a formal agreement between DfT and Ministry of Defence (MOD). This deficit will be addressed subject to the outcomes of the review recommended at recommendation 2023-016.

Safety Recommendation Status Open

AAIB Assessment Adequate

Action Status Planned Action Ongoing Update Due 29 February 2024

Feedback rationale

The AAIB acknowledges that the Department for Transport plans to address the intent of this Safety Recommendation and that its actions are subject to the outcomes of the review recommended in Safety Recommendation 2023-016.

The AAIB requests an update on these actions within 6 months.

RESPONSE HISTORY

N/A