

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



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

**ERA12LA356**

**By  
Bill Tuccio**

**WARNING**

The reader of this report is cautioned that the transcription of a cockpit voice recorder audio recording is not a precise science but is the best product possible from a Safety Board group investigative effort. The transcript or parts thereof, if taken out of context, could be misleading. The transcript should be viewed as an accident investigation tool to be used in conjunction with other evidence gathered during the investigation. Conclusions or interpretations should not be made using the transcript as the sole source of information.

**NATIONAL TRANSPORTATION SAFETY BOARD**

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January 25, 2013

## **Cockpit Voice Recorder - 12**

### **Group Chairman's Factual Report By Bill Tuccio**

#### **A. EVENT**

Location: Hallandale, Florida  
Date: May 23, 2012, 1550 Eastern Daylight Time (EDT)\*  
Aircraft: Canadair CL-600-2B16, N207JB  
Operator: Majestic Jet  
NTSB Number: ERA12LA356

#### **B. GROUP**

A group was convened on September 26, 2012:

Chairman: Bill Tuccio  
Aerospace Engineer  
National Transportation Safety Board

Member: Matt Franzak  
President  
Majestic Jet

Member: Ralph Hansen  
Production Test Pilot  
Bombardier

#### **C. SUMMARY**

On May 23, 2012, about 1550 eastern daylight time (EDT), a Canadair CL-600-2B16, N207JB, was substantially damaged following separation of the main passenger door during climb near Hallandale, Florida. The certificated air transport pilot and co-pilot were not injured. The airplane was registered to a corporation and operated by Majestic Jet Inc. under the provisions of 14 Code of Federal Regulations Part 91 as a positioning flight. Visual meteorological conditions prevailed and an instrument flight rules flight plan was filed. The flight originated at Opa-Locka Airport (OPF), Opa-Locka,

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\* All times are expressed in eastern daylight time (EDT), unless otherwise noted.

Florida and was destined for Pompano Beach Airpark (PMP), Pompano Beach, Florida. A solid-state cockpit voice recorder (CVR) was sent to the National Transportation Safety Board's Audio Laboratory for readout. The CVR group meeting convened on September 26, 2012 and a partial transcript was prepared for 16 minutes and 34 seconds of the 2-hour, 4-minute digital recording (see attached).

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

The NTSB Vehicle Recorder Division's Audio Laboratory received the following CVR:

Recorder Manufacturer/Model: **L-3/Fairchild FA2100-1020**  
Recorder Serial Number: **000244915**

##### **Recorder Description**

Per federal regulation 91.609, multiengine, turbine engine powered aircraft operating under 14 CFR Part 91 must be equipped with a CVR that records a minimum of the last 30 minutes 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 30 minutes or 2 hours of CVR operation, depending on the CVR model. This model CVR, the L-3/Fairchild FA2100-1020, is a solid-state CVR that records 2 hours of digital cockpit audio. Specifically, it contains a 2-channel recording of the last 2 hours of operation and separately contains a 4-channel recording of the last 30 minutes of operation. The 2-hour portion of the recording is comprised of one channel of audio information from the cockpit area microphone (CAM) and one channel that combines three audio sources: the captain's audio panel information, the first officer's audio panel information, and the observer pilot or public address system. The 30-minute portion of the recording contains 4 channels of audio data: one channel for each flight crew, one channel for the CAM audio information, and a fourth channel for the public address or observer pilot.

##### **Recorder Damage**

Upon arrival at the audio 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.

##### **Audio Recording Description**

For the 2-hour portion of the CVR recording, each channel contained good quality<sup>†</sup> audio information. As shown in the table below, the 30-minute portion of the recording consisted of three channels of useable audio information. Each channel's audio quality is indicated in Table 1. Notably, channel number four did not contain any audio information (nor was it required by Federal regulations).

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<sup>†</sup> See attached CVR Quality Rating Scale.

