

**NATIONAL TRANSPORTATION SAFETY BOARD
Vehicle Recorders Division
Washington, D.C. 20594**



SPECIALIST'S FACTUAL REPORT OF INVESTIGATION

DCA00MA006

by

**Albert G. Reitan
Transportation Safety Specialist**

Warning

The reader of this report is cautioned that the transcription of a CVR tape is not a precise science but is the best product possible from an NTSB group investigative effort. The transcript, or parts thereof, if taken out of context, could be misleading. The attached CVR 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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February 10, 2000

Cockpit Voice Recorder - 12

Group Chairman's Factual Report by Albert G. Reitan

A. ACCIDENT

Location: Near Nantucket Island, MA
Date: October 31, 1999
Time: 0152 eastern standard time (EST)
Aircraft: EgyptAir Airlines Inc., flight 990, B-767-332-ER, SU-GAP
NTSB Number: DCA00MA006

B. GROUP

Chairman: Albert G. Reitan
Transportation Safety Specialist (CVR)
National Transportation Safety Board

Member: Eric E. West
Air Safety Investigator
Federal Aviation Administration

Member: Captain Mohsen Missiry *
Chief of Egyptian Investigation Group
E. C. A.

Member: Eng. Mostafa H. El Gammal *
QA & C General Manager
EgyptAir

Member: Captain Augustus P. Stearns
Senior Safety Operations Pilot
The Boeing Company

Member: David M. Levanto
Sr. Flight Operations Engineer
Pratt & Whitney

- Member: Bradley S. Morrison
Special Agent
Federal Bureau of Investigation
- Member: Sam Youssif *
Language Specialist, WFO
Federal Bureau of Investigation
- Member: David V. Scott *
Office of Egypt & North African Affairs
U.S. Department of State
- Member: Viviane Sacy Tannoury *
Typist – Interpreter

* denotes Arabic/English speaking group member

C. SUMMARY

The Fairchild model A-100 cockpit voice recorder (CVR), s/n 55155, was delivered by the United States Navy to Andrews Air Force Base on November 14, 1999. National Transportation Safety Board personnel immediately transported it to the NTSB audio laboratory. The Cockpit Voice Recorder committee convened on November 18, 1999 and completed their work on December 2, 1999. Two transcripts were prepared of the entire 31:30 minute recording, one in Arabic/English exactly as spoken on the accident flight and the other with Arabic words and phrases translated to English. (attached)

D. DETAILS OF INVESTIGATION

The recorder was transported in a container filled with fresh water to prevent corrosion from salt water exposure. The exterior of the CVR showed evidence of significant structural damage. The front panel of the recorder including the underwater locator beacon was missing. The outer metal enclosure was heavily dented so it was necessary to cut it away to gain access to the tape memory module. The memory module and the tape sustained no apparent heat or impact damage.

The recording consisted of four channels of audio information. Two channels contained good quality audio. One of these channels contained the cockpit area microphone (CAM) audio information and the other, audio heard through the first officer audio panel and hot microphone system. The captain's channel was difficult or impossible to read for most of the recording and the fourth channel contained no usable sounds. The captain was apparently not using his hot microphone system. Advanced audio filtering and amplification techniques were applied to enhance readability of all data.

Correlation of the CVR recording to eastern standard time (EST) was established using times from the Nantucket Airport Surveillance Radar (ASR9) data, the aircraft digital flight data recorder (DFDR) information, and the Air Traffic Control (ATC) transcript developed by the FAA. This data were then correlated to microphone keying and other events that are common to the CVR and FDR. A detailed explanation of the time correlation procedure is available in the Aircraft Performance Group Chairman's factual report.

The recording and transcript started at 0119:13 as the flight was cleared for takeoff from runway two two right at the John F. Kennedy International Airport. The transcript continued uninterrupted until 0150:38 EST when electrical power was removed from the CVR. The transcript contained the takeoff, climb, and initial cruise portion of the flight. The recording ended shortly after the aircraft started its initial descent from cruise altitude.

Albert G. Reitan
Transportation Safety Specialist (CVR)

Attachments:

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 Fairchild A-100 cockpit voice recorder (CVR), s/n 3193, installed on an B-767-332-ER, SU-GAP, which was involved in a descent and collision into the ocean, near Nantucket Island, MA, on October 31, 1999.

