

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

March 5, 2001

Cockpit Voice Recorder - 12, Addendum

**Group Chairman's Factual Report
by Albert G. Reitan**

A. ACCIDENT

Location: Little Rock Adams Airport, Arkansas
Date: June 1, 1999
Time: 1150 PM Central daylight time (CDT)
Aircraft: American Airlines, flight 1420, McDonnell Douglas MD-82
N215 AA
NTSB Number: DCA99MA060

B. GROUP

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

Member: Lyle K. Streeter
Air Safety Investigator
Federal Aviation Administration

Member: Captain Randy Wyatt
Experimental Test Pilot
Boeing (Douglas Products Division)

Member: Captain Mark Popisil
Chief Pilot, Chicago
American Airlines

Member: Captain Jon F. Jefferies
Base Safety Coordinator
Allied Pilots Association
American Airlines

C. SUMMARY

Since the public release of the cockpit voice recorder transcript, an Aircraft Performance Study was conducted by the performance group. This study resulted in refined times for some of the events on the CVR recording. The attached transcript contains the adjusted times. For further information, refer the Group Chairman's Aircraft Performance Study.

A large black rectangular redaction covers the signature area. To the right of the redaction, there is a handwritten signature in black ink.

Albert G. Reitan
Transportation Safety Specialist (CVR)

Attachment:

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
1119:44			
START of RECORDING			
START of TRANSCRIPT			
1119:53			
CAM-2	I warmed it up pretty good.		
1119:55			
CAM-1	aah.		
1119:56			
CAM-2	like it. **		
1119:56			
CAM-1	actually, it's getting pretty hot.		
1120:07			
CAM-2	did they complain about the temperature?		
1120:09			
CAM-1	naw, it's getting warm up here.		
1120:11			
CAM-2	ah, okay.		
		1120:15	
		CTR	American fourteen twenty, are you gonna want still want lower?
1120:18			
CAM-1	ah, so far it's okay.		
		1120:20	
		RDO-2	so far so good ma'am. fourteen twenty we'll let you know.
		1120:24	
		CTR	right.

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
1120:52 CAM-2	twenty five for twenty four. set and armed.		
1121:01 CAM-2	this stuff is working out pretty well. * get ahead of that stuff.		
1121:45 CAM-1	** , we're almost down to max landing weight.		
1121:55 CAM-1	we'll be there.		
1121:57 CAM-2	yeah.		
1122:17 CAM-2	you want to use one thirty, right?		
1122:19 CAM-1	yeah, well. I don't know. we've got a hundred miles to go. yeah, I guess so.		
1122:32 CAM-1	and we'll use flaps forty since **.		
1122:35 CAM-2	sure.		
1122:47 CAM-?	**.		
1122:50 CAM-?	**.		
1123:02 CAM-1	we're right on the edge of this **.		
1123:24 CAM-?	**.		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
1123:58 CAM-2	this is the ground over here on the right.		
1124:00 CAM-1	yeah I see an occasional ground **.		
1124:13 CAM-?	[sound of yawn]		
1124:24 CAM-1	boy, this is too much (return).		
1124:44 CAM	[sound of "ding dong" similar to flight attendant call chime]		
1124:47 CAM-2	there's a moon out there. or a space ship.		
1124:53 CAM-1	yeah. the mother ship.		
1124:56 CAM-2	[sound of chuckle] got your Nike's on?		
1125:00 CAM-1	yeah, right.		
1125:01 CAM-3	[sound of chuckle]		
1125:03 CAM-1	what was that guy's name?		
1125:04 CAM-2	@, @ or.		
1125:06 CAM-1	yeah @.		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
1125:10 CAM-2	center pumps comin' off.		
1125:11 CAM-1	all right.		
1125:12 CAM	[sound of two clicks]		
1125:17 CAM-2	there's your big wadiddily.		
1125:19 CAM-1	yeah.		
1125:23 CAM-2	thirteen miles?		
1125:25 CAM-?	***.		
1125:30 CAM	[sound similar to ice bag being struck in galley]		
1125:47 CAM-1	we got to get over there quick.		
1125:52 CAM-2	I don't like that.... that's lightning.		
1126:00 CAM-1	sure is.		
1126:24 CAM-2	oh.		
1126:40 CAM-1	that's about as far as we can go.		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
1126:41 CAM-2	yeah, I would say right about. maybe a little bit more and that's about it. we could start down here pretty soon.		
1126:49 CAM-1	I'm gonna ask her to come **...		
1126:52 CAM-1	this is the bowling alley right here.		
1126:54 CAM-2	yeah, I know.		
1126:59 CAM-1	in fact those are the city lights straight out there.		
1127:01 CAM-2	that's it.		
1127:07 CAM-2	want to go down?		
1127:09 CAM-1	uuh, not just yet.... but, pretty soon.		
1127:14 CAM-1	(seventy two), yeah.		
1127:15 CAM-?	**.		
		1127:15 CTR	American fourteen twenty descend and maintain one zero thousand. the, Little Rock altimeter, is two niner eight six.

