

weight 44,400 pounds, takeoff flap setting 20, FLEX 33 takeoff thrust setting (reduced thrust takeoff), V1 (takeoff decision speed) of 127 knots, and Vr (rotation speed) of 128 knots. The captain was the flying pilot for the incident flight.

According to cockpit voice recorder (CVR) information, the flight crew completed the Before Start checklist at 1554:25. (All times in this report are eastern standard time based on a 24-hour clock.) At 1558:51, the captain made a public address announcement indicating that the departure would be delayed about 15 minutes. At 1602:35, the first officer notified the local controller (LC) that the airplane was ready to taxi, and the LC instructed the flight crew to hold the airplane on the ramp. About 1 minute later, the flight crew started a personal conversation (that is, a conversation not pertinent to the operation of the airplane) after setting the parking brake, and this conversation continued until 1607:32 when the LC instructed the flight crew to taxi to runway 23. (The LC was working both the ground and local positions.) Flight data recorder (FDR) data indicated that, 1 second later, the parking brake was released and the airplane began to taxi.

At 1607:40, the captain continued the nonpertinent conversation. At 1608:44, the captain stated, “flaps twenty,” and then called for the Taxi checklist. FDR data indicated that, 1 second later, the flaps moved from the flaps 0 to the flaps 8 position. At 1609:02, the first officer began the Taxi Checklist, during which he stated, “flaps eight,” and the captain responded, “set.” At 1609:08, the first officer continued the checklist, stating, “flaps trims eight degrees,” and the captain responded, “eight.” The first officer completed the Taxi Checklist at 1609:13.

The captain continued the nonpertinent conversation from 1609:19 to 1611:47 when he called for the Before Takeoff checklist. At 1612:01, the first officer began the Before Takeoff checklist. At 1612:05, the LC cleared the airplane for takeoff, and the first officer acknowledged the instruction. (FDR data indicate that the airplane continually taxied from its initial taxi clearance at 1607:38 until its takeoff clearance at 1612:05.) At 1612:18, the first officer continued the Before Takeoff checklist, stating, in part, “takeoff briefing. No questions.” The first officer completed the checklist at 1612:27.

FDR data showed the airplane heading aligning with the runway heading and the engine thrust increasing to takeoff thrust at 1612:50. Three seconds later, the captain asked, “we’re cleared to go right?” and the first officer responded, “yup.” At 1613:06, the captain stated, “set thrust,” and the first officer responded, “thrust set.” Four seconds later, the captain stated, “eighty knots,” and the first officer responded, “checked.”

FDR data showed that, at 1613:20, the flaps position began moving from the flaps 8 toward the flaps 20 position and the speed was about 120 knots. At 1613:21, the first officer stated, “V one,” at which time, the airspeed was about 127 knots. Two seconds later, the CVR recorded the sound of the airplane master warning and then the flaps and spoilers configuration aural alerts. FDR data showed that, at 1613:25, both engine fan speeds began decreasing, the flight and ground spoilers were extended, and both of the captain’s brake pedals were depressed. The airplane reached a maximum airspeed of about 143 knots at 1613:26. At 1613:36, the first officer contacted the LC, stating, “rejecting...off the end of...runway two three.”

At 1613:38, the airplane entered the engineered materials arresting system (EMAS) at an airspeed of about 50 knots, and, about 3 seconds later, it stopped about 128 feet into the EMAS arrestor bed (178 feet from the runway end). (The EMAS is set back 50 feet from the runway end.)

Damage to Aircraft

The flaps, landing gear, and landing gear doors received minor damage.

Personnel Information

The captain, age 38, was hired by PSA Airlines on June 21, 1999. He held an airline transport pilot certificate with airplane multiengine land, Dornier DL 328,

and CL-65 ratings. (CL-65 is the rating given for CL-600 series airplanes.) The captain held a first-class medical certificate dated April 3, 2009, with a limitation that he must “wear corrective lenses.”

PSA Airlines records indicated that the captain had accumulated 9,525 total flight hours, including 4,608 hours as pilot-in-command in the CL-65 airplane. In the 90 days, 30 days, and 24 hours before the incident, the captain had flown 169, 39, and 4 hours, respectively. He received his last proficiency check on February 25, 2009; his last line check on August 6, 2009; and his last recurrent ground training on August 24 and 25, 2009.

The first officer, age 44, was hired by PSA Airlines on July 7, 2007. He held a commercial pilot certificate with airplane single and multiengine land and CL-65 (second-in-command privileges only) ratings. The first officer held a first-class medical certificate dated April 20, 2009, with no limitations.

PSA Airlines records indicated that the first officer had accumulated 3,029 total flight hours, including 1,981 hours in the CL-65 airplane. In the 90 days, 30 days, and 24 hours before the incident, the first officer had flown 249, 103, and 4 hours, respectively. He received his last proficiency check on August 20, 2009, and his last recurrent ground training on August 27 and 28, 2009.

Meteorological Information

Visual meteorological conditions prevailed at the time of the accident. The CRW surface weather observation indicated the following: winds calm, visibility 10 statute miles, scattered clouds at 4,500 feet, broken clouds at 5,500 feet and 8,000 feet, and altimeter setting 29.91 inches of mercury.

Airport Information

CRW is located about 3 statute miles east of Charleston, West Virginia, and sits atop a plateau about 280 feet above the surrounding terrain. Runway 5/23 is grooved asphalt, and it is 6,300 feet long and 150 feet wide and has precision markings and distance remaining signs on the right side. The terrain at the end of runway 23 drops off sharply about 350 feet.

An EMAS was installed at the departure end of runway 23 in September 2007. The EMAS is 170 feet wide and 455 feet long, including a 405-foot-long arrestor bed and a 50-foot-long setback from the runway end. Before installation of the EMAS, the runway end safety area was about 120 feet long.

According to the EMAS manufacturer, the EMAS at CRW is less than 600 feet long, which is the standard Federal Aviation Administration (FAA) EMAS installation; however, it has a standard 70-knot predicted performance for airplanes of similar size and weight to the Bombardier CL-600 (that is, the EMAS at CRW is designed to stop such airplanes if they enter the EMAS bed at 70 knots or less).

