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

GROUP CHAIRMAN'S FACTUAL REPORT OF INVESTIGATION

CEN14FA505

By
Joe Gregor

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

October 29, 2015

Cockpit Voice Recorder

Group Chairman's Factual Report
By Joe Gregor

1. EVENT SUMMARY

Location:	Conroe, TX
Date:	September 19, 2014
Aircraft:	Embraer EMB-505, Registration N322QS
Operator:	NETJETS SALES INC
NTSB Number:	CEN14FA505

On September 19, 2014, about 0847 central daylight time (CDT), an Embraer EMB-505 airplane, N322QS, encountered soft terrain and mud after over running the runway while landing at the Lonestar Executive Airport (CXO), Conroe, Texas. Neither of the airline transport rated pilots on board were injured. The airplane was substantially damaged. The airplane was operated by Net Jets as a *14 Code of Federal Regulations* Part 91 positioning flight. Instrument meteorological conditions prevailed for the flight, which was operated on an instrument flight rules flight plan. The flight originated from the Nashville International Airport (BNA), Nashville, Tennessee, at 0710. 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 November 5, 2014 and a partial transcript was prepared for the 2-hour, 4-minute, 14-second digital recording (see attached).

2. GROUP

Chairman:	Joe Gregor Electronic Engineer National Transportation Safety Board
Chairman:	Pamela Sullivan Air Safety Investigator National Transportation Safety Board
Member:	Patrick Hempen Air Safety Investigator Federal Aviation Administration
Member:	Dan Ramirez Specialist, Air Safety Embraer

Member: Paul McClaskey
Director, Aviation Safety
NETJETS

Member: Capt. Bob Ferguson
NJASAP
NETJETS Association of Shared Aircraft Pilots

3. DETAILS OF INVESTIGATION

The NTSB Vehicle Recorder Division received the following CVR:

Recorder Manufacturer/Model: **L-3/Fairchild FA2100-3083**
Recorder Serial Number: **000885510**

3.1 CVR Carriage Requirements

Per federal regulation, multiengine aircraft with more than six passenger seats and requiring two pilots manufactured after April 7, 2010, 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. The accident aircraft was manufactured in 2013. 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 L-3/Fairchild FA2100-3083, records a minimum of 120 minutes of digital audio stored on solid state memory modules. Four channels are recorded: one channel for each flight crew, one channel for a cockpit observer, and one channel for the cockpit area microphone (CAM).

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] Channel number three did not contain any audio information (nor was it required by federal regulations).

Table 1: Audio Quality.

Channel Number	Content/Source	Quality	Duration
1	Captain (CAPT)	Good	120 min
2	First Officer (FO)	Good	120 min
3	Other	n/a	120 min
4	CAM	Good	120 min

[1] See attached CVR Quality Rating Scale.

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, the last 14 radio transmissions that the aircraft made were correlated to the radio transmit microphone key parameter from the FDR. Each of the 14 radio transmissions acted as an anchor point for a linear interpolation between the remaining CVR events. Once a correlation between the two recorders was established, a reference to Universal Coordinated Time (UTC) as recorded on the FDR was employed and all times referenced in the remainder of this report are referenced in UTC.

3.6 Description of Audio Events

The recording began at 1143:48 UTC with the CVR recording sounds consistent with the pilots entering the cockpit and performing checklist items in preparation for departure. At approximately 1205:50 UTC, the flight received a departure clearance and was subsequently cleared for takeoff. For the next 76 minutes (approximate), the CVR recorded sounds consistent with the aircraft climbing to FL400 and descending back down to 6,000 feet while the cockpit crew discussed NOTAMS, approaches, and weather at the destination. The transcript began at 1324:47 UTC and continued to 1348:01 UTC. The recording ended shortly thereafter at 1348:02 UTC.

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. They have not responded to the invitation.

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 L-3/Fairchild FA2100-3083 solid-state cockpit voice recorder, serial number 000885510, installed on an NETJETS SALES INC Embraer EMB-505 (N322QS), which crashed after landing at Lonestar Executive Airport (CXO) in Conroe, TX.