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
		1127:24 RDO-2	ten thousand, two niner eight six. American fourteen twenty, thanks.
1127:27 CAM-1	ten set and armed.		
1127:28 CAM-2	thanks.		
1127:31 PA-1	uh, we're now just uh, eighty miles from the airport and we have started our descent uh, toward it. quite a light show off the left hand side of the aircraft. we'll be passing that on our way toward Little Rock.... and we should be landing here in about uh, probably about twenty minutes. I'm gonna have to slightly over-fly the airport, in or... order to turn back around to land. it's been a pleasure having you on board for this short flight and I'd like to take this opportunity to thank you for flying American Airlines.		
1128:06 CAM-2	descent checks are complete.		
1128:08 CAM-1	okay.		
		1128:23 CTR	American fourteen twenty contact Memphis center one three five point eight. good day.
		1128:27 RDO-2	thirty five eight, American fourteen twenty, good night.
1128:30 CAM-1	we gotta get there quick.		
1128:31 CAM-2	yep.		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
		1128:44 RDO-2	American fourteen twenty leaving two two zero for one zero thousand.
		1128:51 CTR	Amer.. fourteen twenty, Memphis rog ..
1129:02 CAM-2	sit'em down early?		
1129:03 CAM	[sound of "ding dong, ding dong" similar to flight attendant call chime]		
1129:06 INT-3	this is Nancy.		
1129:07 INT-1	yeah, how you guys uh, doing back there?		
1129:08 INT-4	this is Jennifer.		
1129:06 INT-1	yeah, how you guys doing back there?		
1129:10 INT-4	um, pretty okay.		
1129:11 INT-3	they're still out in the in the aisle with the cart doing the service.		
1129:14 INT-4	yeah.		
1129:14 INT-1	really uh...		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
1129:15 INT-3	yeah.		
1129:15 INT-1	it's uh, I think it's gonna get a little bumpy here again and if you don't mind uh....		
1129:18 INT-4	do we need to sit down?		
1129:19 INT-1	yeah, how far through are you?		
1129:21 INT-4	we're almost done but not quite, so...		
1129:23 INT-1	okay, well, finish it real quick.		
1129:24 INT-4	okay.		
1129:25 INT-1	all right.		
1129:25 INT-4	'bye.		
1129:26 INT-1	'bye.		
		1129:35 CTR	American fourteen twenty, roger. Little Rock altimeter's two niner eight six.
		1129:40 RDO-2	two niner eight six, American fourteen twenty.

