

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



GROUP CHAIRMAN'S FACTUAL REPORT OF INVESTIGATION

DCA16IA215

**By
Bill Tuccio, Ph.D.**

WARNING

The reader of this report is cautioned that the transcript 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.

NATIONAL TRANSPORTATION SAFETY BOARD
Vehicle Recorder Division

November 23, 2016

Cockpit Voice Recorder

Group Chairman's Factual Report
By Bill Tuccio, Ph.D.

1. EVENT SUMMARY

Location: Wood, South Dakota
Date: August 11, 2016
Aircraft: Airbus A320-232, Registration N632JB
Operator: JetBlue Airways Corporation, Flight 429
NTSB Number: DCA16IA215

On August 11, 2016, about 2009 central daylight time (CDT), an Airbus A320-232, N632JB, registered to and operated by JetBlue Airways Corporation, as flight 429, a Title 14 *Code of Federal Regulations* (CFR) Part 121 domestic passenger flight from Boston, Massachusetts, to Sacramento, California, encountered turbulence while maneuvering in cruise flight at flight level (FL) 320, to avoid convective weather. The crew declared an emergency and the flight diverted to and landed in Rapid City, South Dakota (RAP). The airplane received minor damage. The airline transport-rated pilot, first officer, and 122 passengers were not injured. Three flight attendants and 24 passengers received minor injuries. A solid-state cockpit voice recorder (CVR) was sent to the National Transportation Safety Board (NTSB) Vehicle Recorder Division for evaluation. The CVR group meeting convened on October 25, 2016, and a partial transcript was prepared for the 2-hour, 4-minute digital recording (see attached).

2. GROUP

Chairman:	Dr. Bill Tuccio Aerospace Engineer NTSB
Member:	Nathan Rohrbaugh Air Safety Investigator Federal Aviation Administration
Member:	Timothy J. Green Check Airman JetBlue
Member:	Marshall Ekstrand JetBlue Chief Accident Investigator Air Line Pilots Association

3. DETAILS OF INVESTIGATION

The NTSB Vehicle Recorder Division received the following CVR:

Recorder Manufacturer/Model: **Honeywell 6022**
Recorder Serial Number: **CVR120-06283**

3.1 CVR Carriage Requirements

Per federal regulation, large turbine engine powered aircraft operating under 14 CFR Part 121 must be equipped with a CVR that records a minimum of the last 2 hours of aircraft operation; this is accomplished by recording over the oldest audio data. When the CVR is deactivated or removed from the airplane, it retains only the most recent 2 hours of CVR operation.

3.2 Recorder Description

This model CVR, the Honeywell 6022, is a solid state CVR that records 120 minutes of digital audio. Specifically, it contains a 2-channel recording of the last 120 minutes of operation and separately contains 3-channel recording of the last 30 minutes of operation. The 120-minute portion of the recording is comprised of one channel that combines three audio panels sources and a second channel that contains the cockpit area microphone (CAM) source. The 30-minute portion of the recording contains 3 channels of audio information: one channel for each flight crew and one channel for a cockpit observer.

3.3 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.

3.4 Audio Recording Description

Each channel's audio quality is indicated in Table 1.¹

Table 1. Audio Quality.			
Channel Number	Content/Source	Quality	Duration
CAM	CAM	Excellent	120 min
MP	Mixed Audio	Excellent	120 min
1	Captain	Excellent	30 min
2	First Officer	Excellent	30 min
3	Observer/PA	Excellent	30 min

3.5 Timing and Correlation

Timing on the transcript was established by correlating the CVR events to common events on the flight data recorder (FDR). Specifically, four radio transmissions that the aircraft made recorded on the CVR at 4891.8, 4900.8, 4905.9, and 5127.8 seconds CVR Elapsed Time (time since the start of the recording) were correlated to the radio transmit microphone key parameter for the same transmissions recorded on the FDR at 72630.0, 72639.0, 72644.0, 72866.0 CDT (seconds past midnight). Each of the four radio

¹ See attached CVR Quality Rating Scale.

transmissions acted as an anchor point for a linear interpolation, resulting in the following relationship:

$$\text{CVR CDT} = \text{CVR Elapsed Time} + 67737.3 \text{ seconds past midnight}$$

3.6 Description of Audio Events

The recording began at 1848:57 CDT and the transcript began at 1940:02 CDT, when the aircraft was in cruise flight at flight level 320, and the crew were discussing ongoing radio reception static. The recording was consistent with the captain acting as pilot flying and the first officer acting as pilot monitoring, until the upset. The transcript details deviations around convective activity, communications between the captain and flight attendants about possible turbulence, the upset event, and response to the upset. The partial transcript ends at 2024:30 CDT, as the aircraft was descending for RAP.

There were two sources of static on the MP audio channel. Radio communications were often degraded or unintelligible due to static; clarity of radio communications received or overheard are documented with editorial comments. Independent of the radio static, the MP audio channel contained continuous background ambient noise from the cockpit. Based on sounds of thumps recorded on the MP channel and operational experience of group members with the A320, it is likely this ambient noise was because one or more of the hot microphones in stowed oxygen masks were active throughout the flight.

After the partial transcript ends at 2024:30 CDT, the following is a summary of events for the remainder of the recording:

- Recorded content was consistent with the first officer acting as pilot flying, the captain acting as pilot monitoring.
- After some initial difficulty setting up the flight management system to RAP, the captain setup the flight plan in the flight management system with assistance from the first officer.
- In response to inquiries from air traffic control as to the number of injured, the captain replied there were at least four injured.
- The captain initially requested a “DF steer” to RAP and then clarified the request as radar vectors for the approach at RAP.
- During the descent and arrival, at least two cavalry charge sounds, similar to autopilot disconnect events, were recorded. One was at higher altitude during the descent, the other on short final.
- The crew continued to discuss the upset event throughout the descent and short final.
- The recording ended while emergency medical personnel were on the aircraft.

As part of the Safety Board’s accident investigation process, the flight crew was invited to review the CVR transcript and suggest corrections or additions. On November 7, 2016, the crew reviewed the transcript and had no corrections or additions.

Attachment I

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.

Transcript of a Honeywell 6022 solid-state cockpit voice recorder, serial number CVR120-06283, installed on a JetBlue Airways Airbus A320-232 (N632JB), which encountered turbulence near Wood, South Dakota.

LEGEND

CAM	Cockpit area microphone voice or sound source
HOT	Flight crew audio panel voice or sound source
INT	Flight crew and cabin intercom
RDO	Radio transmissions from N632JB
CTR-MSP	Radio transmission from Minneapolis Center controller
CTR-DEN	Radio transmission from Denver Center controller
MISC-AC	Radio transmission from a miscellaneous aircraft
ATC	Paraphrased radio transmissions related to air traffic control
PA	Passenger address system
-1	Voice identified as the captain
-2	Voice identified as the first officer
-3	Voice identified as a flight attendant
-4	Voice identified as a flight attendant
-5	Voice identified as a flight attendant
-?	Voice unidentified
*	Unintelligible word
#	Expletive
@	Non-pertinent word
()	Questionable insertion
[]	Editorial insertion

Note 1: Times are expressed in central daylight time (CDT).

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.

Note 5: At least three different flight attendant voices were identified; however, the transcript does not maintain the continuity of the person identification for flight attendants (unlike the captain and first officer, where speaker identification is determined throughout the transcript).

**TIME and
SOURCE**

INTRA-AIRCRAFT CONTENT

18:48:57 CDT
START OF RECORDING

19:40:02 CDT
START OF TRANSCRIPT

19:40:02.0
CAM-2 maybe it's one. I don't know.

19:40:03.3
CAM-1 still not great.

19:40:04.4
CAM-2 it's better though. yeah.

19:40:04.8
CAM-1 it's a lot better. yeah.

19:40:06.8
CAM-1 a lot of static.

19:40:20.6
CAM-1 a lot of static man.

**TIME and
SOURCE**

AIR-GROUND COMMUNICATION CONTENT

19:40:07.0
RDO-2 Center JetBlue ah four twenty nine.

19:40:09.0
CTR-MSP JetBlue four twenty nine Minneapolis Center [staticky transmission].

19:40:11.4
RDO-2 alright we got you much better now. we tryin' ya' on our ah second radio. we'll stay here with ya'.

19:40:16.5
CTR-MSP four twenty nine roger [staticky transmission].

<u>TIME and SOURCE</u>	<u>INTRA-AIRCRAFT CONTENT</u>
19:40:21.8 CAM-2	yeah it's bad.
19:40:23.5 CAM-1	(we're on) the ah.
19:40:30.0 CAM-2	we're not gonna be able to see that (then).
19:40:31.5 CAM-1	I know.
19:40:40.3 CAM-1	(so).
19:40:44.3 CAM-2	friggin' nordo ² trying to deviate around weather.
19:41:08.2 CAM-1	yeah now I hear I they're pushing the ah the cleaning thing very hard in training.
19:41:12.8 CAM-2	cleaning?

<u>TIME and SOURCE</u>	<u>AIR-GROUND COMMUNICATION CONTENT</u>
19:40:50.6 ATC	[unintelligible staticky reception on radio, latter part staticky to another aircraft]
19:41:08.3 ATC	[unintelligible staticky reception on radio]
19:41:13.2 ATC	[unintelligible staticky reception on radio, latter part staticky to another aircraft]

² According to the FAA pilot/controller glossary, "Aircraft that cannot or do not communicate by radio when radio communication is required are referred to as 'NORDO.'"

**TIME and
SOURCE**

INTRA-AIRCRAFT CONTENT

19:41:13.4

CAM-1 yeah. like up the airplane.

19:41:16.1

CAM-2 here's the deal with that. I'm all about pitchin' in alright.

19:41:19.8

CAM-1 (you know) the deal is (at) JetBlue is uhm.

