BELL 429

ROTORCRAFT FLIGHT MANUAL

SUPPLEMENT

COMBINED COCKPIT VOICE/FLIGHT DATA RECORDER

429-706-058

CERTIFIED
15 DECEMBER 2010

This supplement shall be attached to the BHT-429-FM-1 when the Combined Cockpit Voice/Flight Data Recorder kit (429-706-058) is installed.

Information contained herein supplements information in the basic Flight Manual. For Limitations, Procedures, and Performance Data not contained in this supplement, refer to the basic Flight Manual.

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NOTICE PAGE

PROPRIETARY RIGHTS NOTICE

DESTINATION CONTROL STATEMENT

LOG OF REVISIONS

Original ..... 0 ..... 15 DEC 10 **Revision ..... 1 ..... 29 OCT 21**

LOG OF PAGES

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FLIGHT MANUAL

NOTE

Revised text is indicated by a black vertical line. A revised page with only a vertical line next to the page number indicates that text has shifted or that non-technical correction(s) were made on that page. Insert latest revision pages; dispose of superseded pages.

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10/29/2021

CHIEF, FLIGHT TEST
FOR
DIRECTOR — NATIONAL AIRCRAFT CERTIFICATION
TRANSPORT CANADA

GENERAL INFORMATION

The combined Cockpit Voice and Flight Data Recorder (CVFDR) kit consists of a Data Acquisition Flight Recorder (DAFR) unit, a cockpit Remote Area Microphone (RAM), a preamplifier for this microphone, a triple-axis accelerometer, a Push-To-Test (PTT) momentary lit switch labeled CVFDR TEST, and a headset jack (used to monitor the voice data being fed to the CVFDR).

The DAFR and the RAM preamplifier are installed in the helicopter nose avionics bay area. The RAM is located on the glareshield panel adjacent to the center area. The accelerometer is installed on cabin roof at helicopter centerline. The CVFDR TEST pushbutton switch is provided on the upper center pedestal area in the cockpit, while the audio monitoring headset jack is located on the lower center pedestal area.

No data eraser device is provided within this installation.

The RAM must always be free of obstruction. No protection means is needed for this equipment.

The DAFR combines the two individual recording functions of the Cockpit Voice Recorder (CVR) and the Flight Data Recorder (FDR) in a single box. The DAFR utilizes solid state non-volatile memory to store both the CVR and FDR recordings on a Crash Survivable Memory Unit (CSMU).

The CVR part provides four channels; three of them have narrow bandwidth, and one has a high bandwidth (used for the cockpit RAM). Two of the narrow bandwidth channels are used to record pilot and copilot audio through the headset microphones and headphones. The remaining channel is not used in this installation.

The FDR part allows helicopter data recording via the ARINC 429 serial interfaces for most parameters. Lateral acceleration is the only analog signal supplied to the DAFR.

The DAFR retains the most recent 2 hours of the CVR four audio sources, and the most recent 25 hours of the FDR recorded helicopter data. CVR and FDR data recovery is performed using a 10/100 BaseTx Ethernet interface, permitting download of helicopter data to an external laptop. A CVFDR download connector is provided on the left side of the center pedestal.

The unit has an external Underwater Locator Beacon (ULB). The ULB is a self-contained locating device that aids in the underwater recovery of the CVFDR system. It automatically activates upon immersion in water (fresh and salt) and sends out periodic acoustic pulses for a minimum of 30 days or 90 days depending on kit configuration.

The white CVR advisory message appears in the CAS message window of the DU to advise the crew that a fault in the cockpit voice recorder subsystem has been detected. The white FDR advisory message appears in the CAS message window of the DU to advise the crew that a fault in the flight data recorder subsystem has been detected.

Momentarily pressing the CVFDR TEST switch initiates the DAFR system self test. During this period, both CVR and FDR advisories are displayed for 8 seconds.

On ground, the CVR stops recording and CVR advisory appears if the five following conditions are true:

- **10 minutes have elapsed since the power is on**
- **Rotor speed (N_R) is less than 40%**
- **Both engine starters are disengaged**
- **LEFT ENGINE OUT is active**
- **RIGHT ENGINE OUT is active**

This advisory is also provided when CVFDR circuit breaker is deactivated.

FDR advisory will be displayed if the CVFDR circuit breaker is deactivated or/and FDR input data is invalid/missing.

Section 1

LIMITATIONS

No change from basic manual.

Section 2

NORMAL PROCEDURES

2-6. SYSTEMS CHECK

2-6-E. CVFDR CHECK

Verify CVR and FDR advisories — Not displayed on the DUs.

Press, momentarily, CVFDR TEST pushbutton on the center pedestal. Verify CVR and FDR advisories — Displayed on the DUs for 8 seconds approximately.

Verify area microphone is unobstructed.

Section 3

EMERGENCY AND MALFUNCTION PROCEDURES

3-16. COCKPIT VOICE RECORDER

3-16-A. CVFDR FAILURE — AT START-UP

- **INDICATIONS:**

  CVFDR fails prestart check.

- **PROCEDURE:**

  Refer to local operational or regulatory requirements.

3-16-B. CVFDR FAILURE — IN-FLIGHT

Table 3-4. Advisory (Green, White, or Cyan) Lights/Messages

MESSAGE	SYSTEM CONDITION	REQUIRED ACTION
CVR	Fault in the CVR subsystem or CVR is put into a non-recording mode by the ADIU.	Maintenance action required.
FDR	Fault in the FDR subsystem or valid data is not received.	Maintenance action required.