Flight Recorders

The airplane was equipped with a solid-state L-3 Communications Fairchild model FA2100 1020 CVR. The CVR was in good condition, and the audio information was extracted from it normally. Although the CVR recording began at 1432:14, the transcript starts at 1554:07 as the flight crew was conducting the Before Start checklist.

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Medical Information

In accordance with Federal regulations, the captain and first officer were tested by PSA Airlines for alcohol and five major drugs of abuse. Both pilots tested negative for drugs and alcohol.

Tests and Research

Accelerate-Stop Calculations

Bombardier computed the total distance required for the incident airplane to accelerate-stop using data from the FAA-approved Airplane Flight Manual. The calculations indicated that the airplane would have stopped about 5,730 feet from the beginning of the takeoff roll if the deceleration had been initiated at the planned V1 (127 knots) assuming an airplane weight of 44,400 pounds, flaps 20, reduced thrust, no thrust reverser, 897 feet elevation, and altimeter setting 29.91 inches of mercury. As noted, runway 23 is 6,300 feet long.

Additional Information

Maintenance Inspections

As a result of the incident, PSA maintenance personnel conducted the following inspections in accordance with the Airplane Maintenance Manual: rejected takeoff, pitot tubes, thrust reverser system, and takeoff configuration system. All system checks were normal.

Sterile Cockpit Procedures

The PSA Airlines Flight Operations Manual (FOM), Section 4.10.11, “Sterile Flight Deck,” states, in part, that, during critical phases of flight, flight crewmembers are prohibited from performing nonessential duties or activities. The FOM stated that critical phases of flight include all ground operations involving taxi, takeoff, and landing, and all other flight operations conducted below 10,000 feet mean sea level except for cruise flight. The FOM stated that essential duties and activities were required for the safe operation of the aircraft and that nonessential duties and activities were not required for the safe operation of the aircraft.

Title 14 CFR 121.542, “Flight Crewmember Duties,” states, in part, the following:

(a) No certificate holder shall require, nor may any flight crewmember perform, any duties during a critical phase of flight except those duties required for the safe operation of the aircraft...

(b) No flight crewmember may engage in, nor may any pilot in command permit, any activity during a critical phase of flight which could distract any flight crewmember from the performance of his or her duties or which could interfere in any way with the proper conduct of those duties. Activities such as eating meals, engaging in nonessential conversations within the cockpit and nonessential communications between the cabin and cockpit crews, and reading publications not related to the proper conduct of the flight are not required for the safe operation of the aircraft.

(c) For the purposes of this section, critical phases of flight includes all ground operations involving taxi, takeoff and landing, and all other flight operations conducted below 10,000 feet, except cruise flight.

Note: Taxi is defined as ‘movement of an airplane under its own power on the surface of an airport.’

FAA Aeronautical Handbook, FAA-H-8083-9A, Chapter 8, “Techniques of Flight Instruction, Sterile Cockpit Rule,” states, in part, the following:

Commonly known as the ‘sterile cockpit rule,’ Title 14 of the Code of Federal Regulations (14 CFR) section 121.542 requires flight crewmembers to refrain

from nonessential activities during critical phases of flight. As defined in the regulation, critical phases of flight are all ground operations involving taxi, takeoff, and landing, and all other flight operations below 10,000 feet except cruise flight. Nonessential activities include such activities as eating, reading a newspaper, or chatting.

The captain stated that he and the first officer had “probably not” maintained a sterile cockpit during the incident taxi. The first officer stated that, when the airplane was moving, the flight crewmembers were not supposed to discuss anything not pertinent to the flight. He stated that he and the captain did not maintain a sterile cockpit.

Flaps Procedures

The PSA Airlines FOM, Section 4.6.5, “Taxi Check (Challenge & Response, FO Flow),” provides the following information:

Once clear of the ramp area, the captain was to call for the flaps to be set and state what the flap setting should be. The F/O [first officer] was to perform the “Taxi Flow” prior to commencing the Taxi Checklist. The “Taxi Flow” called for the F/O to set the flaps to the takeoff setting. The second item on the Taxi Checklist called for both pilots to verify the flaps and trim were set for takeoff and state the flap setting and trim setting.

The CL-600 is certified for takeoff flap settings of 8 or 20, and each flap setting has different takeoff performance data (that is, different airspeeds and distances).

The captain stated that, during the Taxi checklist, the flap setting had to be verified by looking at the ACARS to see whether it indicated flaps 20 or flaps 8 and then looking at the Engine Indicating Crew Alerting System (EICAS) to verify that the flaps were properly set. He stated that he was not sure if he took these actions during the incident taxi and that he might have just repeated what the first officer said.

The first officer stated that the captain called for flaps 20 and then the Taxi checklist, which he subsequently performed. He indicated that he was aware that a flaps 20 setting was used for takeoffs at CRW. He stated that, to verify the flap setting, he typically touched the flap handle, looked at the EICAS, and confirmed the ACARS information. He stated that the only time the flap setting was verified was during the Taxi checklist.

Rejected Takeoff Guidance

The PSA Airlines FOM, Section 7.1.2, “Rejected Takeoff,” states, in part, the following:

If the takeoff is rejected with both engines operating, the Captain will retard the thrust levers to reverse while using maximum braking.

PSA Airlines recommends an RTO [rejected takeoff] for any malfunction below 80 knots.

Above 80 knots, an RTO is recommended for items such as:

- Engine failure
- Fire warning
- Aircraft is considered unsafe or unable to fly
- Loss of directional control.

The FOM also stated that either pilot should call, “reject.” A chart in the manual directed the captain to bring the thrust levers to idle, apply maximum braking, and apply maximum reverse thrust consistent with directional control. The chart directed the first officer to make standard landing callouts and notify air traffic

control.

The PSA Airlines FOM, Section 7.8.4, “V1,” states, in part, the following:

V1 is the maximum speed to which an aircraft can accelerate, lose an engine, and either stop or takeoff in the remaining distance.

