

**BELL 429,
G-WLTS**

**Melksham Airbase,
Wiltshire**

02 January 2019

Serious Incident

Investigation Synopsis

The report considers two events which occurred while the pilot was conducting a Power Assurance Check. In one, an un-commanded yaw pedal movement caused a rapid rotation of the helicopter through two and a half complete rotations; in the other, a trim runaway was contained by the pilot. The trim runaway was found to be an unknown feature of the Automatic Flight Control System logic. Following these events, safety action was taken by the helicopter manufacturer and Transport Canada to help crews respond to a yaw trim runaway and to address the underlying causal factor. Also, the flight recorder manufacturer improved the way it reported the results of CVR recording inspections. Two Safety Recommendations are made: one to Transport Canada in relation to conduct of the Power Assurance Check; and one to the European Union Aviation Safety Agency to ensure that the installation of new equipment on aircraft does not have a detrimental effect on existing equipment.

Safety Recommendation 2020-010

Justification

The Power Assurance Check (PAC) is not mentioned in Rotorcraft Flight Manual (RFM) Normal Procedures for normal operations. The description of the PAC is in the Performance section of the manual, where it states that the PAC should be completed daily. However, it does not define the required configuration for the APs and AFCS and does not specify whether the PAC should be carried out pre- or post-flight. The operator conducted the PAC out of sequence with the RFM Category A Supplement, where the intent is to carry it out as part of the pre-flight procedures for every flight. The main body of the RFM, however, does not require the PAC to be conducted on the first start of a day, only that it should be achieved on a daily basis. The PAC is a normal procedure but is not reflected in the Normal Procedures section of the RFM. The inclusion of a defined procedure in Section 2 of the RFM, including starting parameters before the procedure such as AP status, would reduce ambiguity and allow flexibility in the timing of the procedure.

Therefore, the following safety recommendation was made:

Safety Recommendation 2020-010

It is recommended that Transport Canada require Bell Textron Canada Limited to amend Section 2 of the Bell 429 GlobalRanger Rotorcraft Flight Manual to include a Normal Procedure for the conduct of the daily Power Assurance Check.

Date Safety Recommendation made: 23 April 2020

LATEST RESPONSE

Response received: 06 January 2021

Regarding AAIB Safety Recommendation(s) No 2020-010 The RFM for the Bell 429 has been revised. The revision concerns the AAIB Safety Recommendation

Safety Recommendation Status **Closed**

AAIB Assessment **Partially Adequate**

Action Status **Planned Action Completed**

Feedback rationale

Although Transport Canada (TC) declined to accept the Safety Recommendation, the RFM revision goes some way to address its intent. Following publication of the RFM revision, therefore, this Safety Recommendation can be closed. (EU Regulation 996/2010 article 18 refers).

RESPONSE HISTORY

Response received: 09 June 2020

Transport Canada (TC) has analyzed the recommended actions of the Air Accident Investigation Board (AAIB) SR 2020-010 applicable to the Canadian State of design, Bell Textron Canada Limited (BTCL) 429 model helicopter and does not concur with the safety concern.

The analysis revealed that a Power Assurance Check (PAC) for the BTCL model 429 helicopter exists in Section 4 – Performance of the Rotorcraft Flight Manual (RFM) FM-1. The contents of Section 4 is approved by TC and a daily PAC is recommended but not required except in the case of Category A Operations. RFM supplement BHT-429-FMS-15, Section 2A – Normal Procedures requires a PAC to be performed before takeoff in accordance with the PAC charts in Section 4 of FM-1. TC considers the task of completing a PAC for non- Category A operations to be at the discretion of the pilot. Due to the unpredictable nature of operational requirements, a procedure for when the PAC is to be completed is not practical for inclusion to Section 2 - Normal Procedures of the RFM FM-1. To facilitate the completion of the PAC specified in Section 4 of the RFM FM-1, chart(s) are provided with information for the configuration of various aircraft systems. Analysis of the chart(s) revealed that a lack of information exists for the pilot to determine the configuration of the Autopilot system prior to commencing the PAC. TC has consulted with BTCL and determined that amendment of the RFM is appropriate. As a result, BCTL will initiate a revision of the RFM to include configuration of the Autopilot system to the PAC chart(s) in Section 4 of FM-1. TC will review and if determined acceptable, approve the amendment.