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
1129:47 CAM-2	yeah, that alley's getting' big.. closing to the west.		
1129:51 CAM-1	yeah it is.		
1129:52 CAM-2	* be okay.		
1129:55 CAM-2	I say we get down as soon as we can.		
1129:59 CAM-1	two nine eight six?		
1130:00 CAM-2	* nine eight six. altimeters are set and cross checked.		
1130:09 CAM-2	aw #, no right side **.		
1130:52 CAM-2	okay, hydraulic pumps are on, high, and on.		
1130:55 CAM-1	okay.		
1130:55 CAM-2	altimeters? two nine eight six.		
1130:59 CAM-1	reset, two nine eight six.		
1131:00 CAM-2	flight instruments and bugs?		
1131:02 CAM-1	uuh, I got a hundred, and thirty.		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
1131:06 CAM-2	yeah.		
1131:08 CAM-1	with the flaps forty, a hundred and thirty thousand pounds. four hundred and sixty feet, two hundred feet ***...		
1131:16 CAM-2	set and cross checked.		
1131:18 CAM-2	tail de-ice? uh, not required?		
1131:21 CAM-1	uh, not required.		
1131:22 CAM-2	manual brakes?		
1131:24 CAM-1	uuh, manual's fine.		
1131:32 CAM-1	I have to go a little to the right here.		
1131:33 CAM-2	yeah.		
1131:34 CAM-?	(don't turn left)		
1131:38 CAM-2	actually there's the city right there.		
1131:39 CAM-1	yeah.		
1131:42 CAM-2	breaking out of this (crud). good.... doing good.		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
1131:55 CAM-2	whoa. looks like it's movin' this way though.		
1131:57 CAM-1	yeah *.		
1131:58 CAM-2	***.		
1132:08 CAM-1	* just some lightning straight ahead.		
1132:14 CAM-2	*** think we're gonna be okay. right there.		
1132:18 CAM-?	*.		
1132:31 CAM-1	down the bowling alley.		
1132:47 CAM-2	as my friends would say, California cool.		
1132:51 CAM-1	cool.		
1132:52 CAM-2	[sound of chuckle]		
1132:54 CAM-1	peachy.		
1132:55 CAM-2	exactly.		
1133:48 CAM-1	that's forty miles.		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
1133:50 CAM-2	yeah.	1133:49 CTR	American fourteen twenty, contact Little Rock approach one three five point four.
		1133:55 RDO-2	thirty five four, American fourteen twenty. you have a good night.
		1133:57 CTR	good night.
		1134:05 RDO-2	American uh, fourteen twenty at uh, eleven three for ten thousand.
		1134:11 APR	American fourteen twenty, Little Rock approach roger. ah we have a thunderstorm just northwest of the airport moving uh, through the area now. wind is two eight zero at two eight, gusts four four and uh, I'll have new weather for you in just a moment I'm sure.
		1134:23 RDO-2	yeah we can see the uh, lightning and uh, you wanta repeat those winds again.
		1134:28 APR	right now the wind current wind is two niner zero at two eight, gusts four four.
1134:34 CAM-1	all right two eight zero at four four.		
1134:36 CAM-2	gusts to forty four *.		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
1134:38 CAM-1	right near the limit.		
1134:39 CAM-2	yeah, it's uh, forty degrees off. what's our cross(wind) *.		
		1134:43 APR	American fourteen twenty expect an ILS runway two two left.
1134:46 CAM-1	thirty.		
		1134:47 RDO-2	two two left, we've got that, fourteen twenty.
1134:50 CAM-2	no that's that's *, you're, not out of the limits because of the angle *, but it's pretty close.		
1134:56 CAM-1	yeah.		
1135:21 CAM-2	two two left is the right one.... so uh....		
1135:29 CAM-2	I uh, I didn't realize that.		
1135:32 CAM-?	eerraaw.		
		1135:37 APR	American fourteen twenty, descend at pilot's discretion. maintain four thousand.
		1135:40 RDO-2	* down to four thousand, American uh, fourteen twenty.