FAA Advisory Circular 120-62, “Takeoff Safety Training Aid,” defines V1 speed as follows:

a. V1. The speed selected for each takeoff, based upon approved performance data and specified conditions, which represents:

- (1) The maximum speed by which a rejected takeoff must be initiated to assure that a safe stop can be completed within the remaining runway, or runway and stopway;
- (2) The minimum speed which assures that a takeoff can be safely completed within the remaining runway, or runway and clearway, after failure of the most critical engine at a designated speed; and
- (3) The single speed which permits a successful stop or continued takeoff when operating at the minimum allowable field length for a particular weight.

The captain stated that the takeoff was normal until the 80-knot callout when he realized that the flaps were misconfigured. He stated that the incorrect flaps setting would have been a reason to abort the takeoff and that he did not know why he did not call for an RTO at that time. He stated that, when he realized that the flaps were not at the correct setting, he quickly reached over and moved the flap setting from 8 to 20 because he thought this action would solve the problem caused by him missing the misconfiguration earlier. He stated that, as soon as he moved the flaps handle, the airplane warnings alerted and he rejected the takeoff. He stated that he did not think the first officer had called out V1 before he initiated the RTO.

The first officer stated that he did not see the captain move the flaps. The first officer stated that, when they were at about 80 knots, he heard a “click” and a triple chime aural alert and saw “a red indication,” which was the master warning. He stated that, before the aural warnings sounded, he did not notice anything wrong or unusual. He stated that he heard the captain say something and then immediately initiate the RTO. He stated that he thought that the RTO was initiated before reaching V1 and that he knew that an RTO should not occur after reaching V1.

Probable Cause(s)

The National Transportation Safety Board determines the probable cause(s) of this incident as follows.

- (1) The flight crewmembers unprofessional behavior, including their nonadherence to sterile cockpit procedures by engaging in nonpertinent conversation, which distracted them from their primary flight-related duties and led to their failure to correctly set and verify the flaps;
- (2) the captain's decision to reconfigure the flaps during the takeoff roll instead of rejecting the takeoff when he first identified the misconfiguration, which resulted in the rejected takeoff beginning when the airplane was about 13 knots above the takeoff decision speed and the subsequent runway overrun; and
- (3) the flight crewmembers lack of checklist discipline, which contributed to their failure to detect the incorrect flap setting before initiating the takeoff roll. Contributing to the survivability of this incident was the presence of an engineered materials arresting system beyond the runway end.

Transcript of a L-3 Communications FA2100-1020 solid-state cockpit voice recorder, serial number 255402, installed on an PSA Airlines Bombardier CL-600-2B19 (N246PS), that rejected a takeoff into the Engineered Materials Arresting System at Yeager Airport in Charleston, West Virginia.

LEGEND

CAM	Cockpit area microphone voice or sound source
HOT	Flight crew audio panel voice or sound source
RDO	Radio transmissions from N246PS
INT	Aircraft intercom sound source
GND	Radio transmission from the Yeager Airport ground controller
TWR	Radio transmission from the Yeager Airport tower controller
-1	Voice identified as the captain
-2	Voice identified as the first officer
-3	Voice identified as the flight attendant
-4	Voice of unidentified ARFF crew
-5	Voice of unidentified ARFF crew
-?	Voice unidentified
*	Unintelligible word
#	Expletive
@	Non-pertinent word
()	Questionable insertion
[]	Editorial insertion

Note 1: Times are expressed in EST.

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.

INTRA-AIRCRAFT COMMUNICATION

AIR-GROUND COMMUNICATION

**TIME and
SOURCE**

CONTENT

**TIME and
SOURCE**

CONTENT

14:32:14
START OF RECORDING

15:54:07
START OF TRANSCRIPT

15:54:09
CAM-2 fuel pump?

15:54:12
CAM-1 right one's on.

15:54:13
CAM-2 hydraulic pump?

15:54:13
CAM-1 auto on.

15:54:14
CAM-2 doors?

15:54:14
CAM-1 closed and *.

15:54:20
CAM-? **

15:54:22
CAM-1 locked.

15:54:22
CAM-2 beacon?

15:54:23
CAM-1 on.

15:54:23
CAM-2 packs?

15:54:23
CAM-1 off.

INTRA-AIRCRAFT COMMUNICATION

**TIME and
SOURCE**

CONTENT

15:54:24
CAM-2 ignition?

15:54:24
CAM-1 armed.

15:54:25
CAM-2 complete.

15:54:43
CAM [sound of engine start]

15:55:06
CAM [sound of chime]

15:55:06
CAM-2 **.

15:55:07
CAM-1 set.

15:55:07
CAM-2 * electric?

15:55:08
CAM-1 on. checked.

15:55:08
CAM-2 A-P-U?

15:55:09
CAM-1 on.

15:55:09
CAM-2 ignition?

15:55:09
CAM-1 off.

15:55:10
CAM-2 A-P-R?

AIR-GROUND COMMUNICATION

**TIME and
SOURCE**

CONTENT

INTRA-AIRCRAFT COMMUNICATION

AIR-GROUND COMMUNICATION

**TIME and
SOURCE**

CONTENT

**TIME and
SOURCE**

CONTENT

15:55:10
CAM-1 tested armed.

15:55:11
CAM-2 bleeds packs. set and on. anti ice. ** transponder on. down to the line.

15:55:14
CAM-1 * the line.

15:55:15
CAM-2 rudder?

15:55:15
CAM-1 checked.

15:55:16
CAM-2 nosewheel steering?

15:55:17
CAM-1 armed.

15:55:17
CAM-2 * complete.

15:56:03
CAM-1 yeah I don't know why I'm hungry a little.

15:56:20
CAM-1 @ told me she packed me a...peanut butter and jelly sandwich. uh no she didn't ** we were out of bread. #.

15:56:40
CAM-1 they have refrigerators?

15:57:22
CAM-1 I got *.

15:57:40
CAM-2 got clearance. who's tired? * me.

