

# National Transportation Safety Board

Office of Research and Engineering

Washington, DC 20594



DCA24LA097

## **COCKPIT VOICE RECORDER**

Specialist's Factual Report

November 5, 2024

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## **A. ACCIDENT**

Location: Kelsey, New York  
Date: February 10, 2024  
Time: 1543 eastern standard time (EST)  
2043 coordinated universal time (UTC)  
Airplane: Boeing 777-222ER, United Airlines, N788UA

## **B. COCKPIT VOICE RECORDER SPECIALIST**

Specialist: Steven Smith  
Mechanical Engineer (Recorder Specialist)  
National Transportation Safety Board (NTSB)

## **C. FEDERAL CARRIAGE REQUIREMENTS**

The aircraft, N788UA, was operating under the provisions of Title 14 *Code of Federal Regulations* (CFR) Part 121. The aircraft was manufactured in 1997 and was required to be equipped with a cockpit voice recorder (CVR) that records, at a minimum, of the last 2 hours of aircraft operation.

## **D. DETAILS OF THE INVESTIGATION**

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

Recorder Manufacturer/Model: Honeywell HFR5-V  
Part Number: 980-6032-1001  
Recorder Serial Number: CVR-01431

### **1.0 Recorder Description**

This model CVR, the Honeywell HFR5-V, 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).

### **1.1 Recorder Damage**

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

## 1.2 Audio Recording Description

Each channel's audio quality is indicated in table 1.<sup>1</sup>

**Table 1:** Audio Quality

| Channel Number | Content/Source                    | Quality   | Duration |
|----------------|-----------------------------------|-----------|----------|
| 1              | 3 <sup>rd</sup> Crew Member/Spare | Excellent | 2:10:48  |
| 2              | Copilot                           | Excellent | 2:10:48  |
| 3              | Pilot                             | Excellent | 2:10:48  |
| 4              | CAM                               | Good      | 3:12:07  |

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 Newark International Airport (EWR) in time to preserve the accident flight recording.

Metadata indicated that the recording present on the CVR started at 17:09:36 EST, which was about 1 hour and 28 minutes after the accident occurred and about 1 hour and 5 minutes after the aircraft landed on runway 22L at EWR. The recording ended at 20:22:24 EST.

Submitted by:

Steven Smith  
Mechanical Engineer (Recorder Specialist)

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<sup>1</sup> See Appendix A for the CVR Quality Rating Scale.

## 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.