LEGEND

HOT	Crewmember hot microphone voice or sound source
RDO	Radio transmission from accident aircraft
CAM	Cockpit area microphone voice or sound source
TWR	Radio transmission from the JFK tower controller
DEP	Radio transmission from 1 st JFK departure controller
CTR1	Radio transmission from 1 st New York Center controller
CTR2	Radio transmission from 2 nd New York Center controller
-1a	Voice identified as Pilot-in-Command (PIC) of departure crew
-2a	Voice identified as Co-Pilot (SIC) of departure crew
-1b	Voice identified as Pilot-in-Command (PIC) of relief crew
-2b	Voice identified as Co-Pilot (SIC) of relief crew
-2	Sound heard through the First Officer's hot microphone system
-3	Voice identified as male supervisory pilot
-4	Voice identified as 1 st additional crew member (ACM)
-5	Voice identified as 2 nd additional crew member (ACM)
-6	Voice identified as female cabin attendant
-?	Voice unidentified
*	Unintelligible word
@	Non-pertinent word
#	Expletive

- - -	Break in continuity
()	Questionable insertion
[]	Editorial insertion
.....	Pause

Note 1: Times are expressed in eastern standard time (EST).

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



National Transportation Safety Board
Washington, D.C. 20594

The undersigned Cockpit Voice Recorder group members have reviewed the CVR tape recording from EgyptAir Airlines, Inc. Flight 990 that crashed on October 31, 1999 near Nantucket Island, MA, and have participated in the preparation of both an Arabic language transcript and an English language translation of that transcript. We agree that these transcripts are the best effort of the combined group, and concur with their contents.

The CVR Group consisted of ten individuals, five of whom speak Arabic. Four of those individuals speak Arabic as their first language. Only one of the ten group members recognized the voices heard on the CVR, based on his previous familiarity with members of the flight crew. The identification of the speakers on the CVR reflects that group member's best judgment of the identity of the speakers, based on the information available at the time the transcription was performed.

Albert G. Reitan, Group Chairman, NTSB 

Captain Mohsen El Missery¹, Egypt Ministry of Civil Aviation 

Mostafa H. El Gammal¹, EgyptAir 

David M. Levanto, Pratt & Whitney 

Captain Gus Stearns, The Boeing Company 

Erick E. West, FAA 

David V. Scott¹, U.S. Department of State 

Sam Youssif¹, FBI 

Bradley S. Morrison, FBI 

Viviane Sacy Tannoury,¹ NTSB Interpreter/Typist 

¹ Arabic Speaking member

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME &
SOURCE

CONTENT

TIME &
SOURCE

CONTENT

0119:13
START OF RECORDING
START OF TRANSCRIPT

0119:20
TWR

...nine ninety heavy, the wind is two four zero at one zero, runway two two right, RVR is more than six thousand, runway two two right, cleared for takeoff.

0119:32
RDO-2a

cleared for takeoff. confirm climbing six thousand?

0119:36
TWR

negative sir. the runway two two right RVR is more than six thousand. you fly the Gateway Climb, climbing to five thousand.

0119:43
RDO-2a

following Gateway, clear for takeoff runway two two right, EgyptAir nine nine zero heavy.

0119:45
CAM-?

okay.

0119:52
CAM-?

***.

0119:54
CAM-1a

cabin crew advised?

0119:54
HOT-2a

in the name of God, the Merciful, the Compassionate. cabin crew takeoff position.

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
0119:58 CAM	[sounds similar to increase in engine RPM]		
0120:07 CAM	[sounds similar to nose wheel traveling over bumps on runway]		
0120:19 HOT-2a	eighty knots, throttle hold.		
0120:22 CAM-1a	cross check.		
0120:40 HOT-2a	V one.		
0120:41 HOT-2a	rotate.		
0120:42 HOT-2a	positive rate of climb both side.		
0120:46 CAM-1a	gear.		
0121:06 HOT-2a	one thousand.		
		0121:07 TWR	EgyptAir nine ninety heavy contact departure now one two five point seven.
		0121:11 RDO-2a	one two five seven, bye.