**Table 1: Audio Quality**

<b>Channel Number</b>	<b>Content/Source</b>	<b>Quality</b>
<b>1</b>	Not Used	N/A
<b>2</b>	Captain	Good
<b>3</b>	Captain	Good
<b>4</b>	CAM	Good

### **Timing and Correlation**

Timing on the partial transcript was established using the time of the accident, as supplied by the Investigator-In-Charge (IIC). The IIC reported time of 1547 EDT for separation of the door from the aircraft was correlated with the same event recorded on the CVR at 0129:24.1 CVR Elapsed Time (time from the beginning of the recording). Accordingly, 1417.35.9 was added to CVR Elapsed Time to convert to EDT.

### **Description of Audio Events**

The recording began at 1417:36, as the aircraft was landing at OPF from a prior flight. After landing, only unattended radios were recorded until 1530:26. The partial transcript began at 1530:26 and covered preflight activities, taxi, takeoff, and climb up until the time of door separation at 1547. After the door separated from the aircraft, the crew declared an emergency, executed checklists, and diverted to the Ft. Lauderdale/Hollywood International Airport (FLL). After landing the crew engaged in discussion about the event and made some cell phone calls. The recording ended at 1621:54 as the crew discussed shutting down the auxiliary power unit.

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. The captain did not respond to the invitation. On October 22, 2012, the first officer reviewed the transcript and had no suggested changes.

Bill Tuccio  
Vehicle Recorder Division

## CVR Quality Rating Scale

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

<b>Excellent Quality</b>	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.
<b>Good Quality</b>	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.
<b>Fair Quality</b>	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.
<b>Poor Quality</b>	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.
<b>Unusable</b>	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 L-3/Fairchild FA2100-1020 solid-state cockpit voice recorder, serial number 000244915, installed on a Majestic Jet Bombardier CL-600-2B16 (N207JB), which had the main cabin door separate from the aircraft during flight over Hallandale, Florida.**

## **LEGEND**

<b>CAM</b>	Cockpit area microphone voice or sound source
<b>HOT</b>	Flight crew audio panel voice or sound source
<b>RDO</b>	Radio transmissions from N207JB
<b>APR</b>	Radio transmission from the Miami approach controller
<b>GND</b>	Radio transmission from the Opa-Locka ground controller
<b>TWR</b>	Radio transmission from the Opa-Locka airport tower controller
<b>CLNC</b>	Radio transmission from the Opa-Locka airport clearance delivery controller
<b>ATIS</b>	Automatic Terminal Information Service
<b>-1</b>	Voice identified as the captain
<b>-2</b>	Voice identified as the first officer
<b>-?</b>	Voice unidentified
<b>*</b>	Unintelligible word
<b>#</b>	Expletive
<b>@</b>	Non-pertinent word
<b>( )</b>	Questionable insertion
<b>[ ]</b>	Editorial insertion

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

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

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

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

**TIME and SOURCE**      **INTRA-AIRCRAFT COMMUNICATION CONTENT**

**TIME and SOURCE**      **AIR-GROUND COMMUNICATION CONTENT**

14:17:35.9  
**START OF RECORDING**

15:30:26.2  
**START OF TRANSCRIPT**

15:30:29.0  
**CAM**      [sound of multiple clicks and snaps]

15:30:35.4  
**CAM**      [sound of rustling, similar to paper rustling]

15:30:40.8  
**CAM**      [sound of snaps and clicks]

15:31:06.1  
**CAM**      [sound of clicks and rustling]

15:31:16.8  
**CAM-1**    hey bud. [on phone call, lasts about 1 minute and 8 seconds]

15:31:19.0  
**CAM-1**    how you doing.

15:31:23.0  
**CAM-1**    no we're ah still down here in Miami...we're leaving here in a minute.

15:31:32.5  
**CAM-1**    oh yeah.

15:31:35.0  
**CAM**      [sound of click]

**TIME and  
SOURCE**

**INTRA-AIRCRAFT COMMUNICATION CONTENT**

15:31:38.0

**CAM** [sound of thunk and click, similar to main cabin door closing]

15:31:39.4

**CAM-1** yeah I know.

15:31:41.3

**CAM** [sound of click and thunk, similar to main cabin door closing and latching]

15:31:46.8

**CAM-1** # told 'em the problem is this morning when we got to the airplane they they had the airplane arrested for forty-five minutes somewhere else and they didn't bring it up till like...five minutes before mister B showed up so we were \* scrambling \*.

