

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



**GROUP CHAIRMAN'S FACTUAL REPORT OF
INVESTIGATION**

ERA14MA271

**By
Joseph A Gregor**

WARNING

The reader of this report is cautioned that the transcription 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 transcript or parts thereof, if taken out of context, could be misleading. The transcript 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 transcript as the sole source of information.

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July 13, 2015

Cockpit Voice Recorder – Addendum

**Group Chairman’s Factual Report
By Joseph A Gregor**

A. EVENT

Location: Bedford, Massachusetts
Date: May 31, 2014
Aircraft: Gulfstream G-IV, N121JM
Operator: Private
NTSB Number: ERA14MA271

On May 31, 2014, about 2140 eastern daylight time (EDT), a Gulfstream Aerospace Corporation G-IV, N121JM, operated by Arizin Ventures, LLC, crashed after a rejected takeoff and runway excursion at Laurence G. Hanscom Field (BED), Bedford, Massachusetts. The two pilots, a flight attendant, and four passengers were fatally injured. The airplane was destroyed by impact forces and a post-crash fire. The personal flight, which was destined for Atlantic City International Airport (ACY), Atlantic City, New Jersey, was conducted under the provisions of 14 Code of Federal Regulations Part 91. An instrument flight rules flight plan was filed. Night visual meteorological conditions prevailed at the time of the accident.

1. Group

The CVR group re-convened on July 7, 2015 to reexamine two phrases occurring at 2139:45.7 and 2139:46.6 EDT.

Chairman: Joe Gregor
Electrical Engineer
National Transportation Safety Board

Member: Timothy Sorenson
Aviation Accident Investigator
National Transportation Safety Board

Member: Nathan Rohrbargh
Air Safety Investigator
Federal Aviation Administration

Member: Al Moros
Engineering Test Pilot
Gulfstream Aerospace Corporation

2. Addenda Summary

Two phrases occurring immediately after the sounds similar to ground roll were re-examined by the group by listening to the cockpit area microphone audio recording using several different filtering options, including no filtering. The serial application of two different filters produced audio that when played back at 70% normal speed was transcribed by consensus of the group. The filters used were an adaptive filter designed to enhance voice energy and a low pass filter with cutoff at 300 Hz. The audio was played at 70% normal speed using a pitch correction algorithm to avoid modifying the original audio frequency spectrum.

The following changes to the transcript were agreed to by unanimous consensus:

1. On page 12-15, change:

21:39:45.7 **CAM-?** *.

to read:

21:39:45.7 **CAM-?** hmmm.

21:39:46.6 **CAM-2** couldn't get * * * *.

to read:

21:39:46.6 **CAM-2** couldn't get (it manually any further).

Transcript of a L-3/Fairchild FA2100-1020 cockpit voice recorder, serial number Unknown (CSMU S/N 116733), installed on an Gulfstream G-IV (N121JM), which crashed during takeoff from Laurence G. Hanscom Field (BED) in Bedford, Massachusetts.

LEGEND

CAM	Cockpit area microphone voice or sound source
HOT	Flight crew audio panel voice or sound source
RDO	Radio transmission from N121JM
GND	Radio transmission from the Hanscom ground controller
TWR	Radio transmission from the Hanscom airport tower controller
-1	Voice identified as the second in command
-2	Voice identified as the pilot in command
-3	Voice identified as cabin crewmember
-?	Voice unidentified
*	Unintelligible word
#	Expletive
@	Non-pertinent word
()	Questionable insertion
[]	Editorial insertion

Note 1: Times are expressed in eastern daylight time (EDT).

Note 2: Generally, only radio transmissions to and from the accident aircraft were transcribed.

Note 3: Words shown with excess vowels, letters, or drawn out syllables are a phonetic representation of the words as spoken.

Note 4: A non-pertinent word, where noted, refers to a word not directly related to the operation, control or condition of the aircraft.