

**NATIONAL TRANSPORTATION SAFETY BOARD
Office of Research and Engineering
Vehicle Recorder Division
Washington, D.C. 20594**



SPECIALIST'S FACTUAL REPORT OF INVESTIGATION

CEN14FA193

**By
Sean Payne**

WARNING

The reader of this report is cautioned that the summary of a cockpit voice recorder audio recording is not a precise science but is the best product possible from a Safety Board group investigative effort. The summary or parts thereof, if taken out of context, could be misleading. The summary should be viewed as an accident investigation tool to be used in conjunction with other evidence gathered during the investigation. Conclusions or interpretations should not be made using the summary as the sole source of information.

NATIONAL TRANSPORTATION SAFETY BOARD
Vehicle Recorder Division

July 14, 2016

Cockpit Voice Recorder

Specialist's Factual Report

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1. EVENT SUMMARY

Location: Albuquerque, New Mexico
Date: April 17, 2014
Aircraft: Airbus Helicopter AS350 B3, Registration N395P
Operator: PHI Air Medical
NTSB Number: CEN14FA193

On April 9, 2014, about 1743 mountain daylight time (MDT), an Airbus (Eurocopter) AS 350 B3 helicopter, N395P, impacted the hospital roof top following a departure from the New Mexico heliport (NM11), Albuquerque, New Mexico. The helicopter was registered to PHI, Inc., Lafayette, Louisiana, and operated by PHI Air Medical, LLC, under the provisions of Title 14 *Code of Federal Regulations* (CFR) Part 91. The commercial pilot and two paramedics received minor injuries and the helicopter was substantially damaged. Visual meteorological conditions prevailed and a company flight plan was filed for the local repositioning flight that was originating at the time of the accident.

A solid-state cockpit voice recorder (CVR) was sent to the National Transportation Safety Board (NTSB) Vehicle Recorder Division for evaluation.

2. GROUP

A group was not convened.

3. DETAILS OF INVESTIGATION

The NTSB Vehicle Recorder Division received the following CVR:

Recorder Manufacturer/Model: **North Flight Data Systems**
Recorder Serial Number: **file only**

3.1 CVR Carriage Requirements

The turbine engine powered air ambulance rotorcraft was operating with a seating configuration of less than 10 seats and therefore was not required to carry a cockpit voice recorder as described in 14 CFR 91.609(c)(1).

3.2 Recorder Description

The North Flight Data Systems (FDS) Cockpit Voice/Video Recorder (CV2R) is a solid state video and audio recorder that often works in conjunction with other North FDS flight monitoring systems. The system has the ability to record up to one video and six audio input sources simultaneously for 12+ hours. The system can be configured to accept and record a GPS data stream.

3.3 Audio Recording Description

Each channel's audio quality is indicated in Table 1. No video was recorded in this installation.

Table 1: Audio Quality.

Channel Number	Content/Source	Quality	Duration
1	Cockpit Area Microphone (CAM)	Good	24 min. 35 sec.
2	Pilot Hot Mic	Good	24 min. 35 sec.
3	Crew Hot Mics	Good	24 min. 35 sec.

3.4 Timing and Correlation

Timing on the transcript was established by correlating the CVR events to common events on the Quick Access Recorder (QAR). Specifically, the sound of impact that the rotorcraft made were correlated to QAR data that showed the vehicle had impacted the ground. The CVR and QAR times were offset to reflect the local MDT of the accident.

3.5 Description of Audio Events

All times contained within are given in MDT.

Parenthesis () are used for questionable insertions, when the certainty of an interpretation is almost completely certain, but not exclusive.

The recording and transcript began at 17:40:51.7 around the time when power was applied to the CVR. The rotorcraft's engine was audible to the cockpit area microphone (CAM). The flight crew was heard chatting about a previous call they were dispatched on as the rotorcraft's turbine was heard changing power level. The pilot and front seat crew member made comments related to preparing the rotorcraft for the departure. For example, at 17:41:34.0, the front seat crew member stated, "yeah I'm gonna keep it like that" and at 17:41:50.6 the same crew member said "set." It was unclear what any preflight statements of this nature were related to. Around this time, a steady increase in engine noise level and the activation of the Terrain Awareness and Warning System (TAWS) was detected by the CAM. Around 17:42:05.0, a few references about the closing of a rotorcraft door were made by the front and rear seat crew members.

At 17:42:13.0, the pilot called a flight dispatcher using the rotorcraft's VHF radio. The dispatcher responded with "[go a]head" and at 17:42:19.6, the pilot stated, "roger. five one will be departing from university three souls on board E-T-A back to home ten

minutes showing... ohhh. about an hour and forty-five on fuel.” The flight dispatcher returned with a statement at 17:42:32.1 MDT and said “that’s good copy. ten minutes. seventeen forty-two.”

Ten seconds later at 17:42:42.0 MDT, the pilot made a VHF radio call, “traffic city university P-H-I five-one is departing from university northwest bound (back) to rio rancho (air to air)”. The pilot then stated, “okay... you guys ready in the back?” The two crew members responded with statements indicating they were ready for departure.

At 17:42:55.2, the pilot stated “okay. clear left. clear right” which a crew member verbally acknowledged. Seconds later, at 17:42:57.7, the pilot stated, “comin’ up and before takeoff checks are good sterile cockpit in effect and throttle’s in FLY. comin’ up.”

At 17:43:12.8 MDT, the pilot exclaimed an expletive. A few seconds later a sound similar to the main rotorblade “slapping” was recorded by the CAM. The front seat crew member and pilot said two more expletives and the sound of a medium tone was recorded by the CAM. By 17:43:21.1, the sound of the rotorcraft’s engine turbine noise was noted as decreasing. At 17:43:21.2, the front seat crew member stated, “oh my god” and at 17:43:23.2, made a VHF radio call of “mayday. mayday. mayday. mayday. mayday. mayday.” At 17:43:24.1, the TAWS system sounded a warning of “warning. obstacle. warning. terrain.” At 17:43:24.4 the CAM recorded the sound of a quick digital tone, followed by the sound of impact at 17:43:26.2.

The summarized portion ended shortly thereafter at 17:43:35.2, as the crew members were facilitating an evacuation. Later, first responders and crew voices were all captured on the recording. The recording ended at 18:02:26.2 MDT.