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
		0121:14 RDO-2a	departure, EgyptAir nine eight nine in your frequency.
		0121:18 DEP	EgyptAir nine ninety heavy New York you're radar contact, climb and maintain uh, one three thousand.
		0121:25 RDO-2a	climbing one three thousand, nine nine zero.
0121:40 CAM-?	***.		
0121:41 CAM-1a	flaps *.		
0121:45 CAM	[sound similar to flap handle movement]		
0121:52 CAM-?	** two sixty.		
		0121:57 DEP	EgyptAir nine ninety heavy turn left then proceed direct to SHIPP.
		0122:00 RDO-2a	direct SHIPP, nine nine zero heavy.
0122:05 HOT-2a	turn right direct SHIPP, execute sir?		
0122:08 CAM-1a	did he tell you turn left?		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
0122:08 HOT-2a	yes, establish.		
0122:11 CAM-1a	flaps up.		
0122:15 CAM	[sound similar to flap handle movement]		
0122:16 CAM-1a	did you enter it or not yet?		
0122:17 HOT-2a	I entered it.		
0122:19 CAM-?	***.		
0122:28 HOT-2a	execute, execute?		
0122:31 HOT-2a	*.		
0123:32 CAM-1a	please reset the... okay.		
0123:35 HOT-2a	after take off.		
0123:39 CAM-1a	(after take off)		
0123:41 HOT-2a	landing gear lever off, flaps up, after takeoff checks complete.		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
0125:11 CAM	[brief interruption in audio similar to CVR tape splice]		
0125:20 HOT-2a	at your service, sir.		
0125:24 CAM-?	***.		
0125:26 HOT-2a	no, I didn't enter two nine zero. I entered three one zero.		
0125:32 CAM-3	that's why it gave you maximum altitude.		
0125:35 HOT-2a	I swear I entered three one zero.		
0125:40 HOT-2a	ten thousand climbing.		
0125:42 CAM-1a	thirty three.		
0125:48 HOT-2a	I had even entered two nine zero.		
0126:02 HOT-2a	we're already in the middle of the Atlantic...		
		0126:03 DEP	EgyptAir nine ninety heavy climb and maintain flight level two three zero and contact New York center one three four point five five.