15:32:00.6

**CAM-1** no the other thing is. [sound of two taps] two twenty doesn't have a the H-F doesn't work and ah they're going to have to stop in Pompano tomorrow. @ is going to be really upsetting because we didn't know. I guess nobody knew about it.

15:32:18.5

**HOT** [sound of clicks, similar to headset movement]

15:32:18.6

**CAM-1** yeah it's it's bull #. that's you know. alright I'll be I'll be over there.

15:32:24.8

**HOT-1** alright. [end of phone call]

15:32:27.4

**CAM** [sound of thunks]

**TIME and  
SOURCE**

**AIR-GROUND COMMUNICATION CONTENT**



**TIME and  
SOURCE**

**INTRA-AIRCRAFT COMMUNICATION CONTENT**

15:32:28.0

**HOT-2** [sound of rustling] clearance is on the same as ground. twenty-one nine.

15:32:29.3

**CAM-1** (did you) get the clearance yet?

15:32:31.4

**HOT-2** nope.

15:32:32.1

**HOT-?** [sound of two exhales, similar to testing microphone]

15:32:47.5

**HOT** [sound of tone, similar to frequency change]

15:32:55.5

**HOT** [sound of tone, similar to frequency change]

**TIME and  
SOURCE**

**AIR-GROUND COMMUNICATION CONTENT**

15:32:34.1

**RDO-2** and clearance two oh seven Juliet bravo like to pick up I-F-R to Pompano please when you're ready.

15:32:41.4

**GND** and the aircraft calling Opa-Locka Ground clearance is now open on one one niner point two.

15:32:45.2

**RDO-2** nineteen two okay thanks.

15:32:56.7

**RDO-2** and clearance two oh seven Juliet bravo like to pick up I-F-R clearance to Pompano please.

**TIME and  
SOURCE**

**INTRA-AIRCRAFT COMMUNICATION CONTENT**

15:33:35.0

**HOT-1** one oh eight. one twenty one. one thirty two.

15:33:38.3

**HOT-2** alright. one twenty one. one oh eight.

15:33:44.6

**HOT-2** one twenty one. one thirty two.

15:33:47.8

**CAM** [sound of clicks and rustles, similar to seatbelts]

15:33:48.3

**HOT-1** want to get the # out of here bud?

15:33:50.3

**HOT-2** yeah baby.

**TIME and  
SOURCE**

**AIR-GROUND COMMUNICATION CONTENT**

15:33:01.1

**CLNC** alright November two zero seven Juliet bravo Opa-Locka Clearance cleared to Pompano airport via radar vectors maintain two thousand expect three thousand one zero minutes after departure. departure frequency one two eight point six. squawk four five three seven.

15:33:19.8

**RDO-2** okay ah cleared to the Pompano Airport via radar vectors two thousand initially up to three thousand ten minutes after departure. twenty eight point six and four five three seven for two oh seven Juliet bravo thanks.

15:33:31.2

**CLNC** Challenger seven Juliet bravo. read back correct sir.

**TIME and  
SOURCE**

**INTRA-AIRCRAFT COMMUNICATION CONTENT**

15:33:52.5

**HOT-2** two thousand initially.

15:33:58.0

**HOT-1** Orion people.

15:33:59.4

**HOT** [sound of clicks and rustles, similar to headset movement]

15:34:01.9

**HOT-2** four five three seven. four five three seven.

15:34:03.0

**HOT-1** clear right?

15:34:04.2

**HOT-2** and we are clear on the right.

15:34:06.4

**HOT** [sound of multiple clicks]

15:34:18.0

**CAM** [sound of motor increasing, similar to engine starting]

15:34:19.6

**HOT-1** what departure frequency?

15:34:21.5

**HOT-2** ah twenty eight point six.

15:34:23.0

**HOT-1** twenty eight six?

**TIME and  
SOURCE**

**AIR-GROUND COMMUNICATION CONTENT**

**TIME and SOURCE**      **INTRA-AIRCRAFT COMMUNICATION CONTENT**

15:34:23.8  
**HOT-2**    yep.

15:34:26.5  
**HOT-1**    let me get the flight plan setup.

15:34:29.2  
**CAM**      [sound of snap]

15:34:30.3  
**HOT-2**    nope. whoop.