INTRA-AIRCRAFT COMMUNICATION

AIR-GROUND COMMUNICATION

**TIME and
SOURCE**

CONTENT

**TIME and
SOURCE**

CONTENT

15:57:46

CAM-2 he didn't have to work. He just got a job with a Cessna pilot mentor...this guy's a private pilot—a private pilot with an instrument ticket with uh three hundred hours. just bought a Cessna Mustang. my buddy has to go fly with him a thousand hours for the insurance company to fly with him.

15:58:12

CAM-1 oh my gosh.

15:58:14

CAM-2 so he's on salary with this guy. [sound of laughter]

15:58:18

HOT [sound of double chime]

15:58:22

INT-2 yes ma'am?

15:58:23

INT-3 we are secure.

15:58:25

INT-2 alrighty thank you.

15:58:26

INT-3 thank you.

15:58:51

PA-1 ladies and gentlemen from the flight deck. just a quick update as we were making our turnout uh ground control just told us there is a little bit of flow control going into Charlotte. only about a fifteen minute delay. uh should still get you into Charlotte uh probably about ten—five to ten minutes early. they're landing to the south today so that cuts off a little bit of time for us. like I said as for now we should be taking off in fifteen more minutes.

15:59:20

CAM-2 we got to come up with fourteen minutes.

15:59:24

CAM-1 even after the sixteen minutes.

INTRA-AIRCRAFT COMMUNICATION

TIME and SOURCE

CONTENT

15:59:29

CAM-2 what's that?

15:59:38

CAM-2 got to find out if we're gonna swap real quick too.

16:02:00

CAM-1 sorry fella.

16:02:10

CAM-2 **.

16:02:23

CAM-1 you want to tell him we can—we're ready to taxi whenever or we can sit here. so we dont block him.

16:02:59

CAM-1 don't they park like right there?

16:03:02

CAM-2 *.

16:03:33

CAM-1 ohhh boy.

16:03:40

CAM-1 I got pretty # up on uh Saturday.

16:03:46

CAM-2 did you?

AIR-GROUND COMMUNICATION

TIME and SOURCE

CONTENT

16:02:35

RDO-2 and ground Blue Streak four ninety five. we're ready to taxi. You want us to sit here and wait it out or just sit somewhere else?

16:02:41

GND Blue Streak four ninety five you can hold her on the ramp.

16:02:44

RDO-2 okay we'll hold here on the ramp.

INTRA-AIRCRAFT COMMUNICATION

**TIME and
SOURCE**

CONTENT

16:03:48

CAM-1 what's that?

16:03:49

CAM-2 it's uh the 'vette. hold on.

16:03:53

CAM-2 she hasn't been able to take it out since she went on a cruise. * the other day.

16:04:11

CAM-2 ** on here. sounds good. **.

16:04:14

CAM-1 what is it? what kind?

16:04:15

CAM-2 it's an oh four fiftieth anniversary 'vette. convertible.

16:04:18

CAM-1 oh *.

16:04:22

CAM-1 that @ he has one. grey convertible. I don't know what year though.

16:04:31

CAM-2 I probably can do about one ten. ** six point two liter. * six hundred thirty eight horsepower engine and decked it out. Yeah.

16:04:50

CAM-1 seventy five...lot more.

16:04:54

CAM-2 oh yeah [sound of laughter]

16:04:55

CAM-1 wow.

16:04:55

CAM-2 hundred and thirty two.

AIR-GROUND COMMUNICATION

**TIME and
SOURCE**

CONTENT

INTRA-AIRCRAFT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME and SOURCE

CONTENT

TIME and SOURCE

CONTENT

16:04:57
CAM-1 #.

16:04:57
CAM-2 yeah **.

16:05:00
CAM-1 oh my gosh.

16:05:01
CAM-2 I could buy hers...and hers is in showroom condition. I mean it's mint. there's nothing wrong with it. mileage is good. I mean 'cause it doesn't get—it don't get driven in the fog. it don't get driven in the rain. It's a fair-weather car.

16:05:15
CAM-1 yeah yeah.

16:05:18
CAM-2 doesn't have much mileage on it either...if she was selling it blue book on it I could pick it up for * thirty...if she loses her job in march or may I * be buying it. by then I'll be in a position where I could take—take over the payments. that's all she wants. so that means I could get it for twenty one.

16:05:39
CAM-1 wow.

16:05:40
CAM-2 but I'd let her buy it back if she ever got a job.

16:05:45
CAM-1 um this girl I dated in high school—I went to the prom with her. her dad drove us in their own Rolls Royce.

16:05:54
CAM-2 really?

16:05:54
CAM-1 he was our chauffer in their Rolls Royce.

16:05:56
CAM-2 that's cool.

INTRA-AIRCRAFT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME and SOURCE

CONTENT

TIME and SOURCE

CONTENT

16:05:57

CAM-1 he uh he had like some business he sold for millions of dollars you know so he was like in his forties or something and retired. so they had their house—they had an indoor swimming pool. and they had their big barn. and in the barn it was filled with Corvettes and Jaguars um like the Rolls was in there. each kid on their sixteenth birthday got a nineteen sixty something red convertible Corvette. * and uh two boys two girls. um @ was her name. she would drive a different Corvette to school every day— or a Jaguar or whatever just every day she'd drive a different car **.

16:06:38

CAM-2 I can see having one toy. our dream house has a ten car garage. I mean it'd be her 'vette in one bay. I want a uh twenty twelve is when the new convertible Cameros are supposed to come out. Supersport. uh silver with a black racing stripe and a black ragtop. and then uh gotta have some kind of truck.

16:07:07

CAM-1 yeah.

16:07:08

CAM-2 and then uh you know the boat and stuff. It's separate—the two car garage is attached to the house. yeah yeah we have a lot of fun. We used to go out **.

16:07:13

CAM-1 yeah oh my God.

16:07:19

CAM-1 well act—yeah yeah I'd like to have a three car garage. and then I would like to have a uh two car barn garage but where to like you could pull two cars in—three cars in.