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
0126:14 CAM-1a	how much, two three zero?	0126:10 RDO-2a	one three four five five, two three zero.
		0126:35 RDO-2a	New York, EgyptAir nine nine zero heavy, good evening.
		0126:39 CTR1	EgyptAir nine nine zero, go.
		0126:42 RDO-2a	your frequency.
		0126:46 CTR1	EgyptAir nine nine zero, go ahead.
		0126:47 RDO-2a	ah, approaching three thousand, up to flight level two three zero.
		0126:54 CTR1	roger.
0127:13 CAM-3	[unintelligible conversation in background]		
0127:51 HOT-2a	aaahhh.		
0127:52 HOT-2	[tone similar to cabin crew call chime]		
0127:54 CAM-?	[sounds similar to coughing]		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
0127:58 CAM-3	[unintelligible conversation in background]		
0129:14 HOT-2a	one zero one three.		
0129:20 HOT-2a	after takeoff (checks) complete.		
0129:28 CAM-3	the chart, Adel...		
0129:29 HOT-2a	what, sir?		
0129:31 HOT-2a	the chart, sir?		
0129:33 CAM	[unintelligible conversation in background]		
0129:33 CAM-3	the chart of the Atlantic.		
0129:39 HOT-2a	aye aye... would you like, sir, the atlas or the one... both available.		
0129:42 CAM-?	***.		
0129:48 CAM	[sound similar to rustling papers]		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
		0129:54 CTR1	EgyptAir nine ninety, say the altitude leaving.
		0129:57 RDO-2a	uh, leaving, approaching one niner zero, up two three zero.
		0130:04 CTR1	EgyptAir nine ninety, roger.
0130:07 HOT-2a	Mademoiselle, Madame, if you please, I want a bottle of water and a cup of coffee, two creams, yes, two creams, and one sugar. Captain Habashi, would you like to drink something? Captain Hatem, would you like to drink something?		
0130:23 CAM-?	[sounds similar to coughing]		
0130:45 CAM-?	[unintelligible conversation in background]		
0130:55 CAM-?	where is our chart?		
0130:57 CAM-?	[sounds similar to coughing]		
0131:05 CAM-?	[sounds similar to coughing]		
0131:19 HOT-2a	it seems that Samir left it, sir.		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
		0131:24 CTR1	EgyptAir nine ninety, New York one three two point one five.
		0131:29 RDO-2a	one three two one five, bye.
0131:33 HOT-2a	don't bother yourself, sir.		
		0131:39 RDO-2a	New York center EgyptAir niner niner zero heavy, good evening, approaching two two zero up two three zero.
		0131:47 CTR2	EgyptAir niner niner zero, New York center roger.
0131:54 CAM-?	[sounds similar to coughing]		
0132:03 HOT-2a	[sound similar to yawn]		
0132:06 HOT-2a	one thousand to level.		
0132:06 CAM-3	didn't he bring you the chart?		
0132:07 HOT-2a	what?		
0132:09 CAM-3	didn't he give you the chart?		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
0132:10 HOT-2a	no, I asked him, "where is our chart," and I think he put it on the drawer or...		
0132:17 CAM-3	he should have plotted for you ***.		
0132:18 HOT-2a	that guy was busy, the one who plots, he told me that I had come late.		
0132:25 CAM	[sound of click]		
0132:33 CAM-3	[unintelligible conversation]		
0132:51 CAM	[two high-low tones similar to cabin crew call chime]		
0132:58 HOT-2a	merci, sir.		
0133:00 HOT-2a	just a bottle of water.		
0133:01 CAM-?	[sounds similar to coughing]		
0133:05 CAM	[sound similar to cockpit door operating]		
0133:35 CAM	[sound of click]		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
0133:50 CAM-3	* Adel.		
0133:52 HOT-2a	merci, sir, excuse me.		
0133:55 CAM-?	*.		
0134:01 HOT-2a	thank you, sir. thanks.		
0134:04 CAM	[sound similar to cockpit door operating]		
0134:10 CAM-?	thank you, Commandant. may your blessings be multiplied.		
0134:11	[brief interruption in audio on all CVR channels]		
0134:13 CAM-?	[sound similar to clearing of throat]		
0134:15 CAM	[sound similar to cockpit door operating]		
0134:25 HOT-2a	Ayyad, if you want to take these things now, take them.		
0134:28 CAM-4	what?		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
0134:29 HOT-2a	If you want to take these things, take them.		
0134:31 CAM-4	(sure)		
0134:33 CAM	[sound similar to cockpit door operating]		
0134:44 CAM-?	*** .		
0134:53 CAM	[sound similar to cockpit door operating]		
0135:08 HOT-2a	what's new? what's wrong with you?		
0135:13 CAM-1a	that's nonsense.		
0135:14 HOT-2a	yeah, of course.		
0135:14 CAM-1a	quite frankly, that's nonsense. I don't accept it.		
0135:17	[brief interruption in audio on all CVR channels]		
0135:17 HOT-2a	a market, it's a market in the cockpit.		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
0135:20 CAM-1a	I don't accept this situation. never... you can't call that flying. by Great God, call it anything else. that has nothing to do with flying, this business... I didn't want to cause trouble for one reason only: just because Hatem is here and he will see before him how the situation is.		
0135:44 HOT-2a	Captain, you...		