LEGEND

CAM	Cockpit area microphone voice or sound source
HOT	Flight crew audio panel voice or sound source
RDO	Radio transmissions from N322QS
CTR	Radio transmission from the Houston center controller
APR	Radio transmission from the Houston approach controller
FBO	Radio transmission from the fixed base operator at CXO
TWR	Radio transmission from the CXO airport tower controller
-1	Voice identified as the captain
-2	Voice identified as the first officer
-?	Voice unidentified
*****	Unintelligible word
#	Expletive
@	Non-pertinent word
( )	Questionable insertion
[ ]	Editorial insertion

Note 1: Times are expressed in universal coordinated time.

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-COCKPIT COMMUNICATION CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
11:43:48.3	**Start of Recording**		
13:24:47.0	**Start of Transcript**		
13:24:47.6 **HOT-1**	LPV one nine. I don't know. I'll just do vectors for now.		
13:24:55.2 **HOT-2**	load only.		
13:25:01.2 **HOT-2**	alright.		
13:25:05.2 **HOT-2**	that looks good LPV one nine down to five twenty six. we have to go missed climb to thirty one to JEVIB. left turn track to CLEEP and hold out there.		
13:25:15.2 **HOT-1**	alright * just do like the sim man.		
13:25:17.9 **HOT-2**	that's it.		
13:25:18.8 **HOT-1**	ah altimeters verify ah two nine ah eight nine. set three times.		
13:25:25.2 **HOT-2**	eight nine.		
13:25:26.7 **HOT-1**	approach speeds have been entered EFB verify configured secured.		

TIME and SOURCE	INTRA-COCKPIT COMMUNICATION CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
13:25:29.8			
HOT-2	configured secured.		
13:25:30.3			
HOT-1	approach briefing.		
13:25:31.4			
HOT-2	completed.		
13:25:32.0			
HOT-1	alright.		
13:26:28.8			
HOT-1	yeah we don't wanna do all that come back in that way.		
13:26:30.7			
HOT-2	ah no.		
13:27:01.9			
HOT-1	alright you have one.		
13:27:03.0			
HOT-2	I've got it.		

TIME and SOURCE	INTRA-COCKPIT COMMUNICATION CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
		13:27:04.5 **ATIS**	Lone Star airport information tango one two five three zulu weather. wind calm. visibility two and one half. rain. mist. ceiling four hundred overcast. temperature two three. dewpoint two two. altimeter two niner niner two. RNAV runway one approach in use. notice to airman, warning, runway one four three two has been shortened. runway one four three two takeoff and landing distance four thousand one hundred and eleven feet. the runway one four ILS is out of service. the runway one four approach lights are out of service. temporary taxiway between taxiways juliet and lima not marked. runway one one nine PAPIs out of service. taxiway alpha between lima and hotel is closed. taxiway charlie west of runway one is closed. taxiway kilo is closed. advise on initial contact you have information tango.
13:28:19.1 **HOT-1**	using runway one there.		
13:28:20.6 **HOT-2**	alrighty.		
13:28:22.4 **HOT-2**	really?		
13:28:23.4 **HOT-1**	yup.		
13:28:35.9 **HOT-1**	two sixty-		

TIME and SOURCE	INTRA-COCKPIT COMMUNICATION CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
13:28:38.4			
HOT-1	oh. five oh one *-		
		13:28:39.8	
		CTR	Execjet three twenty two contact Houston approach one one niner point seven see ya later thanks for your help good day.
		13:28:44.2	
		RDO-2	nineteen point seven we'll see ya Execjet three twenty two.
13:28:51.7			
HOT-2	I got it.		
		13:28:57.0	
		RDO-1	Houston approach Execjet three twenty two eight point five for six thousand tango.
		13:29:33.1	
		RDO-1	ah Houston approach Execjet three twenty two is seven point two for six thousand tango.
		13:29:38.3	
		APR	Execjet three twenty two Houston approach roger descend and maintain five thousand.
		13:29:41.9	
		RDO-1	descend five thousand three twenty two.
13:29:44.2			
HOT-2	five set.		
13:29:44.2			
HOT-1	I see it.		

TIME and SOURCE	INTRA-COCKPIT COMMUNICATION CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
13:30:15.8			
HOT	[sound electronic alert, similar to altitude alerter].		
13:30:17.3			
HOT-1	six.		
13:30:17.4			
HOT-2	six five.		
13:30:22.1			
HOT-1	I don't see any convectivity.		
		13:30:22.9	
		APR	Execjet three twenty two expect the ah RNAV runway ah (I believe they're using) one at Lone Star.
		13:30:28.6	
		RDO-1	ah we'll expect that three twenty two.
13:30:31.8			
HOT-2	roger.		
13:30:32.8			
HOT-1	roger dodger.		
13:30:37.2			
HOT-2	ALTS-CAP.		
13:30:52.2			
HOT-1	looks like the missed approach's now climb to two thousand.		
13:30:56.6			
HOT-1	direct to IPOME and hold huh.		
13:30:59.0			
HOT-2	roger.		