19:41:20.9

CAM-2 (but.)

**TIME and
SOURCE**

AIR-GROUND COMMUNICATION CONTENT

19:41:24.5

ATC [unintelligible airline 751 cleared direct Erickson after deviating, staticky transmission]

19:41:24.9

CAM-1 they're tone deaf. because I went to my. you know that captain leading edge course?

19:41:30.2

CAM-2 yeah.

19:41:31.0

CAM-1 so I went to it. and they brought in the panel of customers right. and uhhhh.

19:41:37.4

CAM-1 (we allowed them to you know give us feedback. ask questions right. and unanimously.)

19:41:37.6

ATC [unintelligible staticky reception on radio]

19:41:44.4

CAM-1 unanimously. customers do not want to see pilots clean airplanes.

**TIME and
SOURCE**

INTRA-AIRCRAFT CONTENT

19:41:50.4

CAM-2 airplanes.

19:41:51.2

CAM-1 it's like they don't want their heart surgeon cleaning emptying bed pans.

19:41:55.3

CAM-2 right.

19:41:56.3

CAM-1 you know they're like you know what. if they want to do it. that's their business.

**TIME and
SOURCE**

19:41:49.6

ATC [unintelligible staticky reception on radio]

19:41:58.7

ATC [staticky to another aircraft, followed by unintelligible static]

19:42:00.6

CAM-1 do it out of (sight). okay. and JetBlue's like.

19:42:05.5

CAM-1 (and then I got involved. right. I didn't go there. but I said listen. forget about whether we clean or not. I said my biggest issue is that I can't tell you ** I've seen JetBlue crewmembers interfering. not intentionally. interfering with the deplaning process because of jumping from you know one row to the other.)

19:42:29.1

CAM-2 yeah.

19:42:30.5

CAM-1 people can't get off. their frustrated. I've seen a JetBlue crewmember head-butt a passenger by mistake. right.

<u>TIME and SOURCE</u>	<u>INTRA-AIRCRAFT CONTENT</u>	<u>TIME and SOURCE</u>	<u>AIR-GROUND COMMUNICATION CONTENT</u>
19:42:36.7 CAM-2	oh no way.		
19:42:37.4 CAM-1	oh yeah. it's like.		
19:42:40.5 CAM-1	it's gonna be a lot faster if everyone would-		
19:42:42.0 CAM-2	(wait).		
19:42:42.5 CAM-1	(gets off the airplane and then ** everyone should be off the airplane.)		
19:42:46.2 CAM-2	right.		
19:42:48.5 CAM-?	(everybody. JetBlue's like).		
19:42:54.3 CAM-1	(I don't know. * so. you know. it's ridiculous. I had a guy. I mean.)		
19:43:01.9 CAM-1	if the crew is very cool. and I have time. once and while I'll go back there and * help a little bit.		
19:43:08.6 CAM-1	** right but I definitely.		
19:43:12.6 CAM-2	it's not regular practice.		
19:43:14.3 CAM-1	not * I've had situations where I'm non-revving to Orlando. right. after I'm done with a trip. I'm # exhausted. I'm in the front row. and they hand me blue gloves.		

<u>TIME and SOURCE</u>	<u>INTRA-AIRCRAFT CONTENT</u>	<u>TIME and SOURCE</u>	<u>AIR-GROUND COMMUNICATION CONTENT</u>
19:43:26.8 CAM-1	and I'm like. no.		
19:43:28.4 CAM-2	I'm not doing this.		
19:43:29.4 CAM-1	I'm-I'm off the airplane. I'm-I'm going home. I'm not going to wait for a hundred and fifty people to deplane.		
		19:43:33.5 ATC	[aircraft inquires about ride reports. CTR responds, not too many complaints and says he assumes a little bit of light chop; staticky transmission]
19:43:33.7 CAM-1	no # way. I'm not doing it.		
19:43:37.6 CAM-1	I had a guy one time. ah in flight.		
19:43:42.0 CAM-1	airplane swapped in Boston. gate change right. so you know ah. I get off the airplane. I do not clean.		
		19:43:43.4 ATC	[staticky to another aircraft, followed by unintelligible static]
19:43:51.4 CAM-1	get to the gate. guy says to me must be nice. I'm like what. oh not having to clean.		
19:43:58.2 CAM-1	you know. and I looked at him. I said let me tell you something. this is my logic right.		

<u>TIME and SOURCE</u>	<u>INTRA-AIRCRAFT CONTENT</u>	<u>TIME and SOURCE</u>	<u>AIR-GROUND COMMUNICATION CONTENT</u>
19:44:05.7 CAM-1	I said. JetBlue wants us to help you flip. they don't expect us *** (they ask that we help you clean). right.		
19:44:12.7 CAM-1	because they want to turn the airplane quickly. right. ** here's my logic.		
19:44:17.6 CAM-1	okay. I said if we block in. right. and we're short on time. right.		
19:44:24.1 CAM-1	well guess what. I'm short on time to do my own job. so I don't have time to help you with yours.		
		19:44:25.5 ATC	[unintelligible staticky reception on radio]
19:44:29.8 CAM-1	okay and if we block in and we have a three-hour sit. then hey you have all the time you need to do your job. and you don't need my help.		
		19:44:34.1 CTR-MSP	uhm the story goes. ahhh. areas of occasional light chop at all flight levels associated with the weather. but nothing really ** airport [static throughout transmission].
19:44:35.9 CAM-2	right.		
19:44:38.7 CAM-2	no #. yeah. that's.		
19:44:40.5 CAM-1	and I've been cleaning back there. and they're sittin' there going.		
19:44:44.5 CAM-2	you're like what.		

**TIME and
SOURCE**

INTRA-AIRCRAFT CONTENT

19:44:45.8

CAM-1 I'm [stammer] I'm done. right. I'm out.

19:44:47.2

CAM-2 done right.

19:44:48.6

CAM-1 I'm gonna. * I will help but I will not do your job for you.

19:44:52.2

CAM-2 yeah while you're on the phone **.

19:44:53.3

CAM-1 you know.

19:44:55.5

CAM-1 and ** it is almost like they've become accustomed to. oh yeah well they're going to our job for us we don't have to ***.

19:45:05.1

CAM-1 yeah.

19:45:10.4

CAM-1 so.

19:45:15.1

CAM-1 big big. big big no no.

19:45:19.0

CAM-2 there's some nasty # up there to the right.

19:45:20.5

CAM-1 yep.

19:45:22.1

CAM-1 it's kind'a wide.

**TIME and
SOURCE**

AIR-GROUND COMMUNICATION CONTENT

**TIME and
SOURCE**

INTRA-AIRCRAFT CONTENT

19:45:25.8
CAM-1 so ah. we'll go left and then uh. go around it.

19:45:52.3
CAM-1 what's that called Crazy-

19:45:53.1
CAM-2 Crazy Woman.

19:45:53.9
CAM-1 are you serious? ha ha ha ha.

19:45:54.6
CAM-2 yeah that's (it.) ha.

19:45:58.8
CAM-1 that's hilarious.

19:45:59.6
CAM-2 that's funny.

**TIME and
SOURCE**

AIR-GROUND COMMUNICATION CONTENT

19:45:31.9
RDO-2 Center JetBlue four twenty nine we're gonna need left deviations for weather up ahead.

19:45:35.6
CTR-MSP JetBlue four twenty nine deviation to the left of course is approved and when able proceed direct to. uhm Crazy Woman [without static].

19:45:44.8
RDO-2 what was the fix?

19:45:46.2
CTR-MSP charlie zulu india. Crazy Woman [without static].

19:45:48.0
RDO-2 Crazy Woman. got it alright. ah left deviation is approved we'll head direct that way once we're clear of it. JetBlue four twenty nine.

**TIME and
SOURCE**

INTRA-AIRCRAFT CONTENT

19:46:22.3

CAM-2 alright I'm back up on one with him.

19:46:24.0

CAM-1 alright.

19:46:24.8

CAM-2 I have guard in two.

19:46:36.2

CAM-2 oh man. man.

19:46:51.5

CAM [sound of thunk]

19:47:11.2

CAM-1 [CAM-1 begins a non-pertinent conversation/story that lasts for the next 2-minutes 27-seconds. CAM-2 occasionally responds, acknowledging the progress of the story.]

**TIME and
SOURCE**

AIR-GROUND COMMUNICATION CONTENT

19:46:01.4

ATC [clear, non-staticky communications by ATC and other aircraft]

19:47:05.0

ATC [clear, non-staticky communications by ATC and other aircraft]

19:48:46.9

ATC [Delta 730 asked how the rides were ahead. CTR responded, "not bad no complaints." clear, non-staticky transmissions.]

19:49:02.0

CTR-MSP JetBlue four twenty nine contact (Denver) Center one one niner point seven two.

19:49:05.6

RDO-2 alright nineteen seventy two that was JetBlue four twenty nine. so long.

**TIME and
SOURCE**

INTRA-AIRCRAFT CONTENT

19:49:39.3
CAM [crew begins a different non-pertinent conversation]

19:49:55.3
HOT [sound of thunk]

19:50:35.1
CAM-1 (well) I'm gonna blast through up here. *. ...that alright with you?

19:50:41.9
CAM-2 yeah.

19:50:43.4
CAM-1 I don't want to get too far off course.

**TIME and
SOURCE**

AIR-GROUND COMMUNICATION CONTENT

19:49:18.1
ATC [unintelligible staticky reception on radio, latter part staticky to another aircraft. aircraft asks about a deviation for a cell on the arrival into Denver. response by ATC was unintelligible.]

19:49:40.3
ATC [unintelligible staticky reception on radio, ending with garbled communication by another aircraft requesting a deviation around weather]

19:50:15.9
RDO-2 JetBlue four twenty nine checking on three two oh.