15:34:30.7  
**HOT-2**    doah...sorry.

15:34:30.8  
**HOT**      [sound of high pitch tone]

15:34:34.3  
**HOT-2**    skippin' ahead of myself.

15:34:36.1  
**HOT-2**    that's just while the engines are starting (huh).

15:34:38.9  
**HOT-1**    naw. (you see).

15:34:42.5  
**HOT-1**    no what happened was if you do that you don't have the the  
              uhm the pumps on and you'll cut a lot of the electricity out of  
              the airplane.

**TIME and SOURCE**      **AIR-GROUND COMMUNICATION CONTENT**

**TIME and  
SOURCE**

**INTRA-AIRCRAFT COMMUNICATION CONTENT**

15:34:46.6

**HOT-2** hydraulics.

15:34:50.2

**HOT-2** okay. alright. okay. so \* electrohydraulics. would that be a fair thing say.

15:34:55.5

**HOT-1** naw they're not hydro. they're electrical flaps...

15:34:57.9

**HOT-2** okay.

15:34:58.6

**HOT-1** ...so they shed. they load shed the electrical from all the airplane so you don't...you use the the---

15:35:03.1

**HOT-2** gotchy'a...you're just suckin' power. I gotchy'a. I gotchy'a.

15:35:11.1

**HOT-1** that's why in this airplane. you don't taxi with the flaps down.

15:35:14.8

**HOT-2** gotchy'a.

15:35:18.8

**HOT-2** interesting.

15:35:20.0

**HOT-1** without the engines or the A-P [stammer] or if it senses one one generator off it will load shed it.

**TIME and  
SOURCE**

**AIR-GROUND COMMUNICATION CONTENT**

**TIME and SOURCE**      **INTRA-AIRCRAFT COMMUNICATION CONTENT**

15:35:26.1  
**HOT-2**    right.

15:35:26.7  
**HOT-1**    load shed because then the electrical power will go off \*.

15:35:30.0  
**CAM**      [sound of thunk]

15:35:31.1  
**HOT-1**    (#) \*.

15:35:35.3  
**HOT-1**    (alright).

15:35:39.5  
**HOT-2**    ah that was kind of interesting right there. that ah. the inflight start when I just said that...ignition.

15:35:42.7  
**CAM**      [sound of motor increasing, similar to engine starting]

15:35:44.9  
**HOT-1**    you press this again...while the engine is running...you'll blow the ah starter generator.

15:35:48.7  
**HOT-2**    yeah.

15:35:53.3  
**HOT-1**    [laughter]

**TIME and SOURCE**      **AIR-GROUND COMMUNICATION CONTENT**

**TIME and  
SOURCE**

**INTRA-AIRCRAFT COMMUNICATION CONTENT**

15:35:54.9

**HOT-2** that doesn't even leave anything to be said about that.

15:35:58.0

**HOT-1** about forty thousand dollar repair.

15:36:01.4

**HOT-2** yep.

15:36:03.4

**HOT-1** forty to eighty some # like that. depending on how much damage it is.

15:36:11.5

**HOT-1** gonna go here. I'm gonna go here. over here.

15:36:22.2

**HOT-1** after start checklist.

15:36:26.6

**HOT-1** you can call them. let's get the # out of here.

15:36:30.5

**HOT-1** you see here. you see how it looks. all that stuff there?

15:36:34.3

**HOT-2** yeah.

15:36:35.8

**HOT-2** gotchy'a. gotchy'a.

15:36:36.9

**HOT-1** \*.

**TIME and  
SOURCE**

**AIR-GROUND COMMUNICATION CONTENT**

<u>TIME and SOURCE</u>	<u>INTRA-AIRCRAFT COMMUNICATION CONTENT</u>
15:36:39.2 <b>HOT-2</b>	and ground. ground's ** twenty one point nine isn't it.
15:36:44.8 <b>HOT-1</b>	twenty one seven.
15:36:46.4 <b>HOT</b>	[sound of high pitch tone, similar to radio frequency change]
15:36:55.5 <b>HOT</b>	[sound of high pitch tone, similar to radio frequency change]
15:37:24.2 <b>HOT-1</b>	alright now you can do is this. prrraahhttt. and then get the flaps.