0135:44 HOT-2a	all of this because of this good-for-nothing guy named Ayyad...		
0135:46 CAM-1a	what?		
0135:47 HOT-2a	this Ayyad who keeps saying Zulu Alpha... Zulu Alpha.		
0135:49 CAM-1a	I am aware of it.		
0135:50 HOT-2a	he sat here and entered three nine.		
		0135:52 CTR2	EgyptAir nine ninety climb and maintain flight level three three zero, cleared direct DOVEY.
		0135:57 RDO-2a	three three zero, direct DOVEY, EgyptAir nine nine zero.
0136:02 CAM-1a	between me and you this is not work, by God seriously.		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
0136:05 HOT-2a	no, not at all.		
0136:08 CAM-1a	Hisham is telling me that -- I don't know -- he has simulator tomorrow.		
0136:11 HOT-2a	execute... VNAV?		
0136:18 CAM-1a	you see, he is telling me he has simulator tomorrow... is that any good? he is coming straight from Los Angeles, you know, and he is going to have simulator.		
0136:26 CAM	[sound similar to cockpit door operating]		
0136:38	[brief interruptions in audio on all CVR channels]		
0136:42 CAM-1a	what's your opinion about the crowding on this plane?		
0136:44 CAM-3	what crowding?		
0136:47 CAM-1a	the crew that is aboard this plane.		
0136:50 CAM-3	there is one going back that has simulator and another whom I have told in Egypt to come back on the same air-plane from Los Angeles direct to Egypt for training... what difference does it make?		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
0136:59 CAM-1a	what?		
0137:00 CAM-3	what difference does it make?		
0137:00 CAM	[sound of squeak]		
0137:01 CAM-1a	no, it doesn't make any difference to me. I, I am saying that for their sake.		
0137:07 CAM-3	because those, you see, are not active.		
0137:08 CAM-1a	I know that. I didn't say anything. but I mean when you are surprised to see people about whom you don't know anything. It's good that you are here, you know. I don't know, I mean, anybody could...		
0137:24 CAM-3	isn't the extra crew written in the general dec?		
0137:28 CAM-1a	I mean, as long as you are here, there is no problem, you are here. if you were not here, anyone could tell me, "Captain Hatem," should I say okay?		
0137:38 CAM-3	no, I sent a telex concerning this operation.		
0137:40 CAM-1a	bravo for you.		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
0137:41 CAM-3	***.		
0137:41 CAM-1a	bravo for you, bravo for you, and what about the one that doesn't have?		
0137:45 CAM-3	what do you mean by the one that doesn't have?		
0137:46 CAM-1a	the one that comes aboard and doesn't have any document that says that he should board.		
0137:49 CAM-3	they're all reported to the station from Egypt, each with his own schedule. anyone who will come back should inform the station in Egypt.		
0137:55 CAM-?	[sound similar to clearing of throat]		
0137:57 CAM-1a	good, what about the one who comes back and nobody knows anything about him?		
0138:01 CAM-3	I gave my instructions in the station...		
0138:05 CAM-1a	fine. that's what I told them, I, I, I'm not a trouble maker. I mean you know me. I don't need any headache. I'm telling them I am looking after all your interests. when you all are covered, neither the station nor any pilot can argue with you all, and should anything happen to you, you see, nobody could say I know nothing about you.		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
0138:12 CAM	[sound similar to cockpit door operating]		
0138:28 CAM-3	why, why would I put anybody, Habashi?		
0138:28 CAM-?	yes.		
0138:31 CAM-1a	no, that's what I'm saying.		
0138:32 CAM-3	even if somebody makes a mistake, we'll cover him too.		
0138:35 CAM-1a	I'm not saying anything. I'm not saying anything but I get surprised by three, four people going back and I know nothing. everyone is telling me that he has work in Egypt *.		
0138:50 HOT-2a	may God make the seven six prosperous, Captain Habashi. tomorrow, we'll have a hard time up there. let us be, "Uncle Haj".		
0138:56 CAM-1a	why, "Uncle", by God?		
0138:58 HOT-2a	very sweet, may our Lord make it prosperous. sweet, sweet.		
0139:00 CAM-1a	have we ever shorted you? [sound of laughter]		
0139:01 HOT-2a	that's why I'm saying to you, sir, may our Lord make it prosperous, but we'll have a hard time...		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
0139:04 CAM-1a	this man is saying, he's saying to you, "even the one that makes a mistake, I will cover him." I mean, where can you see someone who says that?		
0139:11 HOT-2a	so, why are you upset, Captain?		
0139:12 CAM-1a	I'm not upset, I'm only speaking because I'm actually finding people about whom I know nothing, that's why they got upset with me.		
0139:21 HOT-2a	the man didn't get upset or anything.		
0139:22 CAM-1a	no, I'm not talking about those. when I say, "people, please, anyone not scheduled on the plane should have something saying that he should board the plane," am I wrong in saying that? but I didn't tell anybody to board or not to board or, "you have it" or "you don't have it."		