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
1135:46 CAM-1	four thousand set.		
1135:50 CAM-2	okay, ten thousand foot, seatbelt sign no smoking.		
1135:52 CAM	[sound of "ding dong" similar to flight attendant call chime]		
1135:53 CAM-1	yeah I'll get down in a second *.		
1135:55 CAM-2	okay.		
1136:02 CAM-2	yeah it's ten knots uh...		
1136:04 CAM-1	thirty knots is the crosswind limitation but...		
1136:06 CAM-1	thirty knots is the.... wet, well.		
1136:08 CAM-2	that's the dry.		
1136:09 CAM-1	yeah, dry.		
1136:10 CAM-2	what about wet?		
1136:11 CAM-1	wet.		
1136:12 CAM-2	yeah.		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
1136:12 CAM-1	is twenty.		
1136:13 CAM-2	ah, it's twenty five. aw, what the #.		
1136:30 PA-1	flight attendants prepare for landing please.		
1136:40 CAM-2	you got the NOTAMS, with ya?		
1137:17 CAM-2	see the airport?		
1137:18 CAM-1	see it blinking out there.		
1137:20 CAM-2	** to the north,		
1137:20 CAM-1	straight ahead.		
1137:21 CAM-2	well there's a couple runways here so, the problem is we're sixteen miles south of the VOR and the airport's another five miles past that.		
1137:29 CAM-1	all right. (doesn't) matter.		
1137:32 CAM-2	so we've still got a little ways to go... bad part..... I'll tell you what. I'm gonna stay on the run... the VOR till we get a little closer.		
1138:22 CAM-1	oh I think I see, I see where it is.		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
1138:25 CAM-2	yeah it's on **.		
1138:26 CAM-1	it's straight up there, yeah...		
1138:27 CAM-2	* (blinking) *.		
1138:28 CAM-1	it looks like there's stratus a layer, right over there.		
1138:36 CAM-2	*** I definitely got **. (I'll show you this later).		
1138:54 CAM-1	he said there was a storm just northwest of the field?		
1138:56 CAM-2	he said northwest.		
1138:57 CAM-1	yeah.		
1138:58 CAM-2	lightning strike he said storm, uh.		
		1139:00 APR	American fourteen twenty, descend and maintain, three thousand.
		1139:03 RDO-2	out of four for three, American uh, fourteen twenty.
		1139:06 APR	American fourteen twenty uh, you're equipment's a lot better than uh, what I have. how 's the final for two two left lookin'?

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
1139:12 CAM-1	what's that?	1139:12 RDO-2	okay, we can uh, see the airport from here. we can barely make it out but uh, we should be able to make two two. uh, that storm is moving this way like your, radar says it is but a little bit farther off than you thought.
1139:27 CAM-1	naw.	1139:23 APR	American fourteen twenty roger, would you just want to shoot a visual approach?
1139:38 CAM-1	whoa.	1139:28 RDO-2	uh, at this point we can't really make it out. we're gonna have to stay with you as long as possible.
1139:42 CAM-1	* thirty is a, tailwind though.	1139:32 APR	American fourteen twenty roger. and uh, the winds kinda kicked around a little bit right now. it's three three zero, at uh, one one.
		1139:39 RDO-2	okay, well that's a little bit, better than it was.
		1139:45 APR	*.

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
		1139:45 APR	and uh, right now I have a uh, windshear alert. the center field wind is three four zero at one zero north boundary wind is three three zero at two five. northwest boundary wind is zero one zero at one five.
1139:53 CAM-?	*		
1139:56 CAM-1	** be landing on four?		
		1139:59 RDO-2	is there a possibility to get runway four?
		1140:01 APR	American fourteen twenty yes sir. we can do runway four if * you'd prefer that.
1140:05 CAM-1	it'd be a headwind.		
1140:06 CAM-2	yeah.		
1140:06 CAM-2	I think we're gonna need...		
		1140:08 RDO-2	...we would rather do the headwinds sir.
		1140:09 APR	I'm sorry, say again American fourteen twenty.
		1140:12 RDO-2	yeah, we're gonna want the headwind of course.... runway four.