<u>TIME and SOURCE</u>	<u>AIR-GROUND COMMUNICATION CONTENT</u>
15:36:57.2 <b>RDO-2</b>	ground two oh seven Juliet bravo at Orion ready to taxi.
15:37:02.5 <b>GND</b>	November two zero seven Juliet bravo Opa-Locka Ground verify information tango.
15:37:06.3 <b>RDO-2</b>	and we have tango ah seven Juliet bravo.
15:37:08.5 <b>GND</b>	November seven Juliet bravo runway niner left taxi via echo November.
15:37:12.4 <b>RDO-2</b>	echo November to nine left * Juliet bravo.



**TIME and  
SOURCE**

**INTRA-AIRCRAFT COMMUNICATION CONTENT**

15:37:27.6

**HOT-2** okay so. [sound of click] on . [sound of click] on . [sound of click] on.

15:37:32.9

**HOT-2** [sound of two clicks, similar to flap lever] flaps twenty.

15:37:35.6

**HOT-2** A-P-R test.

15:37:39.3

**CAM** [sound of click]

15:37:40.1

**HOT-1** alright taxi check.

15:37:41.2

**HOT-2** okay taxi. anti-skid.

15:37:42.9

**HOT-1** ah forget about it [trails to mumble].

15:37:44.3

**HOT-1** we're not going into it.

15:37:45.9

**HOT-1** go and do after the anti-skid.

15:37:48.9

**HOT-2** okay good. brakes.

15:37:50.4

**HOT-2** good.

**TIME and  
SOURCE**

**AIR-GROUND COMMUNICATION CONTENT**

**TIME and SOURCE**      **INTRA-AIRCRAFT COMMUNICATION CONTENT**

15:37:50.4  
**HOT-1** (right).

15:37:50.8  
**HOT-2** hydraulic B pumps.

15:37:51.9  
**HOT-1** you got em on.

15:37:52.7  
**HOT-2** reverse anti-thrust.

15:37:54.1  
**HOT-2** they're armed.

15:37:55.4  
**HOT-2** wing anti-ice.

15:37:56.6  
**HOT-1** off.

15:37:57.1  
**HOT-2** and pneumatics A-P-U.

15:37:58.5  
**HOT-1** \* (performing).

15:37:59.8  
**HOT-2** and fuel system.

15:38:01.8  
**HOT-1** (ah).

**TIME and SOURCE**      **AIR-GROUND COMMUNICATION CONTENT**

**TIME and  
SOURCE**

**INTRA-AIRCRAFT COMMUNICATION CONTENT**

15:38:02.8

**HOT-2** okay flaps. set for twenty.

15:38:04.9

**HOT-1** twenty indicating twenty.

15:38:05.7

**HOT-2** twenty.

15:38:06.2

**HOT-2** aileron rudder trims.

15:38:11.0

**HOT-1** set.

15:38:12.7

**HOT-2** stabilizer trim.

15:38:14.0

**HOT-1** set for take-off.

15:38:14.7

**HOT-2** flight controls.

15:38:15.8

**HOT-1** go ahead and check 'em.

15:38:16.8

**HOT-2** full to the left. full to the right. pushing forward. and I'm pulling back. all checked free and correct.

15:38:27.3

**HOT-2** spoilers.

**TIME and  
SOURCE**

**AIR-GROUND COMMUNICATION CONTENT**

**TIME and  
SOURCE**

**INTRA-AIRCRAFT COMMUNICATION CONTENT**

15:38:28.2

**HOT-1** checked.

15:38:29.5

**HOT-2** avionics. flight instruments and radar.

15:38:31.5

**HOT-1** alright.

15:38:32.4

**HOT-2** and take-off brief.

15:38:34.3

**HOT-1** that's you.

15:38:34.8

**HOT-2** okay ah we're gonna have ah standard right seat departure.  
uhm. anything any abnor-- abnormalities below eighty knots  
we'll abort. between eighty and ah rotation ah for ah for fire  
loss of directional control or fire or loss of directional control or.  
what's the third one?