TC will continue to monitor for future related events and take appropriate action if required.

AAIB Assessment – Partially Adequate Open

Safety Recommendation 2020-011

Justification

If newly installed equipment interfaces (and shares information) with other existing equipment on an aircraft, tests must be conducted to ensure the installation has not had a detrimental effect on the existing equipment (these tests are in addition to any electromagnetic compatibility/interference testing). EASA specifically reminds Minor Change applicants of this in guidance contained in their 'Minor Change Certificate Document'. The document is aimed at applicants making changes to GA aircraft, and especially those who are not Design Organisation Approval holders and who may have limited experience in the change process. There is, however, no equivalent guidance or reminder to organisations qualified and practised in carrying out changes or repairs to Commercial Air Transport aircraft, leaving the potential for these tests to be overlooked and the continued airworthiness of the aircraft to be compromised.

Therefore, the following safety recommendation was made:

Safety Recommendation 2020-011

It is recommended that the European Union Aviation Safety Agency remind Minor Change applicants of the importance of verifying that new equipment does not have a detrimental effect on existing equipment with which it has a direct interface.

Date Safety Recommendation made: 21 April 2020

LATEST RESPONSE

Response received: 25 April 2022

In 2020 the European Union Aviation Safety Agency (EASA) undertook a corrective action through a dedicated inspection of the relevant Design Organisation Approval (DOA) holder, with particular attention given to the aspects pertinent to this serious incident. The audit result did not identify any non-compliance with Annex I (Part 21) to Commission Regulation (EU) No 748/2012 related to Avionics changes performed by the DOA holder. In terms of preventive actions, a dedicated safety-promotion article has been published in the European Union Aviation Safety Agency (EASA) Certification & Design Newsletter. It highlights that the installation of certain equipment needs an electromagnetic and audio interference test, as part of the compliance demonstration, before the approval change. The safety promotion article is published on the EASA website at the following link:<https://www.easa.europa.eu/newsroom-and-events/news/design-certification-newsletter-202201>

With this additional action, EASA considers it has undertaken both corrective and preventive actions, to mitigate the safety issue identified by the UK AAIB investigation.

Safety Recommendation Status Closed

AAIB Assessment Partially Adequate

Action Status Planned Action Completed

Feedback rationale

EASA has published the text of the Safety Recommendation as a general comment at the end of an article in its Design and Certification Newsletter, but the article does not specifically refer to Minor Change applicants. The AAIB is concerned that, without further context, the response may not be as effective as it could be in transmitting the intended message to the intended audience and has therefore assessed the response as Partially Adequate. (EU Regulation 996/2010 article 18 refers).

RESPONSE HISTORY

Response received: 31 July 2021

The European Union Aviation Safety Agency (EASA) undertook a corrective action through a dedicated inspection on the relevant Design Organisation Approval (DOA) holder, with particular attention given to the aspects pertinent to this serious incident. The inspection was carried out remotely in October 2020. The audit result did not identify any non-compliance with Annex I (Part 21) to Commission Regulation (EU) No 748/2012 related to Avionics changes performed by the DOA holder.

EASA surveillance of the subject DOA holder has ended and the company is now working under a UK-CAA approval.

In terms of preventive actions, a safety promotion article is planned to be published in EASA's Certification & Design Newsletter to highlight this safety issue. This action is scheduled for Q4 2021.

An update will be sent to the Air Accidents Investigation Branch once the article has been published.

AAIB Assessment – Adequate Open

Response received: 27 July 2020

The European Union Aviation Safety Agency (EASA) will undertake both corrective and preventive actions. First, a dedicated inspection will be performed on the relevant Design Organisation Approval (DOA) holder, with particular attention given to the aspects pertinent to this serious incident.

Second, a safety-promotion article will be published in EASA's Certification & Design Newsletter, to highlight that the installation of certain equipment needs an electromagnetic and audio interference test, as part of the compliance demonstration, before the approval change

An update will be sent to the Air Accidents Investigation Branch once these actions have been performed.

AAIB Assessment – Adequate Open