19:50:19.6
ATC [staticky radio communications, some on Guard, some partially unintelligible]

19:50:47.5
RDO-2 JetBlue four twenty nine is checking on at flight level three two zero we are left deviations.

**TIME and
SOURCE**

INTRA-AIRCRAFT CONTENT

19:51:10.9

CAM-1 alright I'm gonna to tell them it will be like this for a couple hundred miles. cause. you know.

19:51:18.0

CAM-1 (we've got eighty eight. four sixty) [low volume].

19:51:18.8

(INT-3) (hey).

19:51:21.2

INT-3 (uhm).

19:51:21.8

INT-1 hey guys how you doin'?

19:51:23.5

INT-3 -ello.

19:51:24.2

INT-1 uh yeah can you hear me?

19:51:25.3

INT-3 yeah.

19:51:25.9

INT-1 yeah uh it's gonna be ah bumpy like this for probably anotherrrr couple hundred miles.

19:51:31.6

INT-1 so if you want to just ah wrap up whatever you're doing. and have a seat.

**TIME and
SOURCE**

AIR-GROUND COMMUNICATION CONTENT

19:50:56.4

ATC [unintelligible staticky reception on radio, ending with garbled communication by another aircraft]

<u>TIME and SOURCE</u>	<u>INTRA-AIRCRAFT CONTENT</u>
19:51:34.4 INT-3	okay. sounds good.
19:51:34.9 INT-1	alright. sure.
19:51:35.6 INT-3	thank you. bye.
19:51:37.2 INT	[sound of rattle, similar to flight attendant handset being hung up]
19:51:55.8 CAM-1	** lost comm assigned vectored expected filed.
19:51:59.9 CAM-2	yeah.
19:52:00.4 CAM-1	[laughter]
19:52:01.0 CAM-2	yeah.
19:52:01.1 CAM-1	(as we go left) [laughter].

<u>TIME and SOURCE</u>	<u>AIR-GROUND COMMUNICATION CONTENT</u>
19:51:40.7 RDO-2	Center JetBlue four twenty nine [static on radio before and after transmission].
19:51:42.3 ATC	[staticky, nearly unintelligible transmission to another aircraft "444" followed by unintelligible static]
19:52:05.8 RDO-2	JetBlue four twenty nine at three two oh. how do you hear us.

**TIME and
SOURCE**

INTRA-AIRCRAFT CONTENT

19:52:19.9
CAM-2 (this sucks).

19:52:22.1
CAM-1 that's horrible.

19:52:22.8
PA-3 *** on for the next thirty to forty five minutes *** seatbelt ** both for your safety [first part of PA obscured by ATC static; end part obscured by RDO-2 and ATC static].

19:52:34.4
CAM-1 unreadable.

19:52:55.1
CAM-? ***.

19:53:01.0
CAM-1 * she talking to us before?

**TIME and
SOURCE**

AIR-GROUND COMMUNICATION CONTENT

19:52:08.5
CTR-? JetBlue four twenty nine. ****. [staticky transmission throughout]

19:52:25.2
RDO-2 that was completely broken and unreadable for JetBlue four twenty nine.

19:52:36.1
RDO-2 unreadable JetBlue four twenty nine.

19:52:38.4
CTR-MSP (JetBlue four twenty nine do not call me *** Delta four two eight two *** deviate further right of course is approved and direct to (SWANN) when you're able [transmission staticky and barely readable].)

19:52:49.5
ATC [unintelligible static]

**TIME and
SOURCE**

INTRA-AIRCRAFT CONTENT

19:53:03.1
CAM-1 try her again.

19:53:27.4
CAM-1 well she's confused. we're not deviating right. we're deviating left.

19:53:29.9
CAM-2 that's what- I said left.

19:53:31.4
CAM-2 we might we might come right. so she is confused.

19:53:36.5
CAM-1 but uhm.

**TIME and
SOURCE**

AIR-GROUND COMMUNICATION CONTENT

19:53:03.8
CTR-? and JetBlue four twenty nine did you need something? [staticky and nearly unintelligible]

19:53:07.6
RDO-2 yeah we can barely hear you now. ah we're deviating left of course for weather and we ah we'll probably doing this maybe slight right hand turn for the next hundred miles or so.

19:53:17.6
CTR-MSP and JetBlue four twenty nine roger just advise when you need to deviate further right of course.

19:53:23.4
RDO-2 JetBlue four twenty nine roger.

19:53:24.8
ATC [staticky transmission, followed by unintelligible static]

<u>TIME and SOURCE</u>	<u>INTRA-AIRCRAFT CONTENT</u>	<u>TIME and SOURCE</u>	<u>AIR-GROUND COMMUNICATION CONTENT</u>
19:53:46.7 CAM-2	yeah I remember (I remember in training) I was like. yeah when they were talking about how we're all equals like **. as far as like-like human nature is concerned of course. but like. is there no chain of command here. like how does that work?		
19:54:00.2 CAM-1	dude look.		
19:54:01.5 CAM-2	* chain of command *.		
19:54:02.8 CAM-1	* it is very simple.		
19:54:04.6 CAM-2	yeah.		
19:54:04.6 CAM-1	I will-		
19:54:05.5 CAM-2	you sign for the # airplane.		
19:54:06.6 CAM-1	I will take out a copy of the FAR AIM.		
19:54:08.8 CAM-2	yeah.		
19:54:09.6 CAM-1	and I will look it up. ** say oh look at this right here. the P-I-C is the final authority. not JetBlue.		
19:54:11.6 CAM-2	yeah. yeah. right. right.		

**TIME and
SOURCE**

INTRA-AIRCRAFT CONTENT

19:54:20.1

CAM-1 so I can trump JetBlue.

19:54:22.0

CAM-2 yeah.

19:54:22.4

CAM-1 you know what I mean.

19:54:23.8

CAM-2 absolutely.

**TIME and
SOURCE**

AIR-GROUND COMMUNICATION CONTENT

19:54:23.9

CTR-MSP [clear, no static transmission with another aircraft]

19:54:26.2

CAM-1 did I tell you my Norovirus story?

19:54:28.2

CAM-2 no. you didn't get it did you? oh.

19:54:31.8

CAM-1 no. ready for this. okay.

19:54:36.3

CAM-1 I'm in Albuquerque right. and I'm going to do the red eye to Kennedy.

19:54:42.9

CAM-1 midnight departure on a Saturday night. remember that ah we don't operate out of Albuquerque on Sunday.

19:54:44.1

CAM-2 yeap.

19:54:51.9

CAM-2 okay.

**TIME and
SOURCE**

INTRA-AIRCRAFT CONTENT

19:54:53.9

CAM-1 so ah. I show up at the airport. I'm telling you this so that when you upgrade. I'll tell you two- I'll tell you three-. (I'm going to. well I told you the Burlington story. right.)

19:55:06.2

CAM-1 (about) diverting.

19:55:07.4

CAM-2 oh yeah yeah yeah.

19:55:08.2

CAM-1 (that's number one.)

19:55:09.8

CAM-2 you showed me the pictures too.

19:55:10.9

CAM-1 yeah I showed you the pictures.

**TIME and
SOURCE**

AIR-GROUND COMMUNICATION CONTENT

19:55:12.1

CTR-MSP attention all aircraft hazardous weather information Convective Sgment One Central Five Central Six Eight and Nine Central Two Western for Wisconsin Illinois Minnesota Iowa Texas Oklahoma Kansas Nebraska South Dakota Colorado and Wyoming. available on inflight advisory frequency. [staticky transmission]

19:55:12.1

CAM-1 (with JetBlue you gotta really be careful. they really want to push you and push you. they really don't like to cancel flights. they haven't learned their lessons in all these years. and it is up to you.)

19:55:23.5

CAM-2 to say no.

19:55:24.2

CAM-1 look. my mentality is this. I'll tell ya. you know. I've done it three times now.

**TIME and
SOURCE**

INTRA-AIRCRAFT CONTENT

19:55:30.4

CAM-1

and every time before I make a decision that is contrary to what they want me to do. which is very infrequent by the way. right. I always say to myself.

19:55:40.4

CAM-1

what would I do if I was the sole owner of JetBlue.

19:55:44.7

CAM-1

if I owned this company myself what would I do to protect my investments. and if I make my decision based on that. I can't go wrong. I can't can't. I will never make the wrong decision.

19:55:59.1

CAM-2

right.

19:56:00.1

CAM-1

right. JetBlue may think I made the wrong decision. but in the end it will come out that I made the right decision. if you know the logical outcome. right. ***.

19:56:09.9

CAM-2

right.

19:56:10.3

CAM-1

right. so I'm in Albuquerque.

19:56:14.1

CAM-1

and uh the pilot's got off the airplane. and I never saw 'em.

**TIME and
SOURCE**

AIR-GROUND COMMUNICATION CONTENT

19:55:40.9

CTR-MSP

[clear, no static transmission with another aircraft]

19:56:14.0

CTR-MSP

American two twenty four deviation to the north of course is approved then direct to ZIPPR when you're able [clear, non-staticky transmission].

<u>TIME and SOURCE</u>	<u>INTRA-AIRCRAFT CONTENT</u>	<u>TIME and SOURCE</u>	<u>AIR-GROUND COMMUNICATION CONTENT</u>
19:56:20.3 CAM-1	and the inflights come off. and they say to me yeah. you have to clean the airplane. I'm like. okay no big deal. like no well it's more of a big deal because we had a guy front row.		
19:56:32.3 CAM-1	who threw up like a dozen times all over the seats and the bathroom. and then when we got to the gate he got up and announced he has Norovirus and we should quarantine the airplane.		
19:56:44.6 CAM-1	and I said. excuse me. I said where is this person right now. oh he left.		
19:56:50.1 CAM-1	** they allowed him to leave. are you # kidding me.		
19:56:54.0 CAM-1	so I go on Google and (I heard) about Norovirus right.		
19:56:57.9 CAM-1	this is the # the cruise ship * turn around in mid ocean.		
19:57:00.4 CAM-2	oh yeah. yeah. yeah. no we've had major problems with that ah down in Saint Martin.		
19:57:04.2 CAM-1	highly conta- **.		
19:57:05.1 CAM-2	highly contagious.		
19:57:06.7 CAM-1	highly contagious.		
19:57:08.3 CAM-1	highly stable *** like hot water and soap doesn't even kill it.		