15:38:55.8

**HOT-1** for any fire engine failure loss of directional control anything  
that would affect the safety of the flight.

15:38:56.0

**HOT-2** \*.

15:39:00.1

**HOT-2** affect the safety of the flight. we will abort. after that we'll..we'll  
take-off with plenty of runway here we'll probably come back  
around and land here in Opa-Locka if we have ah an  
emergency.

**TIME and  
SOURCE**

**AIR-GROUND COMMUNICATION CONTENT**

**TIME and  
SOURCE**

**INTRA-AIRCRAFT COMMUNICATION CONTENT**

15:39:10.2

**HOT-1** ah we'll probably go to Fort Lauderdale that's where the service center is.

15:39:12.8

**HOT-2** okay. okay. which international or executive?

15:39:16.6

**HOT-1** international because that's where Bombardier service centers is.

15:39:19.4

**HOT-2** okay. okay.

15:39:24.4

**HOT-2** if in the event we do have an emergency I'll let you take over the plane I'll back you up with the emergency checklist and we'll get it down safe and sound.

15:39:30.4

**HOT-1** alright.

15:39:35.2

**HOT-1** you ready for this?

15:39:36.4

**HOT-2** sure am baby.

15:39:37.8

**HOT-1** that's one oh eight on your speed.

15:39:39.4

**HOT-2** one oh eight. yep.

**TIME and  
SOURCE**

**AIR-GROUND COMMUNICATION CONTENT**

**TIME and  
SOURCE**

**INTRA-AIRCRAFT COMMUNICATION CONTENT**

15:39:40.4

**HOT-1** not. not one hundred.

15:39:42.6

**HOT-2** ah one oh eight. oh yeah. yeah. yeah. yeah.

15:39:45.8

**HOT-2** okay and what is it. one twenty one then?

15:39:49.4

**HOT-1** [laughter]

15:40:10.2

**HOT-1** I think it is \*\* calling. \*\*\*.

15:40:12.8

**CAM** [sound of rumbling and thumps, similar to taxi movement,  
continues for about 15 seconds]

15:40:22.0

**HOT-1** look at that #. looks like a tornado [stammer] cloud over there.

15:40:25.6

**HOT-2** yeah. Jesus Christ.

15:40:31.9

**HOT-1** like a funnel cloud huh?

15:40:37.7

**HOT-2** yeah it's not pretty. wouldn't want to be on the bottom of that  
thing.

**TIME and  
SOURCE**

**AIR-GROUND COMMUNICATION CONTENT**

**TIME and  
SOURCE**

**INTRA-AIRCRAFT COMMUNICATION CONTENT**

15:40:39.2

**HOT-1** uh-uh.

15:40:45.9

**HOT-1** tell @ to bring his old piece of # over here so we can get rid of it. six hundred.

15:40:51.5

**HOT-2** [laughter]

15:40:54.3

**HOT-1** alright. call the tower and let's get the # out'a here.

15:40:57.5

**HOT-2** okay.

15:40:58.8

**HOT** [sound of high pitch tone, similar to radio frequency change]

15:41:23.3

**HOT-1** where the # is this guy [trails off to mumble].

**TIME and  
SOURCE**

**AIR-GROUND COMMUNICATION CONTENT**

15:41:08.5

**RDO-2** and tower two oh seven Juliet bravo we're ready to go nine left.

15:41:12.6

**TWR** November seven Juliet bravo Opa-Locka Tower hold short of runway niner left for traffic.

15:41:16.0

**RDO-2** holdin' short nine left two oh seven Juliet bravo.

**TIME and SOURCE**      **INTRA-AIRCRAFT COMMUNICATION CONTENT**

15:41:27.9  
**CAM**      [sound of rumbling and thumps, similar to taxi, ends here, similar to aircraft stopped]

15:41:52.5  
**HOT-1**      Falcon fifty.

15:41:59.9  
**HOT-1**      # guy is haulin' #.

15:42:04.2  
**HOT-2**      sure isn't he.

15:42:05.4  
**HOT-1**      I love that airplane. pretty airplane.

15:42:11.4  
**HOT-2**      Charlie tango.

15:42:33.3  
**HOT-1**      right dude we're ready mother #.

15:42:36.0  
**HOT-2**      roger.