16:07:32

GND Blue Streak four ninety five taxi to runway two three via bravo and alpha.

16:07:37

RDO-2 two three via bravo and alpha Blue Streak four ninety five.

16:07:40

CAM-1 you know what I mean. It'd be two cars deep.

INTRA-AIRCRAFT COMMUNICATION

AIR-GROUND COMMUNICATION

**TIME and
SOURCE**

CONTENT

**TIME and
SOURCE**

CONTENT

16:07:42
CAM-2 yeah.

16:07:43
CAM-1 so I guess really that'd be three and four that's seven.

16:07:48
HOT-2 well we were just talking about where you could you know...get 'em in side by side.

16:07:53
HOT-1 yeah.

16:07:55
HOT-2 yeah when you're ready.

16:07:56
HOT-1 yeah.

16:08:01
HOT-2 but we're gonna have one bay that was like...a quasi maintenance bay where you could go * there's a pit to go underneath it to change the oil and stuff.

16:08:10
HOT-1 oh my God.

16:08:11
HOT-2 with a pressure washer in the pit so you could pressure wash the bottom of the car if there's any salt grime or anything like that.

16:08:15
CAM [sound of engine start]

16:08:17
HOT-1 oh my gosh. [sound of laughter]

16:08:17
HOT-2 oh yeah we dream up some big #. if you're gonna dream, dream big. I still haven't gotten a gate reply on this. that's pissing me off.

INTRA-AIRCRAFT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME and SOURCE

CONTENT

16:08:38

HOT-1 clear left.

16:08:39

HOT-2 clear right. generators electrics on. checked. A-P-U's on. ignition's off. bleeds packs set and on. anti ice checked not required. delayed items complete.

16:08:44

HOT-1 flaps twenty. taxis.

16:08:45

CAM [sound similar to flap handle movement]

16:08:57

HOT-2 we're up.

16:09:02

HOT-2 takeoff data forty four thousand pounds. flaps eight twenty seven twenty eight thirty four seventy three eighty seven point eight set.

16:09:08

HOT-1 set.

16:09:08

HOT-2 flaps trims eight degrees green. seven point six.

16:09:12

HOT-1 eight green seven point six.

16:09:13

HOT-2 flight controls checked. nav aids autotuned. thrust reversers armed. taxi checklist complete.

TIME and SOURCE

CONTENT

16:08:45

GND Blue Streak four ninety five change my frequency one two five point seven. Charleston altimeter two niner niner one. wind calm.

16:08:51

RDO-2 twenty nine— excuse me twenty five seven and uh we got lima.

INTRA-AIRCRAFT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME and SOURCE

CONTENT

TIME and SOURCE

CONTENT

16:09:19
HOT-1 yeah cause— see I would like to have you know like a three car attached to my house.

16:09:23
HOT-2 uh-huh.

16:09:23
HOT-1 just so that you know @ parks I park and then I get my car that you know that I don't really touch ever. you know what I mean like the nice whatever kind of car.

16:09:32
HOT-2 yeah...yeah.

16:09:35
HOT-1 and then I'd like to have a barn...cause then like above like the top floor you could have kind of like a guest area you know a guest bedroom—.

16:09:45
HOT-2 guest— guest— guesthouse.

16:09:47
HOT-1 yeah a guesthouse. yeah there you go. thanks...um I can go all the way down right? I guess so.

16:09:52
HOT-2 um-hum.

16:09:54
HOT-1 um and then yeah like I said on the bottom is where you know you could pull like the boat jet skis you could have a little workshop.

16:10:02
HOT-2 Forerunners yup.

16:10:03
HOT-1 exactly. all— lawn mowers all your #.

16:10:05
HOT-2 yeah.

INTRA-AIRCRAFT COMMUNICATION

AIR-GROUND COMMUNICATION

**TIME and
SOURCE**

CONTENT

**TIME and
SOURCE**

CONTENT

16:10:09

HOT-2 but I guess until she wins the lottery or I win the lottery or whatever it won't happen. but it's fun to sit down and talk about stuff like that.

16:10:17

HOT-1 oh yeah.

16:10:20

HOT-1 well I mean if you could get the house that has the three car gar— set that's my thing. I— I— I'd like to get the house with the three car garage and the basement is like the two things that I really want this time. a basement even if it's unfinished cause I'd actually enjoy finishing it.

16:10:34

HOT-2 finishing it yourself yeah.

16:10:35

HOT-1 if I could get a basement a three car garage you know a nice living area whatever. then that's fine. as long you know obviously too it's got to have some— a little bit of property I guess.

16:10:46

HOT-2 right.

16:10:46

HOT-1 cause cause then I would eventually I'd like to save up do whatever you know and build that uh like the barn kind of thing to match— to match the house.

16:10:56

HOT-2 oh we talked about you know we want fifteen acres.

16:11:02

HOT-1 #.

16:11:03

HOT-2 the house'll sit kind of in one of the front corners but back up off the road where it can't be seen.

16:11:09

HOT-1 yeah...that's— yeah.

INTRA-AIRCRAFT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME and SOURCE

CONTENT

TIME and SOURCE

CONTENT

16:11:10
HOT-2 and we— she wants a road track built on the property.

16:11:14
HOT-1 aww man that'd be cool as #.

16:11:14
HOT-2 plus she— and then have a uh...she wants a coupe cause she can't take her— there's a road course at the Corvette museum in Bowling Green, Kentucky, but you can't take the ragtops out there.

16:11:22
HOT-1 yeah...ohhh.

16:11:26
HOT-2 it's got to be a coupe. which I mean if the ragtop's got a rollbar— a roll cage in it I don't see what it matters.

16:11:33
HOT-1 yeah yeah.

16:11:34
HOT-2 and she said well— I'd put one in and take it out there.

16:11:45
HOT-2 just need to get hers paid off.

16:11:47
HOT-1 before takeoff checklist.

16:11:52
PA-2 and ladies and gentlemen once again welcome on board flight twenty four ninety five service to Charlotte. this time we're number one for departure should only be about another oh two or three minutes. I'd like to ask Gayle to please have a seat.