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
1140:19 CAM-1	we're going to three, right?		
		1140:20 APR	American uh, fourteen twenty uh, turn right heading of uh, two five zero vectors for the ILS runway four right final approach course.
1140:22 CAM-2	yeah, three thousand.		
		1140:26 RDO-2	okay, a right turn to two five zero uh, the long way around?
		1140:29 APR	uh, yes sir, you're a little close to the airport.
1140:31 CAM-1	yeah right.		
		1140:32 RDO-2	two five zero, that'll work.
1140:36 CAM-2	*, runway four.		
1140:46 CAM-2	four right. one one one point three.... zero four two. I think we were, I think that was the airport right below us.		
1141:02 CAM-1	yeah it was. okay, one eleven three.		
1141:07 CAM-2	one eleven three. zero four two. four sixty on decision altitude.		
1141:14 CAM-2	four thousand for three thousand, is armed.		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
1141:16 CAM-1	okay.		
1141:19 CAM-2	uh, MSA is thirty three hundred feet all the way around.		
		1141:22 APR	American fourteen twenty uh, maintain three thousand three hundred for now please.
		1141:25 RDO-2	three thousand three hundred. we just saw it, thanks.
1141:28 CAM-1	yeah, the uh *.		
1141:31 CAM-2	okay. and two two seventeen glide slope intercept all the way down missed approach right turn to four thousand.... ***.		
1141:57 CAM-2	let's see, you got the airport? tell you what. *.		
1142:00 CAM-1	yeah. ** I don't have the airport.		
1142:03 CAM-2	** , I'm saying you got the ILS.		
1142:04 CAM-1	yeah, I got the ILS		
1142:07 CAM-1	it's uh....		
1142:13 CAM-2	yeah, there it is. I got the airport.		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
1142:16 CAM-1	okay, and decision height is four sixty.		
1142:17 CAM-2	yeah.		
1142:19 CAM-1	do you have the airport?		
1142:20 CAM-2	*.		
1142:20 CAM-1	is that it right there?		
1142:21 CAM-?	okay.		
1142:23 CAM-2	* see, I can't.		
1142:24 CAM-1	I don't see a runway.		
1142:26 CAM-2	go out this way.		
		1142:27 APR	American fourteen twenty, it appears we have uh, second part of this storm moving through. the winds now, three four zero at one six, gusts three four.
1142:34 CAM-1	okay.		
		1142:35 RDO-2	roger that.

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
1142:40 CAM-2	you wanna accept a short approach? want to keep it in tight?		
1142:42 CAM-1	yeah, if you see the runway. 'cause I don't quite see it.		
1142:45 CAM-2	yeah, it's right here, see it?		
1142:48 CAM-1	[sound of grunt] you just point me in the right direction and I'll start slowing down here. give me flaps eleven.		
		1142:54 RDO-2	and uh....
1142:55 CAM-2	#, it's going right over the.... f-field.		
1142:55 CAM-1	*.		
		1142:56 APR	American fourteen twenty, did you call me?
		1142:59 RDO-2	well we got the airport. we're going between clouds. I think it's right off my uh, three o'clock low, about four miles.
		1143:05 APR	American fourteen twenty, that's it. do you wanna shoot the visual approach or you wanna go out for the ILS?
		1143:09 RDO-2	I can, we'll, we'll (start) the visual. if we we can do it.