<u>TIME and SOURCE</u>	<u>INTRA-AIRCRAFT CONTENT</u>
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19:57:12.7
CAM-2 right. yeah.

19:57:13.4
CAM-1 you need bleach **.

19:57:17.8
CAM-1 so I call JetBlue about it.

19:57:19.7
CAM-2 it's not happening.

19:57:20.6
CAM-1 you need to call a local hazmat team.

19:57:26.2
CAM-1 that's us.

19:57:42.8
CAM-2 still isn't any better. uhm.

<u>TIME and SOURCE</u>	<u>AIR-GROUND COMMUNICATION CONTENT</u>
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19:57:23.4
CTR-MSP and JetBlue four twenty nine are you on-on one two four point eight seven [staticky].

19:57:29.3
RDO-2 was that for JetBlue four twenty nine.

19:57:31.0
CTR-MSP JetBlue four twenty nine change to my frequency one two four point eight seven [staticky].

19:57:35.8
RDO-2 JetBlue four twenty nine up on one twenty four eighty seven.

19:57:38.5
CTR-MSP JetBlue four twenty nine roger break Alaska seven seventy seven are you on one two four point eight seven [staticky].

<u>TIME and SOURCE</u>	<u>INTRA-AIRCRAFT CONTENT</u>	<u>TIME and SOURCE</u>	<u>AIR-GROUND COMMUNICATION CONTENT</u>
19:57:45.0 CAM-1	so uh. (they're) like well how do you know he has Norovirus you're not a doctor.		
19:57:51.5 CAM-1	and I say I don't have to be a doctor I'm a...		
19:57:53.1 CAM-2	common sense prevails.		
19:57:54.3 CAM-1	...it's like I'm not an explosives specialist but if somebody announces that they have a bomb I have to respond accordingly.		
19:58:00.5 CAM-2	act accordingly with the information I'm given. right.		
19:58:04.0 CAM-1	so I need a hazmat team or I'm- we're not going.		
19:58:08.5 CAM-1	awe well awe. so they called the hazmat team.		
19:58:15.7 CAM-1	now it's ah three in the morning and they haven't done anything.		
19:58:19.1 CAM-2	come on man do what I tell ya'.		
19:58:20.7 CAM-1	so I call JetBlue I got- I need a chief pilot ***.		
		19:58:24.2 MISC-AC	maa'm we're gonna call you on Guard we can't hear you.
19:58:25.7 CAM-1	at this point ***. guess who I got on the phone.		

**TIME and
SOURCE**

INTRA-AIRCRAFT CONTENT

19:58:31.6
CAM-1 @ the ACARS guy. I'm like I can't get a chief pilot to call. it's ridiculous.

19:58:37.8
CAM-1 you know what I mean. that's # ridiculous. okay. so.

19:58:42.9
CAM-1 basically I ah. I ah.

19:58:48.6
CAM-1 I-I got @ on the phone. I explain the whole thing. and I- I'm like yeah man you know. we have a very serious situation here. and I said * I'm very close to cancelling this flight. right. you know what the # guy says to me? he's like. ah excuse me @. but captains don't cancel flights. system ops cancels flights. I said well @ [chuckle] I said. with all due respect.

19:59:15.8
CAM-2 I got news for you. if I go back to the hotel this # flight is cancelled.

**TIME and
SOURCE**

AIR-GROUND COMMUNICATION CONTENT

19:58:32.1
MISC-AC Minneapolis United two fifty four on Guard [clear, non-staticky transmission].

19:58:34.0
CTR-MSP roger [said in overlap with United 254, similar to CTR talking on normal, non-Guard frequency]

19:58:42.9
MISC-AC Minneapolis United two fifty four on Guard [clear, non-staticky transmission].

19:58:48.8
ATC [United 254 talking to an unidentified interlocutor on Guard, noting due to static he cannot get in contact with Minneapolis Center. United 254 noted he was near Sioux Falls.]

**TIME and
SOURCE**

INTRA-AIRCRAFT CONTENT

19:59:18.5

CAM-1

no no. ** I said @ with all due respect I can- I can show you in the F-O-M where it says that the P-I-C can unilaterally cancel the flight for safety reasons. and this definitely qualifies as a safety reason.

19:59:31.9

CAM-1

and I said. and once more @. I said exactly what I told you. I said I'm going to treat my decision as if I own JetBlue one hundred percent. right. and I would not want to fly this airplane back to New York and see U-S-A tomorrow. right.

19:59:47.9

CAM-2

spreading an entire aircraft.

19:59:49.2

CAM-1

right. JetBlue ah-ah imports Norovirus from Albuquerque to New York. you want to read that headline.

19:59:55.4

CAM-1

do you really want to see that on the news.

19:59:57.2

CAM-2

yeah.

19:59:57.6

CAM-1

I don't think ** oh well ahhh.

20:00:00.4

CAM-1

yeah yeah. I understand. ** I tell you what. I said ah. when's the hazmat team gonna get here? oh they'll be (there in an hour). alright. let's talk in an hour. right.

**TIME and
SOURCE**

AIR-GROUND COMMUNICATION CONTENT

19:59:18.9

ATC

[an unknown interlocutor relays to United 254 on guard with a frequency provided by Minneapolis Center. some static with the transmission.]

**TIME and
SOURCE**

INTRA-AIRCRAFT CONTENT

20:00:11.2

CAM-1 so in the meantime I call MedLink. and I told them. they said don't fly the airplane.

20:00:17.4

CAM-1 and not only that JetBlue is going to have to call the C-D-C. the C-D-#-C.

**TIME and
SOURCE**

AIR-GROUND COMMUNICATION CONTENT

20:00:21.7

ATC [JetSpeed 402 at flight level 450 checks in deviating north of course direct to Pullman [in Michigan, east of Chicago] when able. staticky transmission.]

20:00:21.9

CAM-2 no #.

20:00:22.5

CAM-1 that's #.

20:00:23.6

CAM-2 oh yeah.

20:00:24.3

CAM-1 that's like high level #.

20:00:25.3

CAM-2 right.

20:00:25.6

CAM-1 okay.

20:00:26.6

CAM-1 so I called JetBlue and I said. **. we're going back to the hotel. the flight is cancelled. and uh the aircraft's under quarantine. and here's the MedLink confirmation number. and that's it. okay.

<u>TIME and SOURCE</u>	<u>INTRA-AIRCRAFT CONTENT</u>	<u>TIME and SOURCE</u>	<u>AIR-GROUND COMMUNICATION CONTENT</u>
20:00:42.2 CAM-1	(so we're approaching the hour and of course the gate agent at Albuquerque cancelling ** we don't operate tomorrow. these people are stuck here till Monday. I'm like sorry but ** I'm not doing ** what's right. okay and.)		
20:00:53.3 CAM-2	right.		
20:00:55.9 CAM-1	I don't want to infect people with Norovirus. and God. thank God that within two months all of a sudden Zika virus and Norovirus became a big deal.		
20:01:04.1 CAM-2	well uhm yeah.		
20:01:04.4 CAM-1	as (P)-I-C. I made the right decision.		
20:01:07.4 CAM-2	yeah.		
20:01:07.9 CAM-1	right.		
20:01:08.1 CAM-2	right.		
20:01:08.5 CAM-1	clearly. right.		
20:01:10.1 CAM-2	clearly.		
20:01:11.9 CAM-2	can you imagine a plane full of sick people. it doesn't even make any sense.		

**TIME and
SOURCE**

INTRA-AIRCRAFT CONTENT

20:01:15.0

CAM-1

what the- what the # are they thinking dude.

20:01:17.4

CAM-1

and the last one. am I boring you with stories?

20:01:21.8

CAM-1

the last one. I'm at the gate on the one ninety. going to Nassau.

20:01:27.9

CAM-1

they're fully boarded. the door's open. right.

20:01:32.2

CAM-1

pack trips.

20:01:33.8

CAM-1

* I reset it. trips again. all of sudden. I get smoke. wwwhoosshpp. a plume of smoke that goes out. everyone saw it. everyone smelled it.

20:01:46.6

CAM-1

(I'm like, we're done. right. I call maintenance. ** we'll M-E-L the pack.
** don't worry **. I said I need a new airplane. what **-.)

**TIME and
SOURCE**

AIR-GROUND COMMUNICATION CONTENT

20:01:18.0

ATC

[unintelligible staticky transmission, followed by staticky frequency change by Minneapolis Center to Delta 1318; Delta 1318 reports continuous light chop before leaving the frequency]

20:01:56.5

CTR-MSP

JetBlue four twenty nine. contact Denver Center one three five point zero two [clear, non-staticky].

20:02:01.7

RDO-2

three five zero two JetBlue four twenty nine so long.

20:02:13.5

ATC

[clear, non-staticky communications by ATC and other aircraft]

**TIME and
SOURCE**

INTRA-AIRCRAFT CONTENT

20:02:14.8

CAM-1 see.

20:02:19.8

CAM-1 they're putting us right through there.

20:02:22.1

CAM-2 oh wow.

20:02:22.7

CAM-1 why don't we ah why don't we cheat.

20:02:26.6

CAM-1 there's a lot more here. right. how do you feel about ahhh.

20:02:34.8

CAM-1 goin' right through there.

20:02:35.8

CAM-2 probably got the best sliver right now the way you're going. yeah.