TIME and SOURCE	INTRA-COCKPIT COMMUNICATION CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
13:31:13.3			
HOT-2	looks nice right here.		
13:31:14.5			
HOT-1	PAPIs are out of service by the way too so.		
13:31:16.5			
HOT-2	alright.		
13:31:16.8			
HOT-1	it's LPV so.		
13:31:21.9			
HOT-1	alright you have, one again.		
13:31:24.6			
HOT-2	got it.		
		13:31:31.4	
		RDO-1	ah Wingjet ah Execjet three twenty two.
		13:31:40.0	
		FBO	Wingjet go ahead.
		13:31:41.3	
		RDO-1	going to be on your ramp about ah oh one five minutes or so an ah negative passengers inbound we got passengers outbound in about an hour after we arrive ah we'll get some fuel when we get there an ah ah * * I think the passengers have some catering too. and we'll take that and a GPU.
		13:31:50.6	
		APR	Execjet ah three twenty two ah proceed direct to YICUC the T-fix for the RNAV to one descend and maintain three thousand.

TIME and SOURCE	INTRA-COCKPIT COMMUNICATION CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
		13:31:57.7 **RDO-2**	okay that was direct ah YICUC I believe you said for ah one I don't see that on here is that ah I-X-I-G-Y?
		13:31:58.2 **FBO**	roger that see you guys *.
		13:32:10.8 **APR**	that's the final approach fix ah you're lookin' for the T-fix. yankee india charlie uniform charlie.
13:32:10.8 **HOT-1**	I'm back.		
13:32:18.2 **HOT-1**	(I get it).		
13:32:19.6 **HOT-1**	I'll get it.		
13:32:23.6 **HOT-1**	opps, yup, Yankee.		
13:32:29.0 **HOT-1**	load and activate?		
		13:32:30.4 **RDO-2**	yeah and just confirm YICUC now for Execjet three twenty two.
		13:32:34.3 **APR**	yes sir Execjet three twenty two descend and maintain three thousand direct YICUC the T-fix for the RNAV to one.
13:32:39.5 **HOT-2**	got it.		

TIME and SOURCE	INTRA-COCKPIT COMMUNICATION CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
		13:32:40.5 **RDO-2**	okay I got YICUC down to three thousand for Execjet three twenty two.
		13:32:44.1 **APR**	roger.
13:32:44.8 **HOT-1**	here you go brother.		
13:32:46.1 **HOT-2**	three thousand.		
13:32:47.1 **HOT-1**	three thousand seen.		
13:33:14.6 **HOT-1**	gonna get some bugs off the windows too.		
13:33:16.0 **HOT-2**	yeah right.		
13:33:30.1 **HOT-1**	I ah told 'em we need fuel a GPU and passengers in an hour or so.		
13:33:34.5 **HOT-2**	alrighty.		
13:33:36.0 **HOT-?**	ah #.		
13:33:37.8 **HOT**	[sound of electronic alert, similar to altitude alerter].		
13:33:40.2 **HOT-2**	four for three.		

TIME and SOURCE	INTRA-COCKPIT COMMUNICATION CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
13:33:40.6			
HOT-1	forty three.		
13:34:11.7			
HOT-2	ALTS-CAP.		
13:35:34.8			
HOT-1	I'm not gonna turn on the ra-		
		13:35:35.4	
		APR	Execjet three twenty two descend and maintain two thousand three hundred twenty three hundred.
		13:35:40.9	
		RDO-1	okay twenty three hundred Execjet three twenty two.
13:35:44.3			
HOT-1	I see twenty-		
13:35:44.9			
HOT-2	twenty three.		
13:35:55.0			
HOT-1	windshield's off.		
13:35:56.5			
HOT-2	rog.		
13:36:26.0			
HOT-2	ALTS-CAP.		
13:37:45.2			
HOT-1	I think here's why we're twenty three hundred we got thirteen forty seven right there.		