16:12:01
HOT-2 takeoff config checks. takeoff fuel quantity balance four seven six oh.

16:12:04
HOT-1 four seven six oh.

INTRA-AIRCRAFT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME and SOURCE

CONTENT

16:12:18
HOT-2 brake temperture check. fuel cross flow is manual off. windshield heat low. flight attendants been advised. transponder T-CAS on and auto. takeoff briefing. no questions.

16:12:23
HOT-1 mine two three.

16:12:24
HOT-2 ignition anti ice not required. CAS verify checked.

16:12:27
HOT-1 checked.

16:12:27
HOT-2 before takeoff check's complete. final is clear...I did turn this off...yes.

16:12:51
CAM [sound of engine RPM increase]

16:12:53
HOT-1 we're cleared to go right?

16:12:54
HOT-2 yup.

TIME and SOURCE

CONTENT

16:12:05
TWR Blue Streak four ninety five turn left direct Holston Mountain runway two three cleared for takeoff. wind calm. traffic a Cessna on a five mile final for runway two three.

16:12:14
RDO-2 left turn direct Holston Mountain cleared for takeoff Blue Streak four ninety five.

16:12:41
RDO-1 hey just to let you know too uh you've got like a big flock of almost looks like crows down here to the right of uh two three.

16:12:54
TWR Blue Streak four ninety five roger are they uh off the runway?

INTRA-AIRCRAFT COMMUNICATION

**TIME and
SOURCE**

CONTENT

16:13:06

HOT-1 set thrust.

16:13:06

HOT-2 thrust set.

16:13:10

HOT-2 eighty knots.

16:13:11

HOT-1 checked.

16:13:16

CAM [sound similar to flap handle movement]

16:13:20

HOT-1 #.

16:13:21

HOT-2 V one.

16:13:23

HOT [sound of master warning]

16:13:24

HOT-1 oh #.

16:13:25

HOT config flaps. [automated warning]

16:13:27

HOT [sound of master warning]

16:13:29

HOT config spoilers. [automated warning]

AIR-GROUND COMMUNICATION

**TIME and
SOURCE**

CONTENT

16:12:58

RDO-2 yes sir they're off the runway but they're uh flying around.

16:13:03

TWR Blue Streak four ninety five roger. thanks.

INTRA-AIRCRAFT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME and SOURCE

CONTENT

16:13:29
HOT-2 * it.

16:13:31
HOT-1 oh # me.

16:13:32
CAM [sound of engine RPM decrease]

16:13:38
CAM [sound of impact]

16:13:39
HOT [sound of single chime]

16:13:41
HOT-1 oh #.

16:13:46
HOT-1 why the # did I do that?

16:13:50
CAM [sound of three clapping noises]

16:13:53
HOT-1 [sound of loud exhale]

16:14:00
CAM [sound of three clapping noises]

16:14:16
HOT-1 oh #.

TIME and SOURCE

CONTENT

16:13:36
RDO-2 rejecting it off the end of the runway two three.

16:14:14
TWR airport eleven there's a C-R-J that's at the crashpad at the end of runway two three. that's a C-R-J two hundred.

16:14:22
TWR and airport eleven he will need assistance.

INTRA-AIRCRAFT COMMUNICATION

AIR-GROUND COMMUNICATION

**TIME and
SOURCE**

CONTENT

**TIME and
SOURCE**

CONTENT

16:14:27

HOT-2 what do you want me to do Tom?

16:14:30

PA-3 ladies and gentlemen I know the captain will tell us a good story just as soon as—.

16:14:34

HOT-1 come on.

16:14:36

PA-3 * please.

16:14:39

PA-3 —fastened.

16:14:40

HOT-1 come on.

16:14:45

HOT-1 #.

16:14:54

PA-1 and folks from the flight deck uh as for now just please remain with your seatbelts fastened. uh we're talking to uh air— airport uh tower right now.

16:15:04

HOT-1 #.

16:15:50

HOT-1 #.

16:15:51

HOT-2 I'm sorry.

16:16:00

HOT-2 you want 'em shut down?

16:16:02

HOT-1 uh yeah. guess so.

INTRA-AIRCRAFT COMMUNICATION

AIR-GROUND COMMUNICATION

**TIME and
SOURCE**

CONTENT

16:16:10
HOT [sound of chime]

16:16:13
HOT [sound of chime]

16:16:20
CAM [sound of engine RPM decrease]

16:16:21
HOT [sound of chime]

16:16:50
HOT [sound of chime]

16:16:51
PA-1 and ladies and gentlemen from the flight deck once again. I do apologize. I'm sure you all got a bit of a fright there. uh however when we were uh going down the runway we hit a excess of speed but then we got some warnings up front here which we uh rejected the aircraft um obviously we ran out of a little bit of uh runway so we are stuck now in the uh overflight area here. they are sending some uh buses out. they will be deplaning the airplane here shortly. just again as for now please remain seated with your seatbelts fastened until we open the doors and let you all out. thank you.

**TIME and
SOURCE**

CONTENT

16:16:11
TWR and uh Blue Streak how can we assist?

16:16:15
RDO-1 well we're all fine here and everything. we're just gonna need to act— obviously deplane. and uh if you could send some trucks out to uh get the people.

16:16:25
TWR we do have some folks coming out. uh can you shut your engines down?

16:16:28
RDO-1 affirmative. we're doing that now.

INTRA-AIRCRAFT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME and SOURCE

CONTENT

TIME and SOURCE

CONTENT

16:17:37

CAM-1 man did— did we even hit— we hit V one? I don't think we hit V one did we?

16:17:53

CAM-1 well we got config flaps config spoilers. we tried to reject. right?

16:18:02

CAM-2 right.

16:18:05

CAM-2 I tried to get on it with you too. you want me to go out there and wait?

16:18:09

CAM-1 I don't even know what the # we're supposed to do now.

16:18:12

CAM-2 I'll go out there and wait.

16:18:30

CAM-2 * out there yet?

