



AIRWORTHINESS DIRECTIVE

This Airworthiness Directive (AD) is issued pursuant to Canadian Aviation Regulation (CAR) 521.427. No person shall conduct a take-off or permit a take-off to be conducted in an aircraft that is in their legal custody and control, unless the requirements of CAR 605.84 pertaining to ADs are met. Standard 625 - Aircraft Equipment and Maintenance Standards Appendix H provides information concerning alternative means of compliance (AMOC) with ADs.

Number:

CF-2020-18R2

Effective Date:

10 February 2022

ATA:

31

Type Certificate:

H-107

Subject:

Indicating/Recording System – Rotorcraft Flight Manual – Prohibit the use of Map-Mode on Left Hand Side and Right Hand Side Display Units

Revision:

Supersedes AD CF-2020-18R1, issued 27 November 2020.

Applicability:

Bell Textron Canada Limited (Bell) model 429 helicopters, serial numbers 57001 through 57369, 57371, and 57373.

Compliance:

Within 30 days from the effective date of this AD, unless already accomplished.

Background:

Transport Canada (TC) has received in-service reports of the loss of display and subsequent recovery of the Display Unit (DU) manufactured by Rogerson Kratos (RK). During an Instrument Flight Rules (IFR) approach, a Bell 429 lost its center DU display, which then rebooted, and subsequently lost its Right Hand Side (RHS) DU display, which then also rebooted. Investigation revealed that the DUs' power cycle occurred while in Map-Mode, which was caused by the RK DUs' limited processing capability for excessive null waypoints generated by the Garmin GTN 750/650 GPS/NAV/COMM/MFD.

This condition, if not corrected, could result in the unexpected loss of display of important flight parameters to the pilots: attitude, approach, airspeed, altitude, flight director information, navigation system cues, as well as engine and rotor drive system indications. The DU power cycle occurring during flight and consequent momentary loss of display information on the pilot Primary Flight Display (PFD) and other DUs is considered an unsafe condition.

Bell issued a Temporary Revision (TR) to the Rotorcraft Flight Manual (RFM) Supplement limiting the use of Map-Mode to the center DU only for Bell 429 models equipped with RK DUs and Garmin GTN 750/650 main software version 6.21 or later. The use of Map-Mode is prohibited on both the RHS DU and Left Hand Side (LHS) DU, if installed. The RFM Supplement TR also introduced a new emergency and malfunction procedure in the event of center DU failure.

AD CF-2020-18 mandated the incorporation of the TR to the RFM Supplement. Subsequently, Bell cancelled the TR and issued a revision to the RFM Supplement to incorporate the intent of the TR, which was mandated by AD CF-2020-18R1.

Since then, TC has received an in-service report where a Bell 429 lost all three DUs during flight. Investigation revealed that, when the Traffic Collision Avoidance System (TCAS) is configured on the helicopter with the TCAS Pop-up mode enabled, the TCAS traffic alerts automatically activate the Map-Mode on the RHS and LHS DUs, which could cause the DUs to power cycle. This AD revision, CF-2020-18R2, mandates the incorporation of a revision to the RFM Supplement, which prohibits the use of the

TCAS Pop-up mode for all three DUs and provides instructions to disable the TCAS Pop-up mode to address the above-mentioned unsafe condition.

Corrective Actions:

For the purpose of this AD, the following definition applies:

Affected configuration: Helicopter installed with RK DUs and Garmin GTN 750/650 main software version 6.21 or later.

- A. Verify the manufacturer of the DUs and the Garmin GTN 750/650 main software version installed on the helicopter to determine if it is an affected configuration.
- B. For an affected configuration helicopter, accomplish the following:
 1. Amend the applicable TC approved RFM Supplement by incorporating the changes listed in Table 1 below, to prohibit the use of Map-Mode on the RHS and LHS DUs, if installed, to introduce an Emergency/Malfunction procedure in the event of a failure of the center DU, and to prohibit the use of the TCAS Pop-up mode.

Table 1

RFM Procedure	RFM Supplement Revision	Issue Date
Section 1-3-A Limitations Section 1-5 Configuration Section 3-14-B Emergency and Malfunction Procedures - Center DU Failure (RK Configuration)	RFM Supplement BHT-429-FMS-19 Revision 7, or later revisions approved by TC	14 December 2021

2. Advise all flight crews of the changes introduced by the RFM Supplement revision listed above.
3. Disable the TCAS Pop-up mode in the parameter setup page on all RK DUs in accordance with Paragraph 3 of the Accomplishment Instructions of Bell Alert Service Bulletin (ASB) 429-20-51, Revision B, dated 17 July 2021, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.

Authorization:

For the Minister of Transport,

ORIGINAL SIGNED BY

Rémy Knoerr
Chief, Continuing Airworthiness
Issued on 27 January 2022

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