20:02:38.1

CAM-1 you think so.

20:02:38.9

CAM-1 *.

20:02:39.0

CAM-2 ah-ah where are you talking about going to?

**TIME and
SOURCE**

AIR-GROUND COMMUNICATION CONTENT

20:02:39.6

ATC

[clear, non-staticky transmission to two other aircraft providing routing into Denver. concludes, with Denver Center responding to an inquiry from Southwest 1866 about holding into Denver, saying "we're shut off on this gate, but I don't know about down there."]

20:02:40.0

CAM-1 I'm talking about going like right here.

<u>TIME and SOURCE</u>	<u>INTRA-AIRCRAFT CONTENT</u>	<u>TIME and SOURCE</u>	<u>AIR-GROUND COMMUNICATION CONTENT</u>
20:02:42.1 CAM-2	oh okay. cut through that.		
20:02:43.5 CAM-1	yeah.		
20:02:44.9 CAM-1	we'll probably cut through there. so tell her direct Crazy. but we'll need deviations ah. to the right.		
20:02:54.7 CAM-1	alright?		
20:02:55.4 CAM-2	right.		
20:02:55.8 CAM-1	*.		
20:02:58.1 CAM-1	you want to sneak in here?		
20:02:59.1 CAM-2	three hundred heading or something like that. two ninety five.		
20:03:08.3 CAM-2	left looks good whatever too. *.		
20:03:11.1 CAM-1	you want to go left. we go left.		
20:03:12.4 CAM-2	no-no-no-no. I'm-I'm good with whatever you want man. you want the right hand turn.		
20:03:15.3 CAM-1	I think that ahhh.		

**TIME and
SOURCE**

INTRA-AIRCRAFT CONTENT

20:03:19.7
CAM-1 yeah. I think right's fine.

20:03:37.6
CAM-2 alright.

20:03:39.0
CAM-1 so everyone saw the smoke. everyone smelled it.

20:03:43.0
CAM-1 and maintenance was like yeah we'll M-E-L it no problem. right.

20:03:45.9
CAM-2 yeah like no-no-no.

20:03:47.0
CAM-1 I was like look. that's not gonna happen.

20:03:48.7
CAM-1 he's like why that's normal. * smoke is not normal.

20:03:51.5
CAM-1 (alright.) and not only that.

**TIME and
SOURCE**

AIR-GROUND COMMUNICATION CONTENT

20:03:21.3
RDO-2 Denver ah JetBlue four twenty nine. we're checking in three two oh. we're going to need to make a right hand turn deviation about two ninety five heading for weather up ahead.

20:03:28.2
CTR-DEN JetBlue four twenty nine Denver Center roger that's approved. and ah so still going to Crazy Woman when able [clear, no static].

20:03:33.1
RDO-2 okay Crazy Woman when able and ah right ah deviation's approved. JetBlue four twenty nine.

<u>TIME and SOURCE</u>	<u>INTRA-AIRCRAFT CONTENT</u>	<u>TIME and SOURCE</u>	<u>AIR-GROUND COMMUNICATION CONTENT</u>
20:03:53.7 CAM-1	with one pack on the one ninety you're limited to three one oh.		
20:03:57.5 CAM-1	I was filed at three five oh. so I just gave up four thousand feet of drift down if I needed it.		
20:04:03.2 CAM-1	I'm over water. really.		
20:04:05.4 CAM-2	yeah. not happening.		
20:04:06.5 CAM-1	there-there's no # way I'm taking this airplane. ya' know.		
20:04:07.9 CAM-2	yeah.		
20:04:09.4 CAM-1	you know # like that dude. I mean it's just crazy. you know.		
20:04:18.4 CAM-1	you gotta put your foot down because ah.		
20:04:24.2 CAM-2	they're trying to fly your airplane for ya'.		
20:04:25.9 CAM-1	huh?		
20:04:27.1 CAM-2	I said they're gonna try to fly your airplane for ya.		
20:04:28.7 CAM-1	am I too close to ah. **.		

<u>TIME and SOURCE</u>	<u>INTRA-AIRCRAFT CONTENT</u>	<u>TIME and SOURCE</u>	<u>AIR-GROUND COMMUNICATION CONTENT</u>
20:04:46.9 CAM-2	I think you're fine here.		
20:04:48.2 CAM-1	alright.		
20:04:50.3 CAM-2	* (al)right.		
20:04:51.8 CAM-1	you just gotta watch yourself dude. you gottaaahh watch yourself. you know.		
20:04:57.0 CAM-2	yeah my buddy @. that young guy that upgraded.		
20:05:01.8 CAM-2	I don't know what field it was. it was-it was ah [stammers] an airport up in the northeast.		
20:05:07.1 CAM-2	it was right after his upgrade at (Blue Air).		
20:05:08.9 CAM-1	on the one ninety or the three twenty.		
20:05:10.2 CAM-2	on the three twenty.		
20:05:11.3 CAM-2	it was like eight thousand long. ahh eight thousand foot long runway. ah. the braking action was fair to poor.		
20:05:20.6 CAM-2	he was was working with the dispatcher. there's like. you know. they're telling * company traffic gettin' in and out of there no problem. so he landed.		

**TIME and
SOURCE**

INTRA-AIRCRAFT CONTENT

20:05:29.6
CAM-2 all the way down to the end. he said he probably had about one hundred and fifty feet to spare.

20:05:33.3
CAM-2 he said never # again will I ever let them push me into a corner.

20:05:35.2
CAM-1 exac-exactly.

20:05:37.1
CAM-2 he said it scared the # out of him.

20:05:38.5
CAM-1 you can't-can't do it dude. ** ah. they're not there. they don't know. they don't (really know).

20:05:42.7
CAM-2 right. yeah.

20:06:08.8
CAM-1 this # wind is killing us bro. we're tracking three zero zero. right. and I got two ninety dialed in.

20:06:18.0
CAM-2 eighty knots off the...

20:06:19.3
CAM-1 yeah.

20:06:19.7
CAM-2 ...left side.

**TIME and
SOURCE**

AIR-GROUND COMMUNICATION CONTENT

20:05:56.7
ATC [stepped on unintelligible transmission, followed by clear, static-free transmissions]

**TIME and
SOURCE**

INTRA-AIRCRAFT CONTENT

20:06:19.9

CAM-1 crazy right.

20:06:30.0

CAM-1 yeah they do that. they-they-they they're very like- they're very pushy.

20:06:36.0

CAM-2 I think a lot of the dispatchers are pretty-pretty junior too. pretty young. you know.

20:06:38.5

CAM-1 they are. they are.

20:06:41.1

CAM-2 cheap labor.

20:06:42.3

CAM-1 yeap.

20:06:47.6

CAM-1 you know Jet-. like the problem with JetBlue. is * like. you go to the chief pilot's office. you know. it was a lot different when I first started. now the attitude is. as a captain what I've experienced is. on the (few) (occasions where they asked me what I would do.)

20:07:03.6

CAM-1 their response was. well you're the P-I-C (what are you going to do.)

20:07:07.6

CAM-1 so. when it is convenient for them. then you're the P-I-C. (and it's your decision to make). * but if you make a decision they don't agree with. all of sudden it is not yours to make.

**TIME and
SOURCE**

AIR-GROUND COMMUNICATION CONTENT

20:07:07.7

CTR-DEN attention all aircraft ** convective SIGMENT one central. five central. six central. eight central. nine central. and two west. all available on HIWAS flight service (frequency) [clear, non-staticky].

<u>TIME and SOURCE</u>	<u>INTRA-AIRCRAFT CONTENT</u>
20:07:18.3 CAM-1	see what I mean?
20:07:18.9 CAM-2	yeah.
20:07:19.4 CAM-1	they-they want to play both sides.
20:07:21.3 CAM-1	you know. so. my position is. no-no. I'm the P-I-C. I'm the P-I-C. for better or for worse I'm going to make a decision. you know.
20:07:31.2 CAM-1	and that's it.
20:08:03.8 CAM	[sound of thunk]
20:08:20.8 CAM	[sound of thunk]

<u>TIME and SOURCE</u>	<u>AIR-GROUND COMMUNICATION CONTENT</u>
20:08:05.4 MISC-AC	Center Delta fifteen fifty one.
20:08:12.1 CTR-DEN	sorry I missed your call sign say again [transmission in clear, no static].
20:08:13.5 MISC-AC	yeah Delta fifteen fifty one. ah a little bit of weather at Sidney. can we get ah ten left and then just ah probably go by Sidney to ah Gill [transmission in clear, no static].
20:08:23.7 CTR-DEN	Delta fifteen fifty one roger or I can give you some deviations (to) Bryce Canyon if that would help out at all [transmission in clear, no static].

**TIME and
SOURCE**

INTRA-AIRCRAFT CONTENT

20:09:14.2
CAM-2 knocked around here a little bit.

20:09:16.4
CAM-1 yeah. I'm gonna go left.

20:09:22.4
CAM [sound of single chime, similar to passenger call chime overheard from cabin]

**TIME and
SOURCE**

AIR-GROUND COMMUNICATION CONTENT

20:08:29.8
MISC-AC ah standby [transmission in clear, no static].

20:08:35.4
ATC [Denver Center communicates with other aircraft deviating around weather. clear, non-staticky.]

20:08:56.3
MISC-AC and Center Delta fifteen fifty one [transmission in clear, no static].

20:08:58.6
CTR-DEN go ahead [transmission in clear, no static].

20:08:59.1
MISC-AC yeah it looks better actually going around ah Sidney to Gill [transmission in clear, no static].

20:09:04.0
CTR-DEN fifteen fifty one roger so ah deviations ah left or right of course approved and Gill when able [transmission in clear, no static].

20:09:08.7
MISC-AC Delta fifteen fifty one roger thanks [transmission in clear, no static].