16:18:40

RDO-1 and uh Blue Streak four ninety five we uh we do have it all shutdown and everything. just let us know when uh we can deplane and we'll open the door.

16:18:54

CAM-1 just do an after landing again. make sure we got everything like—.

16:18:57

CAM-2 I— I did everything uh. I left the lights on transponder's off flaps are up probes are off ignition...is uh off anti ice is off A-P-U is on and uh bleeds are set for after. you want me to do shutdown?

16:19:13

CAM-1 # believable.

16:19:15

CAM-2 go through shutdown?

INTRA-AIRCRAFT COMMUNICATION

AIR-GROUND COMMUNICATION

**TIME and
SOURCE**

CONTENT

**TIME and
SOURCE**

CONTENT

16:19:17

CAM-1 well yeah.

16:19:19

CAM-2 parking brake?

16:19:21

CAM-1 sh— should I set it? I guess yeah.

16:19:24

CAM-2 electric?

16:19:28

CAM-1 uh set.

16:19:29

CAM-2 fuel pumps off anti ice off windshield heat's off transponder's off. fuel check valve?

16:19:34

CAM-1 checked.

16:19:34

CAM-2 thrust levers?

16:19:35

CAM-1 shutoff.

16:19:36

CAM-2 passenger signs?

16:19:36

CAM-1 off.

16:19:37

CAM-2 hydraulic pump three A?

16:19:39

CAM-1 off.

16:19:40

CAM-2 beacon?

INTRA-AIRCRAFT COMMUNICATION

AIR-GROUND COMMUNICATION

**TIME and
SOURCE**

CONTENT

**TIME and
SOURCE**

CONTENT

16:19:42
CAM-1 off.

16:19:43
CAM-2 nosewheel steering.

16:19:44
HOT [sound of chime]

16:19:45
CAM-2 C-V-R circuit breaker four D seven?

16:19:53
CAM-2 * how much longer.

16:19:55
CAM-1 uh he's gonna let us know I think when they're there.

16:20:01
CAM [sound of double chime]

16:20:03
INT-3 hello.

16:20:04
INT-1 hey obviously you heard— probably all heard all the # going off?

16:20:09
INT-3 uh actually no. not until you put the brakes on yeah.

16:20:13
INT-1 okay well—.

16:20:15
INT-3 what was it?

16:20:16
INT-1 we got all this config warning stuff and all that so we rejected and uh just pretty much ran out of runway.

16:20:25
INT-3 huh.

INTRA-AIRCRAFT COMMUNICATION

AIR-GROUND COMMUNICATION

**TIME and
SOURCE**

CONTENT

**TIME and
SOURCE**

CONTENT

16:20:25
INT-1 so now we're stuck in this uh thing here. they're sending— here they're—
you could go ahead and open the door.

16:20:31
INT-3 can I get up?

16:20:31
INT-1 yeah yeah you can get up.

16:20:32
INT-3 I can't even see where we are? I have no idea.

16:20:32
HOT [sound of chime]

16:20:33
INT-1 yeah you can get up. yeah.

16:20:35
INT-3 okay. alright.

16:20:37
HOT [sound of chime]

16:20:45
CAM [sound similar to main cabin door opening]

16:21:12
CAM-1 @...hey it's Tom @. I'm #...um well we're going down the runway here in
uh Charleston, West Virginia, and we got a config flap config uh spoiler
and I rejected and uh well long story short um past the runway I'm into
that over thing you know where the airplane sinks into the— into it. uh so
now I don't know what the hell I'm supposed to do cause I've never
obviously had anything like this you know...yeah I'm sitting in the airplane
right now...yeah pretty— yeah yeah...yeah who do I call on that? do I call
chief pilot?

16:22:15
CAM [unintelligible conversation in background]

INTRA-AIRCRAFT COMMUNICATION

AIR-GROUND COMMUNICATION

**TIME and
SOURCE**

CONTENT

**TIME and
SOURCE**

CONTENT

16:22:20
CAM-4 everybody okay? need anything?

16:22:34
CAM-1 okay.

16:22:36
CAM-4 you okay boss?

16:22:37
CAM-1 yeah yeah.

16:22:38
CAM-4 alright.

16:22:41
CAM-1 oh #. I cannot # believe this.

16:22:50
CAM-4 * how many pax you got?

16:22:52
CAM-3 thirty.

16:22:53
CAM-4 thirty.

16:22:53
CAM-3 thirty.

16:22:54
CAM-4 three zero.

16:22:57
CAM-3 twenty nine and a— and a lap child.

16:23:08
CAM-4 whattya say? you say something?

16:23:10
CAM-3 and a baby.

INTRA-AIRCRAFT COMMUNICATION

AIR-GROUND COMMUNICATION

**TIME and
SOURCE**

CONTENT

**TIME and
SOURCE**

CONTENT

16:23:11
CAM-4 you got a baby? he okay?

16:23:15
CAM-4 is that thirty plus a baby?

16:23:18
CAM-3 uh yeah.

16:23:30
CAM-? in a minute.

16:23:43
CAM-3 um...prop up the door? prop this up so the door's not ruined.

16:23:45
CAM-1 yeah yeah sorry.

16:23:53
CAM-1 yeah I guess.

16:23:54
CAM-3 okay I guess I haven't really looked have I?

16:24:00
CAM-1 okay...okay...okay and I call that and talk to somebody there?

16:24:13
CAM [unintelligible conversation in background]

16:24:21
CAM-1 okay....okay...alright um so do I call them or call the company here er?
who— like— I call I mean I call @ or @. I mean obviously neither of them
are gonna answer their phone call er...okay...okay...okay...yeah...um **
out. the flaps were set— yeah.