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
		1143:11 APR	American fourteen twenty's cleared visual approach runway four right. if you lose it, need some help. let me know please.
		1143:15 RDO-2	I'll stay with you as long as possible, OK?
		1143:18 APR	that's fine, I'm working everything, American fourteen twenty.
		1143:20 RDO-2	that works for me.
		1143:21 APR	all right.
1143:23 CAM-1	well you keep me straight.		
1143:23 CAM-2	keep it right here, keep it right here, ** right here.		
1143:25 CAM-1	what?		
1143:26 CAM-2	okay, did you notice something? there's the airport right there. okay?		
1143:31 CAM-1	where?		
1143:31 CAM-2	okay, you're set up on a base for it. okay?		
1143:33 CAM-1	I'm on a base now?		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
1143:35 CAM-2	well, you're on a dogleg. you're comin' in. there's the airport.		
1143:38 CAM-1	uh, I lost it.		
1143:39 CAM-2	right there, you're you're downwind. see it's right there.		
1143:44 CAM-1	I still don't see it. [sound of chuckle] well just vector me. I don't know.		
1143:47 CAM-2	okay, well just go * right here.		
1143:49 CAM-1	okay.		
		1143:59 APR	American fourteen twenty, you can monitor one one eight point seven, runway four right, cleared to land. the wind right now three three zero at two one.
		1144:05 RDO-2	eighteen seven, we'll monitor, American fourteen twenty, thanks. cleared to land runway four.
1144:10 CAM-1	*****.		
1144:13 CAM-2	if you look at		
1144:14 CAM-1	those red lights out there. where, where's that in relation to....		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
1144:18 CAM-2	there's another, there's two runways here. there's three runways.		
1144:19 CAM-1	yeah I know. see we're losing it. I don't think we can maintain visual.		
1144:22 CAM-2	** yeah.		
		1144:23 RDO-2	hold on and uh.....
1144:26 CAM-1	oh, you're on tower.		
1144:27 CAM-2	oh, I'm sorry.		
		1144:28 RDO-2	and approach American fourteen twenty.
		1144:29 APR	American fourteen twenty, yes sir.
		1144:30 RDO-2	and there's a cloud between us and the airport. we just lost the field and I'm uh, on this vector here, I have the uh, basically last vector you gave us, we're on kind of a dog leg it looks like.
		1144:39 APR	American fourteen twenty, can you fly heading two two zero? I'll take you out for the ILS.
1144:42 CAM-1	**.		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
		1144:43 RDO-2	yeah two two zero's fine.
		1144:45 APR	and it will be just one probably one turn on from uh, downwind to final, for the ILS.
		1144:49 RDO-2	'K that's how it's gonna have to be, thanks.
1144:51 CAM-2	yeah, I had it but I lost it with the clouds and that's what I was saying.		
1144:54 CAM-1	okay.		
		1144:54 APR	American fourteen twenty, descend and maintain two thousand three hundred.
		1144:56 RDO-2	two thousand three hundred, American fourteen twenty.
1144:59 CAM-2	two thousand three hundred.		
1145:00 CAM-1	set and armed. uh, now it is.		
1145:07 CAM-2	#, * we had it.		
1145:09 CAM-1	yeah. I just, I never saw the runway.		
1145:11 CAM-2	no no, it's okay. I**.		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
1145:12 CAM	[sound similar to stabilizer-in-motion horn]		
1145:13 CAM-5	stabilizer motion		
1145:15 CAM-1	I hate droning around visual at night in weather without, having some clue where I am.		
1145:23 CAM-2	yeah but, the longer we go out here the ...		
1145:24 CAM-1	yeah, I know.		
1145:25 CAM	[sound similar to stabilizer-in-motion horn]		
1145:26 CAM-5	stabilizer motion.		
1145:29 CAM-2	see how we're going right into this crap.		
1145:31 CAM-1	right.		
		1145:47 RDO-2	and approach American fourteen twenty, I know you're doing your best sir. we're getting pretty close to this storm. we'll keep it tight if we have to.
		1145:52 APR	* American fourteen twenty uh, turn right heading of uh, two seven zero.
1145:56 CAM	[sound similar to stabilizer-in-motion horn]		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
		1145:57 RDO-2	two seven zero, American fourteen twenty.
		1145:59 APR	and uh, when you join the final, you're going to be right at just a little bit outside the marker if that's gonna be okay for ya.
1146:04 CAM-1	that's great.		
		1146:05 RDO-2	that's great with us.
		1146:06 APR	American fourteen twenty, roger.
1146:11 CAM	[sound similar to stabilizer-in-motion horn]		
1146:11 CAM-2	see we're right on the base of these clouds so ...		
1146:13 CAM-1	yeah.		
1146:14 CAM-2	... it's not worth it.		
1146:15 CAM	[sound similar to stabilizer-in-motion horn]		
1146:20 CAM-2	two seven zero, two thousand three hundred?		
1146:23 CAM-1	yes sir. * where I am.		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
		1146:25 APR	American fourteen twenty, turn right heading three, zero zero.
		1146:29 RDO-2	right turn three zero zero American fourteen twenty.
		1146:39 APR	American fourteen twenty is uh, three miles from the marker. turn right heading zero two zero. maintain two thousand three hundred 'til established on the localizer. cleared ILS runway four right approach.
1146:43 CAM	[brief sound of Morse Code identifier]		
		1146:47 RDO-2	zero two zero 'til established, American fourteen twenty, cleared four left approach.
1146:52 CAM-1	aw, we're goin' right into this.		
		1146:52 APR	American fourteen twenty, right now we have uh, heavy rain on the airport. the uh, current weather on the ATIS is not correct. I don't have new weather for ya, but the uh, visibility is uh, less than a mile. runway four right RVR is three thousand.
1146:53 CAM	[sound similar to stabilizer-in-motion horn]		
1147:04 CAM-1	three thousand.		
		1147:04 RDO-2	roger that, three thousand, American uh, fourteen twenty. this is four right, correct?

