



Civil Aviation Authority
SAFETY NOTICE
Number: SN-2013/008



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Minimising the use of Memory Buffers in Recording Hardware to reduce the possibility of Data Loss

This Safety Notice contains recommendations regarding operational safety.

Recipients must ensure that this Notice is copied to all members of their staff who need to take appropriate action or who may have an interest in the information (including any 'in-house' or contracted maintenance organisations and relevant outside contractors).

Applicability:	
Aerodromes:	Not primarily affected
Air Traffic:	Not primarily affected
Airspace:	Not primarily affected
Airworthiness:	Flight Data Recording Hardware Manufacturers and Aircraft Maintenance Organisations
Flight Operations:	Operator Safety Departments responsible for Flight Data Monitoring
Licensed/Unlicensed Personnel:	Not primarily affected

1. Introduction

- 1.1. Following the AAIB's (Air Accidents Investigation Branch) investigation of the G-REDL Super Puma helicopter accident (Report No: **2/2011**) in the North Sea and the ensuing examination of the flight data, a recommendation (**2011-047**) was made with regard to minimising the use of memory buffers in recording hardware, to reduce the possibility of data loss. The recommendation reads as follows: *'It is recommended that the Civil Aviation Authority update CAP 739, and include in any future Helicopter Flight Data Monitoring advisory material, guidance to minimise the use of memory buffers in recording hardware, to reduce the possibility of data loss.'*

2. Background

- 2.1. It was found during this accident investigation and another that following power loss, significant amounts of potentially useful data, covering key time periods during the flights, have been lost from temporary 'volatile' memory buffers, prior to data transfer to the recording medium. There have been at least two cases where UK accident investigations have found that important QAR (Quick Access Recorder) parameters were lost due to recording buffers of up to 120 seconds. The UK AAIB report states that *'Although its primary purpose is not for accident investigation, data from HFDM (Helicopter Flight Data Monitoring) and FDM (Flight Data Monitoring) programmes has frequently been used in accident investigations. Use of memory buffers in these systems is not unusual but can present limitations when data is recovered.'*

3. Action to be Taken

- 3.1 When considering QAR technologies and the potential need for flight data sourced from such recording media to be used in accident investigations, it is important that the use of volatile memory buffers in the recording cycle is minimised in order to lessen the chances of data loss. Having reviewed the responses from industry on the level of buffering used and taken into account the AAIB's findings, **the UK CAA recommends that buffering of QAR data should be minimised, ideally to 10 seconds or less.** This recommendation will also be included in the relevant section of the updated CAP 739 when published.

4. Queries

- 4.1. Any queries from or further guidance required by manufacturers or maintenance personnel as a result of this communication should be sent to the following e-mail address: Department.Certification@caa.co.uk under the subject title of '**Flight Recorder Buffers**'.

5. Cancellation

- 5.1 This Safety Notice shall remain in force until further notice.