20:09:34.9
ATC [unintelligible airline flight 9920 requests to deviate for weather; clear, no static]

**TIME and
SOURCE**

INTRA-AIRCRAFT CONTENT

20:09:54.6
CAM [sound of two low-level thunks]

20:09:55.1
CAM [sound of three higher-level thunks]

20:09:55.9
CAM-1 whoa.

20:09:56.1
CAM-2 God-#.

20:09:57.5
CAM [sound of loud metallic rattle for about 4 seconds]

20:09:59.9
CAM [sound of rumbling thuds for about 4 seconds]

20:10:01.7
CAM [sound of c-chord, similar to altitude alert]

20:10:02.8
CAM-1 #.

20:10:03.8
CAM [sound of scream(s), similar to person(s) in cabin]

**TIME and
SOURCE**

AIR-GROUND COMMUNICATION CONTENT

20:09:52.1
CTR-DEN * forty four seventy seven contact Denver Center one two--
[transmission cuts out mid-word] [very little static]

20:09:56.1
ATC [nearly unintelligible staticky transmission by another aircraft]

20:10:03.0
ATC [miscellaneous aircraft on radio, little to no static]

**TIME and
SOURCE**

INTRA-AIRCRAFT CONTENT

20:10:04.2
CAM [sound of cavalry charge, similar to autopilot disconnect]

20:10:07.0
CAM [sound of scream(s), similar to person(s) in cabin for about 7 seconds]

20:10:08.2
CAM [sound of cavalry charge, similar to autopilot disconnect]

20:10:11.6
CAM-2 we're goin' down.

20:10:12.0
CAM [sound of cavalry charge, similar to autopilot disconnect]

20:10:13.8
CAM-2 you got it?

20:10:14.4
CAM-1 I got it.

20:10:15.8
CAM-1 * stabilize it.

20:10:16.2
CAM [sound of cavalry charge, similar to autopilot disconnect]

**TIME and
SOURCE**

AIR-GROUND COMMUNICATION CONTENT

20:10:06.0
ATC [staticky, short, intelligible transmission from unknown source]

20:10:10.7
CTR-DEN JetBlue four seventy one contact Denver Center one two zero point five seven [staticky transmission].

20:10:14.5
MISC-AC two zero five seven JetBlue four seventy one [very little static].

**TIME and
SOURCE**

INTRA-AIRCRAFT CONTENT

20:10:19.7
CAM [sound of c-chord for 8.3 seconds, similar to altitude alert]

20:10:20.6
CAM-2 alright.

20:10:21.2
CAM-1 (alright man. autopilot one on) [alternative to "autopilot one on" may be "autothrottle on"].

20:10:22.2
CAM [sound of loud snap]

20:10:23.0
CAM-1 give me ah three one oh.

20:10:25.8
CAM-2 three one oh?

20:10:26.6
CAM-1 three one oh.

20:10:39.4
CAM [sound of loud thunk]

**TIME and
SOURCE**

AIR-GROUND COMMUNICATION CONTENT

20:10:29.0
RDO-2 JetBlue ah four seventy one. ah we're ah in the descent back down to ah three two zero.

20:10:35.5
CTR-DEN that was JetBlue four twenty nine [clear, no static].

20:10:38.0
RDO-2 yeah I'm sorry JetBlue four twenty nine [clear, no static].

20:10:40.4
CTR-DEN roger. is everything alright (over) there [clear, no static].

**TIME and
SOURCE**

INTRA-AIRCRAFT CONTENT

20:10:40.6

CAM-1 alright.

20:10:42.1

CAM [sound of three knocks]

20:10:42.6

CAM-1 no.

20:10:46.1

CAM [sound of low-level thunk]

20:10:50.6

INT-4 hey.

20:10:51.4

INT-5 hey.

20:10:52.7

INT-4 hello.

20:10:53.7

INT-1 you guys okay?

20:10:54.4

INT-4&5 no we (all) hit the ceiling. no [two flight attendants talk at same time, while first officer talking on radio in overlap with intercom recording].

20:10:56.1

INT-1 what.

**TIME and
SOURCE**

AIR-GROUND COMMUNICATION CONTENT

20:10:43.2

RDO-2 ah we just went through ah just the corner of a massive cell. ah. we just thought we were gonna shave the edge but it t-took us up pretty high. so anyway we're on the way back down right now. we're in the clear for sure and ah we'll need to deviate up ahead.

**TIME and
SOURCE**

INTRA-AIRCRAFT CONTENT

20:10:56.6
INT-4 @'s bleeding. we all hit the ceiling.

20:10:58.6
INT-5 I hurt my ankle [heavy breathing].

20:11:01.3
CAM-1 we got some c- we got some ah...

20:11:03.4
CAM-2 we got somebody down?

20:11:03.8
INT-5 oooh [heavy breathing] [voices in background].

20:11:03.9
CAM-1 ...some injuries.

20:11:05.2
CAM-2 alright.

20:11:05.5
CAM-1 was that my fault?

20:11:07.0
INT-4 and we can't even walk in the cabin.

20:11:07.0
CAM-2 no-no you-you were making (the) turn.

20:11:10.4
INT-1 ah I'm comin' out. can you set up.

**TIME and
SOURCE**

AIR-GROUND COMMUNICATION CONTENT

20:10:58.0
CTR-DEN JetBlue four twenty nine roger [clear, no static].

**TIME and
SOURCE**

INTRA-AIRCRAFT CONTENT

20:11:12.5
INT-4&5 I don't know if we can- we'll try and get up front [two flight attendants talk at same time].

20:11:14.4
INT-1 how-how bad are the injuries?

20:11:16.0
INT-4&5 oh I don't. @'s bleeding. like [two flight attendants talk at same time].

20:11:18.5
INT-1 what?

20:11:19.5
INT-4 @'s b-bleeding really bad.

20:11:21.2
INT-5 yeah and (my) ankle twisted when...when we hit the floor.

20:11:21.5
INT-1 #.

20:11:25.0
INT-1 alright. ah can somebody setup.

20:11:26.7
INT-4 we're gonna try and get up front.

**TIME and
SOURCE**

AIR-GROUND COMMUNICATION CONTENT

20:11:27.8
CTR-DEN JetBlue four twenty nine did you have any injuries or anything. was that a sharp ah increase in the altitude orrr-or is everything alright? [clear, no static].

20:11:34.0
RDO-2 ah we do ah currently ah have some injuries on board. we're-we're trying to find out exactly ah what-what's going on in the back we'll ah we'll give you guys a call back shortly once we have a better understanding of what's going on.

**TIME and
SOURCE**

INTRA-AIRCRAFT CONTENT

20:11:40.6
CAM [sound of snap]

20:11:45.3
CAM-1 you see that coming dude?

20:11:46.4
CAM-2 no-no-no I didn't. I had but you had to- you told them. you told them to be seated.

20:11:50.7
CAM-1 was'it- was that my fault?

20:11:52.7
CAM-2 no I didn't think it was gonna' be that bad. yeah I did not consider bad on the edge.

20:11:57.6
CAM-1 can I open the door you think?

20:11:58.7
CAM-2 what's that?

20:11:59.0
CAM-1 can I open the door you think?

20:12:00.4
CAM-2 uhmm let's just think through this for a second.

20:12:03.7
CAM-2 we're at thirty- okay we're at thirty three and a half.

**TIME and
SOURCE**

AIR-GROUND COMMUNICATION CONTENT

20:11:55.5
ATC [Alaska 791 requests "a little bit north" of direct Billings for weather for the next 20 miles. deviations left and right of course were approved. clear, no static].

<u>TIME and SOURCE</u>	<u>INTRA-AIRCRAFT CONTENT</u>	<u>TIME and SOURCE</u>	<u>AIR-GROUND COMMUNICATION CONTENT</u>
20:12:03.9 CAM-1	**.		
20:12:06.9 CAM-1	** we're at thirty one right now. was that. tell-tell me as a pilot. I mean I can't avoid everything dude. is that my fault?		
20:12:13.7 CAM-2	no. I-I thought we were going to be totally fine.		
20:12:15.8 CAM-1	I was deviating through the corner of it. right.		
20:12:17.2 CAM-2	yeah right.		
20:12:18.6 CAM-2	yeah.		
20:12:19.0 CAM-1	alright.		
20:12:20.4 CAM-2	here's the deal (on it) so.		
20:12:21.2 CAM-1	(kay).		
20:12:22.8 CAM-1	you have control.		
20:12:22.9 CAM-2	(look what we got) up ahead.		
20:12:23.8 CAM-1	you have control.		

**TIME and
SOURCE**

INTRA-AIRCRAFT CONTENT

20:12:24.5
CAM-2 okay I have control.

20:12:25.6
CAM-1 do you think I can go out right now before they setup?

20:12:28.2
CAM-2 I would-would say. I would say-

20:12:29.7
CAM-1 I wa-

20:12:31.4
CAM-2 call-call back is there a flight attendant that's safe. see if there's a doctor on board. there's always a doctor on board.

20:12:37.7
CAM-1 dude I'm goin' out.

20:12:38.5
CAM-2 alright.

20:12:42.1
CAM-1 you got it?

20:12:42.7
CAM-2 yeah I have control of everything.

20:12:43.2
CAM-1 (do you need to go out?).

**TIME and
SOURCE**

AIR-GROUND COMMUNICATION CONTENT

20:12:44.1
MISC-AC Denver Alaska seven ninety one where was the JetBlue that updraft?
[clear, no static].

**TIME and
SOURCE**

INTRA-AIRCRAFT CONTENT

20:12:44.3

CAM-2

I mean I. you know without somebody up h- I mean I know you want to help out. but I wonder what we're going to be able to do. I-I would definitely just check and see if there is a doctor on board.

20:13:03.3

CAM-1

ah do me a favor.

20:13:04.4

CAM-2

yeah.