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
1147:07 CAM	[sound similar to stabilizer-in-motion horn]	1147:08 APR	American fourteen twenty, that's correct sir. and runway four right, cleared to land. the wind three five zero at three zero, gusts four five.
1147:10 CAM-1	can we land?	1147:16 RDO-2	zero three zero at four five, American fourteen twenty.
1147:19 CAM-2	** zero forecast right down the runway.		
1147:22 CAM-1	three thousand RVR. we can't land on that.		
1147:24 CAM-2	three thousand if you look at uh....		
1147:26 CAM	[sound similar to stabilizer-in-motion horn]		
1147:27 CAM-1	what do we need?		
1147:28 CAM-2	no it's twenty four hundred RVR.		
1147:29 CAM-1	okay, fine.		
1147:30 CAM-2	yeah, we're doing fine.		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
1147:31 CAM-1	all right.		
1147:34 CAM-1	uh, fifteen.		
1147:36 CAM	[sound of clicks similar to flap handle movement]		
1147:40 CAM	[sound similar to stabilizer-in-motion horn]		
1147:44 CAM-1	llanding gear down.		
1147:46 CAM	[sound similar to landing gear being operated]		
1147:47 CAM	[sound similar to stabilizer-in-motion horn]		
1147:49 CAM-1	and lights ** please.		
1147:51 CAM	[sound similar to stabilizer-in-motion horn]		
1147:52 CAM-5	stabilizer motion		
		1147:53 APR	windshear alert, center field wind, three five zero at three two, gusts four five. north boundary wind three one zero at two niner. northeast boundary wind three two zero at three two.
1148:01 CAM	[sound similar to stabilizer-in-motion horn]		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
1148:02 CAM-5	stabilizer motion.		
1148:03 CAM-2	flaps twenty eight?		
1148:10 CAM-1	add twenty.		
1148:12 CAM-2	right.		
1148:12 CAM-1	add twenty knots.		
		1148:12 APR	American fourteen twenty, the runway four right RVR now is one thousand six hundred.
1148:14 CAM-2	okay.		
1148:17 CAM-2	aw #.		
1148:18 CAM-1	well we're established on the final.		
1148:20 CAM-2	we're established we're inbound, right.		
		1148:24 RDO-2	okay, American fourteen twenty, we're established inbound.