TIME and SOURCE	INTRA-COCKPIT COMMUNICATION CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
13:37:48.6			
HOT-2	oh yeah. yeah I think we.		
13:37:52.1			
HOT-2	there's a fairly big tower back there as well.		
13:37:55.3			
HOT-2	that we had passed.		
		13:38:40.4	
		APR	Execjet three twenty two you're ah eight miles from YICUC cross YICUC at two thousand cleared RNAV runway one approach at Lone Star.
		13:38:48.6	
		RDO-1	YICUC at ah two thousand cleared for the RNAV one to Lone Star Execjet three twenty two.
13:38:54.2			
HOT-1	I see it.		
13:38:55.1			
HOT-2	YICUC.		
13:39:28.9			
HOT-2	guess I can go ahead and do that.		
13:39:30.9			
HOT-1	what?		
13:39:32.0			
HOT-1	approach?		
13:39:32.7			
HOT-2	approach.		

TIME and SOURCE	INTRA-COCKPIT COMMUNICATION CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
13:39:36.6			
HOT-1	yeah I guess you can now yeah even though you're not at - YICUC.		
13:39:52.5			
HOT-2	what a # day down here.		
13:39:53.2			
HOT-1	yeah I know.		
13:39:55.0			
HOT-1	our alternate's Dallas. Love.		
13:39:57.2			
HOT-2	eh. alright.		
13:40:07.4			
HOT-1	but if we have to I guess we can go into one of the. Hobby er. probably I(-A-)H.		
13:40:14.2			
HOT-2	yeah.		
13:40:21.4			
HOT-1	probably ah probably an airport out here somewhere away from this stuff. yeah.		
13:40:23.8			
HOT-2	that's what I was kinda thinkin'. yeah yeah.		
13:40:34.5			
HOT-1	* gonna cut ah.		
13:40:54.7			
HOT-1	it's hard, good enough.		
13:41:00.6			
HOT-1	(good) control tower.		

TIME and SOURCE	INTRA-COCKPIT COMMUNICATION CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
13:41:02.1			
HOT-2	heck yeah.		
		13:41:12.6	
		APR	Execjet ah three twenty two contact Lone Star tower one two four point one two.
		13:41:17.4	
		RDO-1	twenty four twelve Execjet three twenty two we'll see ya thanks alot.
		13:41:24.6	
		RDO-1	hello Lone Star Execjet ah three twenty two is with you on a ah RNAV-GPS one.
		13:41:30.5	
		TWR	Execjet three twenty two Lone Star tower runway one ah cleared to land wind is calm altimeter is two nine nine three and there's moderate to heavy rain on the airport and I'd appreciate a base report.
		13:41:41.5	
		RDO-1	alright two nine nine three and ah cleared to land and we'll let ya know. Execjet three twenty two.
13:41:48.6			
HOT-1	hot # buddy.		
13:41:49.6			
HOT-2	yeah buddy.		
13:42:01.9			
HOT-1	twenty three's your target.		
13:42:03.6			
HOT-2	alright.		

TIME and SOURCE	INTRA-COCKPIT COMMUNICATION CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
13:42:41.6			
HOT-2	lets go flaps one.		
13:42:43.1			
HOT-1	flaps one selected.		
13:42:47.7			
HOT-1	LPV displayed.		
13:43:05.8			
HOT-1	I have to reset the missed approach altitude but ah you know have to get past it I guess. its a ding. 'cause it is two thousand so.		
13:43:08.0			
HOT-2	rog.		
13:43:11.1			
HOT-2	*.		
13:43:41.8			
HOT-2	(YICUC we're over here).		
13:44:01.2			
HOT-1	glidepath's alive.		
13:44:03.3			
HOT-2	roger.		
13:44:15.3			
HOT-2	lets go flaps two gear down.		
13:44:16.8			
HOT-1	flaps two selected.		
13:44:18.7			
CAM	[slight increase in background noise].		
13:44:36.3			
HOT-1	three green.		

TIME and SOURCE	INTRA-COCKPIT COMMUNICATION CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
13:44:37.2			
HOT-2	flaps three before landing checklist.		
13:44:39.3			
HOT-1	flaps three selected.		
13:44:43.6			
HOT-1	gear (verified) three green.		
13:44:44.8			
HOT-2	three green.		
13:44:45.1			
HOT-1	flaps (verified) three indicated.		
13:44:46.0			
HOT-2	three indicating.		
13:44:46.3			
HOT-1	landing check complete.		
13:44:55.5			
HOT	[sound of electronic tone, similar to altitude alerter].		
13:44:57.6			
HOT-1	missed approach altitude set.		
13:44:57.6			
HOT	altitude [electronic voice].		
13:44:59.1			
HOT-2	see it.		
13:45:41.2			
HOT-1	one thousand.		
13:46:27.5			
HOT	five hundred [electronic voice].		