20:13:06.6

CAM-2

what do you need. I-I-I'm flying the airplane. I'll communicate with ATC.

20:13:08.6

CAM-1

alright I got it. I got it.

20:13:11.8

CAM-2

come'in right.

**TIME and
SOURCE**

AIR-GROUND COMMUNICATION CONTENT

20:12:51.7

CTR-DEN

seven ninety one sorry I was coordinating uh contact Denver Center one three three point six seven. [clear, no static].

20:12:55.7

MISC-AC

thirty three sixty seven and uh and where was that JetBlue that had the big updraft? [Alaska 791 talking] [clear, no static].

20:12:59.6

CTR-DEN

seven ninety one probably about your two o'clock and 60 miles or so [slight static].

20:13:13.1

RDO-2

and Center JetBlue ah four twenty nine ah we're still at thirty three and a half. we're deviating right. and we're going to descend to ah [static] flight level three- back down to three two zero if that's okay.

**TIME and
SOURCE**

INTRA-AIRCRAFT CONTENT

20:13:27.5

CAM-1 alright. let's declare an emergency dude.

20:13:29.7

CAM-2 alright. we're gonna have to divert. yeah.

20:13:30.2

CAM-1 emergency right now- [sound of three knocks, similar to knocking on cockpit door]

20:13:32.3

CAM-2 yeah.

20:13:33.3

CAM [sound of two clicks, similar to cockpit door opening]

20:13:39.3

CAM [sound of loud clap, similar to cockpit door closing]

**TIME and
SOURCE**

AIR-GROUND COMMUNICATION CONTENT

20:13:28.1

ATC [unintelligible staticky reception on radio]

20:13:41.4

CTR-DEN JetBlue four twenty nine contact Denver Center one three three point six seven and let them know *** [staticky transmission, nearly unintelligible]

20:13:47.9

RDO-2 thirty three sixty seven we'll call [static] them JetBlue four twenty nine.

20:13:56.6

ATC [unintelligible staticky reception on radio]

20:14:06.7

RDO-2 Center JetBlue four twenty nine.

**TIME and
SOURCE**

INTRA-AIRCRAFT CONTENT

20:14:19.2
PA-3 ladies and gentlemen is there (a) medical professional on board.

20:14:23.6
PA-3 *** [obscured by RDO-2 communication on CVR].

20:14:33.9
PA-3 *** [obscured by RDO-2 communication on CVR].

20:14:48.2
CAM [sound of two thunks]

**TIME and
SOURCE**

AIR-GROUND COMMUNICATION CONTENT

20:14:09.2
CTR-DEN JetBlue four twenty nine Denver Center roger **understand ** injuries
** [unintelligible staticky reception on radio].

20:14:21.1
RDO-2 Center can you hear JetBlue four twenty nine?

20:14:23.3
CTR-DEN JetBlue four twenty nine Denver. how do you hear me? [clear, no static]

20:14:25.1
RDO-2 yeah we got you loud and clear now. deviating to the right. uhm. we're at ah thirty three and a half if it's okay we're gonna we're just gonna stick it out right here. uh we'll descend to thirty two here shortly. clear of some weather. declaring an emergency. we're gonna have to have to. ah we'll have to come up with a diversion plan here pretty shortly. we got ah flight attendant(s) I believe injured ah on board in the back.

20:14:47.0
CTR-DEN JetBlue four twenty yeah I heard that severe turbulence did that. ah Rapid City is right in front of you that might be a good divert location. they've got ah fairly good size airport. runways. and ah medical facilities I believe. I don't know if that's an option you're willing to look at. [clear, no static]

**TIME and
SOURCE**

INTRA-AIRCRAFT CONTENT

20:15:53.8
PA-1 hey folks how you doin'. everyone alright?

**TIME and
SOURCE**

AIR-GROUND COMMUNICATION CONTENT

20:15:02.1
RDO-2 okay ah Rapid City let's start heading that way uh for JetBlue ah four twenty nine if you can give me ah a vector for now and a descent. I'll start getting a plan together up here.

20:15:13.0
CTR-DEN JetBlue four twenty nine uhm whenever you're ready. Rapid-Rapid City ** romeo alpha papa. straight in front of you about your eleven to twelve o'clock and seventy six miles. if you can get lower take you in there. [staticky, almost unintelligible transmission]

20:15:27.1
RDO-2 okay that was all broken for JetBlue four twenty nine.

20:15:33.0
CTR-DEN JetBlue four twenty nine how do you hear me now? [staticky, almost unintelligible transmission]

20:15:36.1
RDO-2 ah you're still pretty broken.

20:15:40.6
CTR-DEN JetBlue four twenty nine how about now. [staticky, almost unintelligible transmission]

20:15:43.5
RDO-2 yeah you're about two by five for JetBlue four twenty nine.

20:15:46.2
CTR-DEN JetBlue four twenty nine Rapid City is about your eleven- [transmission cuts out] -seven five miles let me know when you can [transmission cuts out] (started) down for it. [staticky, almost unintelligible transmission]

**TIME and
SOURCE**

INTRA-AIRCRAFT CONTENT

20:15:57.3

PA-1

okay good. so uh yeah. we hit some ah unexpected turbulence there. (apparently) we're going to have to declare an emergency. we have an injured flight attendant in the back.

20:16:12.0

PA-1

so ah we're going to have to ah divert- [cut off by overlap with radio communications on the same CVR channel].

20:16:19.5

PA-1

alright we're gonna to figure ah out where we're going to go. what we're going to do.

**TIME and
SOURCE**

AIR-GROUND COMMUNICATION CONTENT

20:15:56.5

RDO-2

okay I believe you said Rapid City is ah seventy five miles ah. in front of us?

20:16:02.0

CTR-DEN

affirmative.

20:16:03.6

RDO-2

yeah we can start the descent now. if ah need-be we can hold or whatever we need to do to get ah to get the aircraft ah descended. but ah yeah we'll head direct to Rapid City now.

20:16:14.0

CTR-DEN

JetBlue four twenty nine cleared to the Rapid City Airport via direct and descend and maintain flight level two seven zero. [staticky, almost unintelligible transmission]

20:16:18.6

RDO-2

descending to flight level two seven zero. and ah we'll start heading direct to Rapid City. just to verify the ah the alphanumerics for that.

20:16:26.0

CTR-DEN

romeo alpha papa [nearly unintelligible staticky reception on radio]

**TIME and
SOURCE**

INTRA-AIRCRAFT CONTENT

20:16:29.0
CAM [sound of ratcheting, similar to rotary dial being turned]

20:16:30.1
CAM-2 damn this is the worst case scenario.

20:16:35.3
CAM [sound of cavalry charge, similar to autopilot disconnect]

20:16:38.8
CAM-2 ** P-A.

**TIME and
SOURCE**

AIR-GROUND COMMUNICATION CONTENT

20:16:32.8
ATC [unintelligible staticky reception on radio]

20:16:42.0
ATC [nearly unintelligible staticky reception on radio related to other aircraft]

20:17:06.0
CTR-DEN JetBlue four twenty nine I'm expecting you want ah (medical personnel waiting for you on the runway there or do you want any other type of services). [nearly unintelligible staticky reception]

20:17:14.1
RDO-2 do you have another frequency for JetBlue four twenty nine?

20:17:17.1
CTR-DEN JetBlue four twenty nine. this frequency. I'm wondering do you want any medical services or anything at the gate for ya'? [nearly unintelligible staticky reception]

20:17:24.3
RDO-2 JetBlue four twenty nine you're completely unreadable. do you have another frequency?

**TIME and
SOURCE**

INTRA-AIRCRAFT CONTENT

20:17:43.7
CAM [sound of thunk, thunk]

20:18:09.6
CAM-2 we're headed to Rapid City and I'm going to need your help to setup.
descent two seven oh.

20:18:12.7
CAM [sound of thunk, similar to cockpit door closing]

20:18:14.4
CAM-1 oh I see. not good. she ah. they the. one of the carts fell out and hit
her on the head. she's bleeding. she's conscious. she didn't break
anything. the little girl. is okay. very shaken up. ** up when it happened
I guess...

**TIME and
SOURCE**

AIR-GROUND COMMUNICATION CONTENT

20:17:30.4
CTR-DEN JetBlue four twenty nine how do you hear me now? [nearly
unintelligible staticky reception]

20:17:34.0
RDO-2 you're still very-very broken. barely readable.

20:17:39.0
MISC-AC you want WestJet to-to relay? [staticky]

20:17:41.9
CTR-DEN yeah go ahead and have ah JetBlue four twenty nine come up on one
two seven point niner five. twenty seven ninety five. ***. ***. JetBlue.
***. ** one ***. [nearly unintelligible staticky reception]

20:18:01.8
ATC [American 20 requests to deviate to the north, 40 heading; little to no
static. ATC response staticky.]

20:18:12.8
MISC-AC JetBlue four two nine WestJet thirteen fifty six [staticky].

**TIME and
SOURCE**

INTRA-AIRCRAFT CONTENT

20:18:26.6

CAM-1

...she got thrown around. ahhh blonde girl her ankle hurts. it's bad. **
the toilet came up out of the ground I guess. part of the ceiling is-

20:18:50.2

CAM-1

alright we need to land ah right now.

20:18:51.9

CAM-2

yeah we're going to Rapid City.

20:18:53.3

CAM-1

alright.

20:18:53.7

CAM-2

ah well (I want a) vector now.

**TIME and
SOURCE**

AIR-GROUND COMMUNICATION CONTENT

20:18:21.4

ATC

[unintelligible staticky reception on radio]

20:18:35.4

CTR-DEN

JetBlue four twenty nine. Denver Center [little to no static]

20:18:38.0

RDO-2

yeap. JetBlue four twenty nine ah we can hear you now. five by five.