**TIME and SOURCE**      **AIR-GROUND COMMUNICATION CONTENT**

15:43:00.1  
**TWR**      November two zero seven Juliet bravo fly heading zero niner zero. runway niner left clear for take-off.

15:43:06.3  
**RDO-2**      zero nine zero. cleared for take-off nine left. two oh seven Juliet bravo.



**TIME and  
SOURCE**

**INTRA-AIRCRAFT COMMUNICATION CONTENT**

15:43:10.0

**HOT-1** okay before take-off check.

15:43:11.4

**HOT-2** okay zero nine zero heading.

15:43:15.1

**HOT-1** ah. right there. oop you passed it. \*\*. right there.

15:43:21.2

**HOT-2** zero nine zero. okay. taxi check-- before take-off check. is ah anti-collision.

15:43:24.8

**HOT-1** go ahead.

15:43:25.7

**HOT-1** I'll get you this. \*\*.

15:43:26.8

**HOT-2** okay.

15:43:27.0

**HOT-1** you ready to fly?

15:43:28.2

**HOT-2** yep. ignition.

15:43:29.5

**HOT-1** got it.

15:43:29.8

**HOT-2** windshield.

**TIME and  
SOURCE**

**AIR-GROUND COMMUNICATION CONTENT**

**TIME and SOURCE**      **INTRA-AIRCRAFT COMMUNICATION CONTENT**

15:43:30.7  
**HOT-1**    okay.

15:43:31.3  
**HOT-2**    ah ground spoilers.

15:43:32.1  
**HOT-1**    set.

15:43:32.6  
**HOT-2**    transponder.

15:43:33.6  
**HOT-1**    set.

15:43:34.1  
**HOT-2**    altitude select.

15:43:35.2  
**HOT-1**    alright let's go ready.

15:43:36.5  
**HOT-2**    annunciator. [speaking checklist item]

15:43:37.6  
**HOT-1**    your throttles.

15:43:38.4  
**HOT-2**    A-P-R dynamic check. okay.

15:43:40.4  
**HOT-1**    put a little right aileron on the airplane.

**TIME and SOURCE**      **AIR-GROUND COMMUNICATION CONTENT**

**TIME and SOURCE**      **INTRA-AIRCRAFT COMMUNICATION CONTENT**

15:43:42.5  
**HOT-2**    right aileron.

15:43:43.3  
**HOT-2**    okay.

15:43:44.8  
**CAM**      [sound of increased frequency hum, similar to increasing engine power]

15:43:48.2  
**HOT-1**    alright your controlin' it.

15:43:49.2  
**HOT-2**    okay my controls.

15:43:50.8  
**HOT-1**    easy on the throttles. [mumbling] there you go.

15:43:54.2  
**HOT-1**    put some right aileron because that wing is gonna # lift up.

15:43:59.7  
**HOT-1**    look's good there. leave it right there. airspeeds alive.

15:44:04.0  
**HOT-1**    through eighty knots.

15:44:05.5  
**HOT-2**    check.

15:44:06.1  
**HOT-1**    cross check.

**TIME and SOURCE**      **AIR-GROUND COMMUNICATION CONTENT**

**TIME and SOURCE**      **INTRA-AIRCRAFT COMMUNICATION CONTENT**

15:44:06.8

**HOT-2**    check.

15:44:08.0

**HOT-1**    v-one...rotate.

15:44:11.6

**HOT-1**    there you go. positive rate.

15:44:13.2

**HOT-2**    and gear up.

15:44:21.1

**HOT-2**    zero nine zero.

15:44:21.7

**CAM**      [sound of increased hum, similar to nose door closing]

15:44:22.6

**HOT-1**    flaps.

15:44:23.6

**HOT-2**    and flaps up.

15:44:24.7

**HOT**      [sound of click]

**TIME and SOURCE**      **AIR-GROUND COMMUNICATION CONTENT**

15:44:32.4

**TWR**      November two zero seven Juliet bravo contact Miami Departure  
one two eight point six. goodday.

15:44:37.8

**RDO-1**    twenty eight six. goodday.

**TIME and SOURCE**      **INTRA-AIRCRAFT COMMUNICATION CONTENT**

15:44:40.2  
**HOT**      [sound of high pitch tone, similar to radio frequency change]

15:44:40.6  
**HOT**      [sound of c-chord, similar to altitude alerter]

15:44:41.7  
**HOT-2**      one to go.