TIME and SOURCE	INTRA-COCKPIT COMMUNICATION CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
13:46:31.6			
HOT-2	stable.		
13:46:36.6			
HOT	four hundred [electronic voice].		
13:46:38.9			
HOT-1	one hundred.		
13:46:39.7			
HOT	autopilot [electronic voice].		
13:46:39.7			
HOT-2	autopilot off.		
13:46:43.2			
HOT-2	field's in sight twelve o'clock.		
13:46:44.7			
HOT-1	runway in sight.		
13:46:45.4			
HOT	three hundred [electronic voice].		
13:46:47.7			
HOT-1	huh.		
13:46:48.7			
HOT-2	barely, barely.		
13:46:49.2			
HOT	minimums, minimums [electronic voice].		
13:46:54.9			
HOT-1	# here's the base right here at two hundred.		
13:46:55.4			
HOT	two hundred [electronic voice].		
13:46:58.8			
CAM	[slow increase in background noise].		

TIME and SOURCE	INTRA-COCKPIT COMMUNICATION CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
13:47:02.4			
HOT	one hundred [electronic voice].		
13:47:03.3			
HOT-?	* * (bring jet) high.		
13:47:12.6			
HOT	flight director [electronic voice].		
13:47:13.8			
CAM	[sound consistent with aircraft touchdown].		
13:47:20.4			
HOT-1	slow down, slow down *.		
13:47:21.1			
HOT-2	I'm (not) I'm (not).		
13:47:23.0			
HOT-2	brakes. emergency brakes.		
13:47:24.6			
HOT-?	[sound similar to grunt].		
13:47:25.4			
HOT-2	nothin' man.		
13:47:25.9			
HOT-?	*.		
13:47:26.3			
HOT-1	#.		
13:47:26.5			
HOT-2	I got nothin'.		
13:47:27.3			
HOT	[sound of electronic tone, similar to EICAS warning].		

TIME and SOURCE	INTRA-COCKPIT COMMUNICATION CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
13:47:28.1			
HOT-1	where's the brakes.		
13:47:28.9			
HOT-2	brakes pull 'em.		
13:47:30.0			
HOT-1	where are they?		
13:47:30.5			
HOT-2	I got it.		
13:47:31.8			
HOT-2	#.		
13:47:32.3			
HOT	[sound of electronic tone, similar to EICAS warning].		
13:47:34.6			
HOT-2	ah #.		
13:47:35.7			
HOT-1	go * don't go sideways, don't go sideways.		
13:47:37.5			
HOT	[sound of electronic tone, similar to EICAS warning].		
13:47:37.9			
CAM	[increase in background noise].		
13:47:40.2			
HOT-?	#.		
13:47:40.7			
HOT-?	*.		
13:47:41.3			
HOT-?	*.		

TIME and SOURCE	INTRA-COCKPIT COMMUNICATION CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
13:47:41.7 **HOT**	[sounds similar to grunting].		
13:47:41.8 **CAM**	[sound consistent with impact noise].		
13:47:42.6 **HOT**	[sound of electronic tone, similar to EICAS warning].		
		13:47:45.3 **TWR**	Execjet three twenty two we have the equipment responding.
13:47:46.5 **CAM**	[decreasing background noise].		
13:47:47.7 **HOT-2**	are you okay?		
13:47:47.7 **HOT**	[sound of electronic tone, similar to EICAS warning].		
13:47:49.5 **HOT-?**	[sound consistent with heavy breathing] # me.		
13:47:52.8 **HOT**	[sound of electronic tone, similar to EICAS warning].		
13:47:57.9 **HOT**	[sound of electronic tone, similar to EICAS warning].		
13:47:59.2 **HOT-2**	are you alright?		

TIME and SOURCE	INTRA-COCKPIT COMMUNICATION CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
13:47:59.8			
HOT-1	yeah.		
13:48:00.8			
CAM-2	I had nothing.		
13:48:01	**End of Recording**		
13:48:02.3	**End of Transcript**		