INTRA-AIRCRAFT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME and SOURCE

CONTENT

TIME and SOURCE

CONTENT

16:25:42

CAM-1 well okay I'm gonna tell you exactly what happened. um well yeah we were— we were flaps eight okay? well uh # the data said flaps twenty...and it was at eight so as we're going down the runway I kind of noticed that so I put it to twenty and then we got config flaps probably I'm sure because they were movin'. so i just figured # okay I'll stop. you know I got config flaps config spoilers so like # you know so I tried to stop and it # went—yeah. so you know how— how am I gonna #— so cause obviously they're gonna come and look at all this # right? they're gonna be able to see it...yeah...no hold on a second. hey everybody's fine right in the back. hey is the gear—the gear hasn't collapsed or anything has it?

16:27:14

CAM-2 no but I want to check some smoky stuff coming out of it.

16:27:16

CAM-1 okay no...thirty and a lap...everybody's fine and the gear's still there.

16:27:30

CAM-1 uh no I think they're— well they're starting to get 'em off right now.

16:27:33

CAM [unintelligible conversation in background]

16:27:41

CAM-1 yeah um so when I call these numbers do I tell them exactly what I told you. pretty much I # up?

16:28:00

CAM-1 yeah...yeah. how # am I gonna be.

16:28:08

CAM-3 slowly down the steps. slowly down the steps. slowly down the steps okay.

16:28:36

CAM-3 um * your bags out. I'm not sure where you're going to meet up with your bags. they'll announce that on the bottom I'm sure...you leave a coat did you say? somebody left a coat?

16:28:38

CAM-1 yeah...yeah.

INTRA-AIRCRAFT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME and SOURCE

CONTENT

16:28:48
CAM-? **.

16:28:50
CAM-? they— they may have got it *.

16:28:57
HOT SELCAL SELCAL. [automated voice]

16:29:00
CAM-1 yeah...

16:29:01
CAM-? thank you @.

16:29:09
CAM-? [sound of laughter in background] I was going home.

16:29:12
CAM [sounds of passengers deplaning]

16:29:24
CAM-1 well yeah I mean...oh brother.

16:29:52
CAM-1 yeah...alright so I'm gonna call dispatch right now. um after I talk to dispatch do I call these numbers? ... okay...

16:30:24
CAM-1 yeah yeah yeah alright...call and talk what?

TIME and SOURCE

CONTENT

16:29:34
TWR Blue Streak four ninety five Charleston Tower. uh you got time for a question?

16:29:48
TWR Blue Streak four ninety five Charleston.

INTRA-AIRCRAFT COMMUNICATION

AIR-GROUND COMMUNICATION

**TIME and
SOURCE**

CONTENT

**TIME and
SOURCE**

CONTENT

16:30:50

CAM-1 yeah...okay...what do I do after I— so I'm gonna call dispatch and tell them that we're stuck obviously okay then I'm gonna call these numbers and talk to ALPA. and then uh what do I do? then do I talk to like scheduling to see what the hell er I'm just gonna get a phone call from @ I'm sure.

16:31:24

CAM-5 sir just just be aware we had smoke coming out of your right wing. so that's why that's why we deplaned the plane so I might come jerk your # out of here. okay?

16:31:32

CAM-1 okay...okay. alright thanks.

16:31:40

CAM-1 yeah okay.

16:31:48

CAM-1 okay...alright well I'll make some phone calls. thanks...okay...alright bye.

16:32:02

CAM-1 okay well I mean so you— so definitely admit to going down the runway seeing that we're at eight and moving it to twenty and then moving it...I mean...okay alright alright.

16:32:42

CAM-1 yeah alright okay thanks alright bye.

16:33:09

CAM-1 hey @ it's Tom @ twenty four ninety five. hey yeah just trying to keep you guys in the loop.yeah we uh had an over— we had an overrun we're in the uh runoff area off the runway or whatever so we're stuck in that...yeah. so yeah yeah yeah. yeah. so we're stuck here obviously and I guess I got a bunch more phone calls to make so but yeah we are stuck here...okay...sure.

16:33:57

CAM-1 * Tom @. uh...yeah and we are in the runoff area at the end of two three...um well we got a— what's it called uh config warnings and stuff and um we just aborted um but everybody's fine onboard. they're actually deplaning. nobody's injured um—.

INTRA-AIRCRAFT COMMUNICATION

AIR-GROUND COMMUNICATION

**TIME and
SOURCE**

CONTENT

**TIME and
SOURCE**

CONTENT

16:34:38

CAM-3 the firemen want us out.

16:34:39

CAM-1 alright. I don't know. hold on a second please. they want us out from the plane right now um...is there anything else you need to know real quick before uh—.

16:34:55

CAM-2 you want to shut it down Tom?

16:34:59

CAM-1 uh no we're— we're stuck in here. I don't what this material is whatever. I think we're stuck...um...I can call you back in a— in a bit here or whatever if that's all right with you.

16:35:22

CAM-2 yes ma'am this is first officer @ with uh P-S-A Airlines...

16:35:25

CAM-1 I'll get it. I'll get it. I'll get it.

16:35:27

CAM-2 ...and uh P-S-A...uh-huh...Robert.

16:35:35

HOT [sound of chime]

16:35:46

CAM-2 yes ma'am...I'm sorry.

16:35:47

CAM-5 captain?

16:35:47

CAM-1 yeah?

16:35:48

CAM-5 I-E-C's asking me is there any possibility ** shut down completely.

16:35:52

CAM-1 that's what I'm doing right now.

INTRA-AIRCRAFT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME and SOURCE

CONTENT

TIME and SOURCE

CONTENT

16:35:53

CAM-5 roger that sir.

16:35:53

CAM-2 **.

16:35:55

CAM-2 @ [phone number] **

16:36:00

CAM-1 ** securing **.

16:36:05

CAM-1 chocks brakes thrust reversers. standby attitude emergency lights. cargo fan packs bleeds. hydraulic quantity hydraulic pump...A-P-U generators off.

16:36:06

CAM-2 I'm on my cell phone...okay uh we just went off the end of the runway in Charleston, West Virginia.

16:36:22

CAM-1 oh wait a minute.

16:36:29

CAM-1 four D seven. where's four D seven?

16:36:34

CAM-1 * down there.

16:36:40

**END OF TRANSCRIPT
END OF RECORDING**