0139:40 CAM-3	nobody can go back without receiving instructions.		
0139:43 CAM-1a	that's what I'm telling you...		
0139:45 CAM-3	nobody can go back like this on his own. nobody can go back without receiving instructions.		
0139:51 CAM	[sound similar to cockpit door operating]		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
0139:56 CAM-1a	how are you, Jimmy?		
0139:58 CAM-2b	how are you, sir?		
0139:58 CAM-?	*.		
0139:59 CAM-1a	what's new?		
0139:59 HOT-2a	I slept, I swear.		
0140:00 CAM-2b	just wait, let me tell you something. I'm not going to sleep at all. I might come and sit for two hours, and then...		
0140:07 HOT-2a	but I, I, I slept. I slept.		
0140:09 CAM-2b	you mean you're not going to get up? you will get up, go and get some rest and come back.		
0140:14 HOT-2a	you should have told me, you should have told me this, Captain Gamil. you should have said, "Adel...		
0140:16 CAM-2b	did I even see you?		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
0140:16 HOT-2a	... I will work first." just leave me a message. now I am going to sit beside you. I mean, now, I'll sit by you on the seat. I am not sleepy. take your time sleeping and when you wake up, whenever you wake up, come back, Captain.		
0140:28 CAM-2b	I'll come either way...		
0140:28 HOT-2a	Captain...		
0140:31 CAM-2b	come work the last few hours, and that's all.		
0140:35 HOT-2a	no... that's not the point, it's not like that, if you want to sit here, there's no problem.		
0140:37 CAM-2b	I'll come back to you, I mean, I will eat and come back, all right?		
0140:42 CAM	[sound similar to cockpit door operating]		
0140:43 HOT-2a	fine, look here, sir. why don't you come so that... you want them to bring your dinner here, and I'll go sleep.		
0140:49 CAM-2b	that's good.		
0140:52 HOT-2a	with your permission, Captain.		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
0140:56 CAM	[sound similar to cockpit door operating]		
0140:57 HOT-2a	[spoken in a soft voice] do you see how he does whatever he pleases?		
0140:59 CAM-1a	do you know why that is? that's because you all get upset with me.		
0141:03 HOT-2a	I'm not upset with you, what is it to me? [audio level from first officer's hot microphone system diminishes]		
0141:03 CAM-1a	I don't mean you specifically, Adel. son, you are...		
0141:07 CAM-2a	I mean I like you.		
0141:07 CAM-1a	look, are you a youngster?		
0141:09 CAM-2a	no, he does whatever he pleases. some days he doesn't work at all.		
0141:11 HOT-2	[rustling sound heard through first officer's hot microphone system]		
0141:12 CAM-1a	that's why I'm saying. you see, it's just like you heard. when I told him about those who want to go back, what did he say? he said, "never mind, I have them covered."		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
0141:20 CAM	[sound similar to cockpit door operating]		
0141:20 CAM	[whirring sound similar to electric seat motor operating]		
0141:24 CAM-1a	the conversation just happened in front of you.		
0141:26 CAM	[sound of click]		
0141:28 CAM-2a	doesn't he want to work with Raouf, or what?		
0141:30 CAM-1a	it's possible, it's possible, God knows. look, you don't have a male or female camel tied up in this situation [figuratively meaning: you have no personal interest at stake], as they say. right? by the Prophet, he's just talking nonsense.		
0141:44 CAM	[sound similar to cockpit door operating]		
0141:45 CAM-1a	that's it.		
0141:46 CAM-?	enter, Monsieur.		
0141:47 CAM-2a	please, sir, do you need these, sir?		
0141:51 CAM	[sound similar to cockpit door operating]		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
0141:55 CAM-1a	oceanic is ready? go ahead.	0141:52 CTR2	EgyptAir nine ninety, I have your oceanic when you're ready.
		0141:57 RDO-2a	go ahead nine nine zero.
		0142:00 CTR2	EgyptAir nine ninety, you're cleared to Hotel, Echo, Charlie, Alpha, via after DOVEY, NAT TRACK Zulu, SANTIAGO. maintain flight level three three zero. maintain Mach point eight zero.
		0142:13 RDO-2a	EgyptAir nine nine zero, cleared to Cairo Zulu, TRACK Zolo, SANTIAGO three three zero, eight zero Mach, TRACK (message) identification, three zero four.
		0142:24 CTR2	EgyptAir nine ninety, readback correct.
		0142:26 RDO-?	[sound similar to brief unmodulated radio transmission]
0142:31 CAM-2a	everything's under control.		
0142:32 CAM-2b	what?		
0142:33 CAM-2a	everything's under control, Haj.		
0142:34 CAM-2b	okay, chief.		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
0142:35 CAM	[whirring sound similar to electric seat motor operating]		
0142:35 CAM-1a	thanks, Addul. [nickname for Adel]		
0142:39 HOT-2	[sound of clicks similar to seat belt buckle operating]		
0142:41 CAM-2a	** these things.		