20:18:41.2

CTR-DEN

JetBlue four twenty nine go ahead and change to twenty seven ninety five. they'll ask you some questions. ** (divert) Rapid City. [little to no static]

20:18:46.7

RDO-2

alright. we got a better understanding of what's going on. twenty seven ninety five. we'll flip the switch.

20:18:55.5

RDO-2

JetBlue four twenty nine is checking in ah twenty eight descending to two seven oh.

**TIME and
SOURCE**

INTRA-AIRCRAFT CONTENT

20:18:55.6
CAM-1 it's not-

20:19:25.3
CAM [sound of two loud thunks, similar to pilot's tray table being manipulated]

20:19:28.7
CAM-1 I mean did I do something wrong?

20:19:30.6
CAM-2 dude. w- you're fine. you're absolute- you can't avoid every single little thing.

**TIME and
SOURCE**

AIR-GROUND COMMUNICATION CONTENT

20:19:01.0
CTR-DEN JetBlue four twenty nine Denver Center descend and maintain one seven thousand. the Rapid City altimeter three zero zero three [clear, no static for the remainder of the transcript].

20:19:06.6
RDO-2 alright one seven thousand. three zero zero three. for JetBlue ah four twenty nine. and ah for right now we're still deviating for weather. can you give us some vectors in the direction of Rapid City and we'll start getting setup.

20:19:17.0
CTR-DEN JetBlue four twenty nine ah fly heading ah two seven five vectors for Rapid City Airport.

20:19:22.6
RDO-2 alright two seven five. ah we're descending to one seven thousand. JetBlue four twenty nine.

20:19:34.9
CTR-DEN JetBlue four twenty nine ah when you get a minute let me know and we can get ah some information from yah.

<u>TIME and SOURCE</u>	<u>INTRA-AIRCRAFT CONTENT</u>	<u>TIME and SOURCE</u>	<u>AIR-GROUND COMMUNICATION CONTENT</u>
20:19:35.3 CAM-1	I mean it was at the edge of it.		
20:19:46.7 CAM-1	what's the identifier for ah Rapid City. you know?		
20:19:47.3 HOT	[sound of thunk]		
20:19:49.9 CAM-2	no I don't. you have to ask.		
20:19:52.1 CAM-1	extreme turbulence.		
20:19:52.7 HOT	[sound of thunk]		
20:19:55.2 CAM-1	yeah the airplane's all # up dude.		
20:19:58.4 CAM-1	the toilet came out. part of the ceiling's up. part of the ah ceiling cracked back there.		
20:20:14.8 CAM-1	I lost control of the airplane man. for like a thousand feet. I was like. you know.		
20:20:18.4 CAM-2	fifteen hundred up. (going once). because the autopilot kicked off right.		
20:20:20.7 CAM-1	yeap.		
20:20:21.2 CAM-2	yeah.		

<u>TIME and SOURCE</u>	<u>INTRA-AIRCRAFT CONTENT</u>
20:20:21.6 CAM-1	it was like. I was like. crazy.
20:20:26.2 CAM-2	ah let's get our plan. our game plan worked out. we'll talk about it *.
20:20:27.7 HOT	[sound of thunk]
20:20:28.9 CAM-1	game plan is I'm going to tell company what's going on.
20:20:29.3 CAM-2	*, *. yeah.
20:20:42.0 CAM-1	I told the passenger- I made an announcement to the passengers.
20:20:45.3 CAM-1	ah everyone is okay except-
20:20:51.6 CAM-2	you got. you know the identifier for Rapid City.
20:20:53.2 CAM-1	no. ask him though *.

<u>TIME and SOURCE</u>	<u>AIR-GROUND COMMUNICATION CONTENT</u>
20:20:34.3 CTR-DEN	JetBlue four twenty nine fly heading two six five.
20:20:37.7 RDO-2	two sixty five JetBlue four twenty nine.
20:20:46.7 CTR-DEN	JetBlue four twenty nine when you get a minute I got some questions for you.

**TIME and
SOURCE**

INTRA-AIRCRAFT CONTENT

20:21:16.6
CAM-1 romeo alpha papa.

20:21:21.6
CAM-2 alright do you just wanna. you wanna hold up ahead?

20:21:24.3
CAM-1 no I want to land.

20:21:25.7
CAM-2 what's that-

20:21:26.0
CAM-1 I want to land the airplane.

**TIME and
SOURCE**

AIR-GROUND COMMUNICATION CONTENT

20:20:56.2
RDO-2 JetBlue four twenty nine roger. uhm. we couldn't get the alphanumerics for Rapid City. can you give those to us real quick.

20:21:03.0
CTR-DEN JetBlue four twenty nine. say again.

20:21:06.0
RDO-2 the identifier for Rapid City.

20:21:07.8
CTR-DEN JetBlue four twenty nine. ah romeo alpha papa.

20:21:10.7
RDO-2 oh okay. romeo alpha papa. just wanted to verify. JetBlue four twenty nine. as soon as we get this plugged in we'll call you back with all the information.

20:21:16.6
CTR-DEN JetBlue four twenty nine roger and the airport now is twelve to one o'clock and four zero miles.

<u>TIME and SOURCE</u>	<u>INTRA-AIRCRAFT CONTENT</u>	<u>TIME and SOURCE</u>	<u>AIR-GROUND COMMUNICATION CONTENT</u>
20:21:27.5 CAM-1	gonna land and. she needs help.		
20:21:29.4 CAM-2	alright.		
20:21:30.0 CAM-2	it's forty miles ahead. so-		
20:21:31.8 CAM-1	ahh. forty miles we can make it dude.		
20:21:34.5 CAM-2	alright.		
20:21:34.8 CAM-1	just come down. # tell 'em you gotta make an emergency descent.		
20:21:38.4 CAM-1	extreme turbulence. severe injuries. diverting Rapid City. right.		
20:21:41.1 CAM-2	yeap.		
20:21:41.5 CAM-1	yeap.		
20:21:42.6 CAM-1	ah. let's declare an emergency.		
20:21:44.6 CAM-2	yeah. that's been done already.		
20:21:46.3 CAM-1	alright.		

<u>TIME and SOURCE</u>	<u>INTRA-AIRCRAFT CONTENT</u>
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20:21:46.6
CAM-2 uhm. can you plug in Rapid City. you flying?

20:21:49.0
CAM-1 yeah. you're flying dude.

20:21:50.5
CAM-2 alright.

20:21:56.5
CAM-1 R-A-P.

20:21:57.9
CAM-2 R-A-P.

20:22:22.1
CAM-1 are we ah direct something?

20:22:24.2
CAM-2 Rapid City. there's the airport right there.

20:22:32.1
CAM-1 alright what are we (doing).

<u>TIME and SOURCE</u>	<u>AIR-GROUND COMMUNICATION CONTENT</u>
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20:22:09.6
CTR-DEN JetBlue four twenty nine descend and maintain one two thousand.

20:22:12.7
RDO-2 one two twelve thousand for JetBlue four twenty nine. can you please repeat the altimeter.

20:22:16.3
CTR-DEN JetBlue four twenty nine the Rapid City altimeter three zero zero three.

20:22:19.9
RDO-2 three zero zero three JetBlue four twenty nine thanks.

<u>TIME and SOURCE</u>	<u>INTRA-AIRCRAFT CONTENT</u>
20:22:32.7 CAM-2	autopilot's coming off.
20:22:33.7 CAM-1	Rapid City **.
20:22:34.2 CAM	[sound of cavalry charge, similar to autopilot disconnect]
20:22:37.7 CAM-2	and setup for whatever runway is in use. ** the ATIS.
20:22:44.0 CAM-2	you want to get all the performance and everything.
20:22:46.7 CAM-1	yep I'll get all that for you.
20:23:24.7 CAM-1	how come I can't get an arrival out of this # thing.
20:23:29.5 CAM-2	alright. doesn't matter-
20:23:34.1 CAM-1	**.
20:23:39.2 CAM-2	you want to talk to them?
20:23:40.5 CAM-1	** I wish I knew how to do this dude. how do I put # ah-

<u>TIME and SOURCE</u>	<u>AIR-GROUND COMMUNICATION CONTENT</u>
20:23:30.1 CTR-DEN	JetBlue four twenty nine. the Rapid City Airport twelve o'clock two seven miles.

**TIME and
SOURCE**

INTRA-AIRCRAFT CONTENT

20:23:52.7
CAM-1 what the. I can't figure this out. I can't get a ah.

20:24:00.2
CAM-1 why won't this give me a # arrival-

20:24:01.5
CAM-2 go-go-go to the. go back over the white.

20:24:03.5
CAM-1 I did that.

20:24:03.6
CAM-2 arrival. okay.

20:24:04.8
CAM-1 it's like little *.

20:24:11.1
CAM-1 I went new-new waypoint. or new destination.

20:24:15.4
CAM-1 ah K-R-A-P.

20:24:16.4
CAM-2 just put the ah V-O-R in front of it and see if that takes.

20:24:18.7
CAM-1 yeah. let's see if it takes. K-R-A-P. what's the ah * two eighty?

**TIME and
SOURCE**

AIR-GROUND COMMUNICATION CONTENT

20:23:44.7
RDO-2 yeah we're still looking for the field. it's pretty hazy up here. we ah we'll call it when we see it.

20:23:50.0
CTR-DEN JetBlue four twenty nine. ah roger.

**TIME and
SOURCE**

INTRA-AIRCRAFT CONTENT

END OF TRANSCRIPT

20:24:30 CDT

END OF RECORDING

20:54:08 CDT

**TIME and
SOURCE**

AIR-GROUND COMMUNICATION CONTENT

20:24:23.4

CTR-DEN JetBlue four twenty nine contact Ellsworth Approach one one niner point five.

20:24:26.8

RDO-2 nineteen point five JetBlue ah four twenty nine.