15:44:55.8  
**HOT-1**      take-off complete.

15:45:10.2  
**CAM**      [sound of decrease in noise, similar to power reduction]

15:45:12.2  
**HOT-1**      bring it back to sixty two percent.

15:45:18.4  
**HOT-1**      what is that class below two thousand feet?

**TIME and SOURCE**      **AIR-GROUND COMMUNICATION CONTENT**

15:44:42.2  
**RDO-1**      Miami Departure November two zero seven Juliet bravo with you out of one thousand for two thousand.

15:44:46.2  
**APR**      two zero seven Juliet bravo Miami Departure radar contact maintain two thousand.

15:44:49.3  
**RDO-1**      maintain two thousand two zero seven J-B.

**TIME and SOURCE**      **INTRA-AIRCRAFT COMMUNICATION CONTENT**

15:45:21.2

**HOT-2**      delta.

15:45:22.4

**HOT-1**      you don't know that you gotta maintain two hundred knots?  
don't worry about it we're right at---

15:45:23.8

**HOT-2**      two hundred knots. yeah. yeah.

15:45:48.3

**HOT-1**      three thousand.

15:45:49.0

**CAM**      [sound of increased engine noise, similar to power increase]

15:45:49.4

**HOT-2**      see it.

15:45:53.6

**HOT**      [sound of c-chord, similar to altitude alerter]

**TIME and SOURCE**      **AIR-GROUND COMMUNICATION CONTENT**

15:45:30.3

**APR**      and two zero seven Juliet bravo turn left heading zero six zero.

15:45:34.5

**RDO-1**      zero six zero Juliet bravo.

15:45:41.4

**APR**      two zero seven Juliet bravo climb and maintain three thousand.

15:45:44.3

**RDO-1**      three thousand Juliet bravo.

**TIME and SOURCE**      **INTRA-AIRCRAFT COMMUNICATION CONTENT**

15:46:06.5  
**HOT-1**      the T-C-S button right (here). the second one (above).

15:46:10.4  
**HOT-2**      that one?

15:46:11.1  
**HOT-1**      yeah. with your middle finger.

15:46:20.4  
**CAM**      [sound of decrease in engine noise, similar to power reduction]

15:46:25.6  
**HOT-1**      see if you hit it again. if you hit the top button. then your #.

15:46:31.2  
**HOT-2**      this one.

15:46:32.1  
**HOT-1**      no no. the one on the top.

15:46:33.6  
**HOT-2**      oh I see. yah.

15:46:34.0  
**HOT-1**      your v-bars will go away.

**TIME and SOURCE**      **AIR-GROUND COMMUNICATION CONTENT**

15:46:13.6  
**APR**      two zero seven Juliet bravo turn left heading three six zero.

15:46:17.7  
**RDO-1**      left turn to three six zero Juliet bravo.

**TIME and SOURCE**      **INTRA-AIRCRAFT COMMUNICATION CONTENT**

15:46:35.4  
**HOT-2**    okay.

15:46:36.3  
**HOT-1**    no you can't sync it right now. because you're in altitude hold.

15:46:46.0  
**HOT-1**    three thousand right.

15:46:47.1  
**HOT-2**    yep.

15:46:53.0  
**HOT-1**    what is the ATIS over there?

15:46:54.9  
**HOT-2**    ah twenty fifty five.

15:47:00.0  
**CAM**     [sound of loud air rushing sound]

**TIME and SOURCE**      **AIR-GROUND COMMUNICATION CONTENT**

15:46:38.4  
**APR**      two zero seven Juliet bravo turn left heading three five zero.

15:46:41.3  
**RDO-1**    three five zero Juliet bravo.

15:46:58.6  
**ATIS**      departing runway one zero vis--- [audio became obscured by loud sound of air rushing sound]



**TIME and**  
**SOURCE**

**INTRA-AIRCRAFT COMMUNICATION CONTENT**

**TIME and**  
**SOURCE**

**AIR-GROUND COMMUNICATION CONTENT**

15:47:00

**END OF TRANSCRIPT**

16:21:59.0

**END OF RECORDING**