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
		1148:26 APR	American fourteen twenty roger, runway four right, cleared to land, and the wind, three four zero at three one. north wind, north uh, boundary wind is three zero zero at two six, north-east boundary wind three two zero at two five, and the four right RVR is one thousand six hundred.
1148:36 CAM	[sound similar to stabilizer-in-motion horn]		
		1148:41 RDO-2	American uh, fourteen twenty, thanks.
1148:43 CAM-2	that's a good point.		
1148:45 CAM	[unidentified intermittent tone]		
1148:47 CAM-2	keep the speed.		
1148:50 CAM-2	thousand feet.		
1148:54 CAM-1	I don't see anything. lookin' for four sixty.		
1148:58 CAM	[sound similar to stabilizer-in-motion horn]		
1149:00 CAM-2	it's there.		
1149:02 CAM-2	want forty flaps?		
1149:04 CAM-1	oh yeah, thought I called it.		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
1149:05 CAM-2	forty now. thousand feet. twenty, forty forty land.		
1149:10 CAM	[unidentified tone similar to sound at time 1148:45]		
		1149:10 APR	wind is three three zero at two eight.
1149:12 CAM-1	this is, this is a can of worms.		
1149:17 CAM	[sound similar to stabilizer-in-motion horn]		
1149:22 CAM	[sound similar to stabilizer-in-motion horn]		
1149:24 CAM-1	(I'm gonna stay above it a little)		
1149:24 CAM-2	there's the runway off to your right, got it?		
1149:26 CAM-1	no.		
1149:27 CAM-2	I got the right runway in sight.		
1149:30 CAM-2	you're right on course. stay where you're at.		
1149:31 CAM-1	I got it, I got it.		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
		1149:32 APR	wind three three zero at two five.
1149:37.7 CAM-?	wiperssss.		
1149:41.4 CAM	[sound similar to windshield wiper motion]		
1149:46.4 CAM-2	five hundred feet.		
1149:50.1 CAM-?	*.		
		1149:53.1 APR	wind three two zero, at two three.
1149:53.7 CAM-1	plus twenty.		
1149:56.6 CAM-?	aw #, we're off course.		
1149:57.6 CAM-?	**.		
1150:00.4 CAM-2	we're way off.		
1150:01.5 CAM-1	I can't see it.		
1150:04.4 CAM-2	got it?		
1150:05.1 CAM-1	yeah I got it.		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
1150:07.9 CAM-2	hundred feet.		
1150:09.4 CAM-?	above.		
1150:11.1 CAM-2	hundred.		
1150:12.8 CAM-5	sink rate.		
1150:13.7 CAM-2	fifty.		
1150:14.2 CAM-5	sink rate.		
1150:14.5 CAM-2	forty.		
1150:15.8 CAM-2	thirty.		
1150:17.6 CAM-2	twenty.		
1150:18.3 CAM-2	ten.		
1150:20.2 CAM	[sound of two thuds similar to aircraft touching down on runway concurrent with unidentified squeak sound]		
1150:22.2 CAM-2	we're down.		
1150:24.4 CAM-2	we're sliding.		

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME &
SOURCE

CONTENT

TIME &
SOURCE

CONTENT

1150:26.1

CAM-1 #.... #.

1150:31.8

CAM-? on the brakes.

1150:33.1

CAM-? oh sh

1150:33.5

CAM [sound similar to increase in engine RPM]

1150:35.1

CAM-? other one, other one, other one.

1150:40.9

CAM-? aw #.

1150:41.6

CAM-? ##.

1150:43.8

CAM [sound of impact]

1150:44.3

CAM-? ##.

1150:46.9

CAM [sound of several impacts]

1150:48.1

END of RECORDING
END of TRANSCRIPT