0142:42 CAM-2b	all right, all right, go rest.		
0142:43 CAM	[sound of click]		
0142:43 CAM-1a	***.		
0142:44 CAM-?	[sounds similar to clearing of throat]		
0142:46 CAM	[sound of clunk]		
0142:47 CAM-2a	how many do you want ** ?		
0142:56 CAM	[sound of thump]		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
0142:59 CAM-1a	how are you, Jimmy?		
0143:00 CAM-2b	why did you bring up this subject again?		
0143:04 CAM-1a	look, it's the same story with these number threes... [reference to additional repositioning crewmembers]		
0143:07 CAM	[sound of click]		
0143:08 CAM-1a	... so when they fly as active crew... what are they going to do?		
0143:09 CAM	[whirring sound similar to electric seat motor operating]		
0143:11 CAM-1a	you tell me.		
0143:12 CAM-2b	it's disorganized.		
0143:13 CAM-1a	no, that's why I mentioned it to him.		
0143:14 CAM-2b	and you...		
0143:15 CAM-1a	weren't you sitting there listening to me?		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
0143:16 CAM-2b	I mean, you don't... don't...		
0143:18 CAM-1a	no.		
0143:19 CAM-2b	he's trying to please them. just so you know.		
0143:22 CAM-1a	oh yes, didn't he say if somebody made a mistake...		
0143:24 CAM-2b	yeah.		
0143:25 CAM-1a	you know, I don't harm anyone, I will cover for him.		
0143:28 CAM-2b	like I'm telling you.		
0143:29 CAM-1a	I told him it's all right.		
0143:30 CAM-2b	he's trying to please them.		
0143:31 CAM-1a	did you give the instructions that they should come aboard? he said to me, "I always send telex messages." that's it.		
0143:37 CAM	[sound of click]		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
0143:38 CAM-2b	he's trying to please them. as long as he pleases them, don't worry your head.		
0143:47 CAM	[sound of two thumps]		
0143:50 CAM	[sound of two clicks]		
0143:52 CAM-1a	since when do I worry my head...		
0143:53 CAM	[two consecutive whirring sounds similar to electric seat motor operating]		
0143:54 CAM-1a	I mean, you know.		
0143:56 CAM-2b	they, they... the word is that @ @ @ is making trouble. you are making trouble, that's what's being said by everyone. just so you know.		
0144:06 CAM-1a	I don't care.		
0144:09 CAM-2b	these guys are a bunch of #. and what's more, they are being controlled by the guy named, under the leadership of, of the guy named, the # named @, you know?		
0144:22 CAM-1a	***.		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
0144:24 CAM-2b	don't worry your head. you're good hearted.		
0144:26 CAM-1a	I mean... you know me, it doesn't make any difference to me. but when kids start that way...		
0144:35 CAM	[sound of two clicks]		
0144:37 CAM-1a	I told him, I told him later that if I saw anyone aboard that didn't get permission from anybody and who also keeps going back and forth, even with permission, he won't fly with me. I won't fly with him, I'm not willing. I don't want to fly with anyone, even if it comes to me not flying, and if they can prevent me from flying, that's fine, what can I say to them?		
0145:04 CAM-2b	these kids are forming a clique with each other, just so you know, under the leadership of @ @. @ @ controls that group. he has @ ear, as well as... this kid is clever and cunning.		
0145:10 CAM	[brief interruptions in audio on all CVR channels]		
0145:25 CAM-1a	who?		
0145:27 CAM-2b	that's him.		
0145:29 CAM	[sound of click]		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
0145:30 CAM-1a	which one?		
0145:35 CAM-2b	that's enough.		
0145:35 CAM-2b	don't you have the flight report with you, Adel?		
0145:37 CAM-2a	I've got it, sir, I've got it.		
0145:41 CAM-1a	what's with you, why did you get all dressed in red like that?		
0145:47 CAM	[sound similar to cockpit door operating]		
0145:48 CAM-1a	when do you have simulator?		
0145:49 CAM-5	Wednesday.		
0145:50 CAM-1a	what's today?		
0145:51 CAM-5	Sunday... Saturday.		
0145:56 CAM	[sound of two clicks]		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
0145:59 CAM-1a	hey guy, why didn't you take tomorrow's plane?		
0146:00 CAM-5	I tried (because the plane is the plane named thousand).		
0146:03 CAM-1a	why burn yourself out?		
0146:05 CAM-5	because I'm a pilot (thousand). I made three (trips). I'm sick and taking medication.		
0146:10 CAM-?	maybe tomorrow?		
0146:11 CAM-6	* do you all want something else?		
0146:12 CAM-2b	no, no, no.		
0146:13 CAM-6	***.		
0146:15 CAM-2b	that's really, really fantastic.		
0146:17 CAM-6	***.		
0146:18 CAM-2b	thanks a lot.		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
0146:18 CAM	[sound similar to cockpit door operating]		
0146:20 CAM-2b	not at all, sir.		
0146:23 CAM	[several clicks]		
0146:30 CAM	[unintelligible background conversation]		
0146:37 CAM-?	(I know @ @)		
0146:40 CAM-1a	where is @ @?		
0146:42 CAM-?	(he's in a hotel in Dubai)		
0146:44 CAM-1a	what?		
