NATIONAL TRANSPORTATION SAFETY BOARD
Investigative Hearing
Alaska Airlines Flight 1282
Boeing 737-9, N704AL
Left Mid Exit Door Plug Separation in Portland, OR
January 5, 2024

Docket No.	SA-543
EXHIBIT	
12	

Cockpit Voice Recorder Specialist's Factual Report

(6 Pages)

National Transportation Safety Board
Office of Research and Engineering
Washington, DC 20594

DCA24MA063

COCKPIT VOICE RECORDER

Specialist's Factual Report

February 12, 2024

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A. ACCIDENT

Location: Portland, Oregon
Date: January 5, 2024
Time: 17:14 Pacific Standard Time (PST)
Airplane: Boeing 737-9, Alaska Airlines, N704AL

B. COCKPIT VOICE RECORDER SPECIALIST

Specialist: Kyle Garner
Sr. Aerospace Engineer – Recorder Specialist
National Transportation Safety Board (NTSB)

C. FEDERAL CARRIAGE REQUIREMENTS

The aircraft, N704AL, was operating under the provisions of Title 14 *Code of Federal Regulations* (CFR) Part 121. The aircraft was manufactured in 2023 and was required to be equipped with a cockpit voice recorder (CVR) that records, at minimum, the last 2 hours of aircraft operation.

D. DETAILS OF THE INVESTIGATION

A CVR group was not convened. The NTSB Vehicle Recorder Division received the following CVR:

Recorder Manufacturer/Model: L3Harris FA2100 CVR
Part Number: 2100-1925-22
Recorder Serial Number: 1173528

1.0 Recorder Description

The L3Harris FA2100 CVR records a minimum of 120 minutes of digital audio stored on solid-state memory modules. Four channels are recorded: one channel for each flight crew, one channel for a cockpit observer, and one channel for the cockpit area microphone (CAM).

A CVR starts recording when the aircraft is powered on and will continue to record until the aircraft is powered down or the CVR is deactivated, either by a loss of electrical power after a major event or by manually deactivating the CVR's circuit breaker after a less severe event.

1.1 Recorder Condition

Upon arrival at the laboratory, it was evident that the CVR had not sustained any heat or structural damage (see Figure 1) and the audio information was extracted from the recorder normally, without difficulty.

Figure 1. L3Harris FA2100 CVR, as received.

1.2 Audio Recording Description

Each channel's audio quality is indicated in Table 1.[1] Channel number 1 did not contain any audio information, nor was it required to by federal regulations.

Table 1: Audio quality.

Channel Number	Content/Source	Quality	Duration
1	3rd Crew Member/Spare	Excellent	02:03:57
2	Copilot	Excellent	02:03:57
3	Pilot	Excellent	02:03:57
4	CAM	Good	02:03:57

The recording consisted of four channels of audio information, however, none of the audio was pertinent to the accident investigation. The audio was consistent with the CVR being overwritten or recorded over by subsequent events. The CVR's circuit breaker had not been manually deactivated after the aircraft landed at Portland International Airport (PDX) in time to preserve the accident flight recording.

Metadata indicated that the recording present on the CVR started at 18:31:29 PST, which was about 1 hour and 20 minutes after the accident occurred and about 1 hour and 5 minutes after the aircraft landed on runway 28L at PDX. The recording ended at 20:35:26 PST.

[1] See Appendix A for the CVR Quality Rating Scale.

Submitted by:

Kyle Garner
Sr. Aerospace Engineer – Recorder Specialist

APPENDIX A. CVR QUALITY RATING SCALE

The levels of recording quality are characterized by the following traits of the cockpit voice recorder information:

Excellent Quality Virtually all of the crew conversations could be accurately and easily understood. The transcript that was developed may indicate only one or two words that were not intelligible. Any loss in the transcript is usually attributed to simultaneous cockpit/radio transmissions that obscure each other.

Good Quality Most of the crew conversations could be accurately and easily understood. The transcript that was developed may indicate several words or phrases that were not intelligible. Any loss in the transcript can be attributed to minor technical deficiencies or momentary dropouts in the recording system or to a large number of simultaneous cockpit/radio transmissions that obscure each other.

Fair Quality The majority of the crew conversations were intelligible. The transcript that was developed may indicate passages where conversations were unintelligible or fragmented. This type of recording is usually caused by cockpit noise that obscures portions of the voice signals or by a minor electrical or mechanical failure of the CVR system that distorts or obscures the audio information.

Poor Quality Extraordinary means had to be used to make some of the crew conversations intelligible. The transcript that was developed may indicate fragmented phrases and conversations and may indicate extensive passages where conversations were missing or unintelligible. This type of recording is usually caused by a combination of a high cockpit noise level with a low voice signal (poor signal-to-noise ratio) or by a mechanical or electrical failure of the CVR system that severely distorts or obscures the audio information.

Unusable Crew conversations may be discerned, but neither ordinary nor extraordinary means made it possible to develop a meaningful transcript of the conversations. This type of recording is usually caused by an almost total mechanical or electrical failure of the CVR system.