0146:45 CAM-?	(he's in a hotel in Dubai) [sound of chuckle]		
0146:46 CAM-1a	why, where did he go?		
0146:48 CAM	[sound similar to two hand claps]		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
0146:49 CAM-1a	eh?		
0146:49 CAM-?	*.		
0146:51 CAM-1a	did he leave like @ @, or what? [sound of chuckle]		
0146:52 CAM	[sound similar to three hand claps]		
0146:53 CAM-?	no, no, no.		
0146:54 CAM-?	that @.		
0146:55 CAM-2b	@ left for good?		
0146:56 CAM-1a	they say @ came back again.		
0146:56 HOT-2	[whirring sound similar to electric seat motor operating]		
0146:58 CAM-?	he came back? I wish.		
0147:00 CAM-1a	Adel, weren't you the one who told me that he came back?		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
0147:03 CAM-2a	yes, yes, I heard.		
0147:08 CAM	[sound similar to cockpit door operating]		
		0147:19 CTR2	EgyptAir nine ninety change to my frequency one two five point niner two.
		0147:25 RDO-1a	one two five nine two, good day.
0147:31 CAM-?	***.		
0147:34 CAM	[sound similar to cockpit door operating]		
		0147:40 RDO-1a	New York, EgyptAir ah, nine nine zero heavy, good morning.
		0147:45 CTR2	EgyptAir nine ninety, roger.
0147:51 CAM-1a	is that the route? even if it/she didn't want * ...		
0147:55 CAM-2b	* look, here's the new first officer's pen. give it to him please. God spare you.		
0147:58 CAM-?	yeah.		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
0148:01 CAM-2b	to make sure it doesn't get lost.		
0148:03 CAM-1a	excuse me, Jimmy, while I take a quick trip to the toilet...		
0148:04 CAM	[whirring sound similar to electric seat motor operating, heard only using digital filter]		
0148:04 CAM	[sound of click]		
0148:05 CAM	[sound similar to cockpit door operating]		
0148:08 CAM-2b	go ahead please (go ahead please).		
0148:09 CAM	[sound of several clicks]		
0148:10 CAM-1a	...before it gets crowded. while they are eating, and I'll be back to you.		
0148:18.55 CAM	[sound similar to cockpit door operating]		
0148:22.70 CAM	[sound of thunk]		
0148:23.30 CAM	[sound of clink]		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
0148:30.69 CAM-?	*** [The five Arabic speaking members of the group concur that they do not recognize this as an Arabic word, words, or phrase. The entire group agrees that three syllables are heard and the accent is on the second syllable. Four Arabic speaking group members believe that they heard words similar to "control it". One English speaking member believes that he heard a word similar to "hydraulic". The five other members believe that the word(s) were unintelligible.]		
0148:34.80 CAM	[sound of click and thump]		
0148:39.92 CAM-2b	I rely on God. [heard faintly]		
0148:49.30 CAM	[sound of thump]		
0148:53.10 CAM	[sound of faint, muffled thump]		
0148:56.31 CAM	[sound of thump]		
0148:57.93 CAM	[series of thumps and clicks starts and continues for approximately seventeen seconds]		
0149:18.30 CAM	[sound of light thump]		
0149:18.37 CAM	[whirring sound similar to electric seat motor operating, also heard through first officer's hot microphone system]		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
0149:30.16 CAM	[sound of two faint thumps and one louder thump]		
0149:47.54 CAM	[sound of two clicks and two thumps]		
0149:48.42 CAM-2b	I rely on God.		
0149:53.32 CAM	[one loud thump and three faint thumps]		
0149:57.33 CAM-2b	I rely on God.		
0149:58.75 CAM-2b	I rely on God.		
0149:58.78 CAM	[four tones similar to Master Caution aural beeper]		
0150:00.15 CAM-2b	I rely on God.		
0150:01.60 CAM-2b	I rely on God.		
0150:02.93 CAM-2b	I rely on God.		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
0150:04.42 CAM-2b	I rely on God.		
0150:04.72 CAM	[sound of loud thump]		
0150:05.89 CAM-2b	I rely on God.		
0150:06.37 CAM-1a	what's happening? what's happening?		
0150:07.07 CAM-2b	I rely on God.		
0150:07.11 CAM	[sound of numerous thumps and clinks continue for approximately fifteen seconds]		
0150:08.20 CAM	[repeating hi-low tone similar to Master Warning aural starts and continues to the end of recording]		
0150:08.48 CAM-2b	I rely on God.		
0150:08.53 CAM-1a	what's happening?		
0150:11.50 CAM-?	*		
0150:15.15 CAM-1a	what's happening, Gamil? what's happening?		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
0150:19.51 CAM	[four tones similar to Master Caution aural beeper]		
0150:24.92 CAM-1a	what is this? what is this? did you shut the engine(s)?		
0150:25.00 HOT2	[change and increase in sound, heard only through first officer's hot microphone system]		
0150:26.55 CAM-1a	get away in the engines. [translated as said]		
0150:28.85 CAM-1a	shut the engines.		
0150:29.66 CAM-2b	it's shut.		
0150:31.25 CAM-1a	pull.		
0150:32.75 CAM-1a	pull with me.		
0150:34.78 CAM-1a	pull with me.		
0150:36.84 CAM-1a	pull with me.		
0150:38.47 END OF RECORDING END OF TRANSCRIPT			