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

GROUP CHAIRMAN'S FACTUAL REPORT OF INVESTIGATION

DCA15IA089

By
Bill Tuccio, Ph.D.

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

April 21, 2015

Cockpit Voice Recorder

Group Chairman's Factual Report
By Bill Tuccio, Ph.D.

1. EVENT SUMMARY

Location: Chicago, Illinois
Date: March 14, 2015
Aircraft: Bombardier CRJ-700, Registration N157GJ
Operator: GoJet Airlines, Flight 3645
NTSB Number: DCA15IA089

On March 14, 2015, about 1521 central daylight time (CDT), Gojet Airlines flight 3645, d.b.a. United Express, a Bombardier CRJ 700, registration N157GJ, landed with the nose gear retracted on runway 32R at Chicago O'Hare International Airport (ORD), Chicago, Illinois. There were no injuries to the 37 passengers and 4 crewmembers onboard and the airplane received minor damage. The flight was operating under the provisions of 14 *Code of Federal Regulations* Part 121 as a regularly scheduled passenger flight from Gerald R. Ford International Airport (GRR), Grand Rapids, Michigan. 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 March 30, 2015, and a partial transcript was prepared for the 2-hour, 4-minute digital recording (see attached).

2. GROUP

Chairman: Dr. Bill Tuccio
                    Aerospace Engineer
                    NTSB

Member: Bob Hendrickson
                    Air Safety Investigator
                    Federal Aviation Administration

Member: Captain Don McNicoll
                    Chief Safety Pilot
                    Bombardier[1]

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[1] Technical Representative to the Accredited Representative, Canada's Transportation Safety Board (TSB). The TSB was also invited to attend the CVR group.

Member:	Captain Peter Petersen	
	Check Airman	
	GoJet Airlines	
Member:	Captain Paul Bramall	
	Flight Operations Quality Assurance Data Specialist	
	International Brotherhood of Teamsters #618	

3. DETAILS OF INVESTIGATION

The NTSB Vehicle Recorder Division received the following CVR:

Recorder Manufacturer/Model:	**L-3/Fairchild FA2100-1020**
Recorder Serial Number:	**000199346**

3.1 CVR Carriage Requirements

Per federal regulation, turbine engine powered aircraft operating under 14 CFR Part 121 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. 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 FA2100-1020, is a solid state CVR that records 120 minutes of digital audio. Specifically, it contains a 2-channel recording of the last 120 minutes of operation and separately contains a 4-channel recording of the last 30 minutes of operation. The 120-minute portion of the recording is comprised of one channel that combines three audio panel sources and a second channel that contains the cockpit area microphone (CAM) source. The 30-minute portion of the recording contains 4 channels of audio information: one channel for each flight crew, one channel for a cockpit observer (or cabin passenger address (PA) system), and one channel for the 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.[2]

Table 1: Audio Quality.

Channel Number	Content/Source	Quality	Duration
1	CAM	Poor	120min
2	Combined	Excellent	120min
1	PA System	Excellent	30min

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[2] See attached CVR Quality Rating Scale.

Channel Number	Content/Source	Quality	Duration
2	First Officer	Excellent	30min
3	Captain	Excellent	30min
4	CAM	Poor	30min

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 three radio transmissions that the aircraft made (1319.3, 1358.7, and 1625.1 seconds CVR Elapsed Time) were correlated to the radio transmit microphone key parameter from the FDR (54741.4375, 54780.4375, and 55047.4375 CDT seconds past midnight). Each of the three radio transmissions acted as an anchor point for a linear interpolation. The linear interpolation resulted in the following relationship: CVR CDT = CVR Elapsed Time + 14:50:21.7.

3.6   Description of Audio Events

The recording began at 13:18:00 CDT as Lindbergh 3693[3] (the prior flight) was on approach to GRR; when the recording began, Lindbergh 3693 had already extended its landing gear. The approach, landing, and taxi to the gate contained no notable events or conversation. At about 13:29:14 CDT, when Lindbergh 3693 was at the gate, the crew mentioned the nose gear; however, due to the poor quality of the CAM recording, the conversation was unintelligible.

At about 13:40:20 CDT, two people discussed a disconnected torque link discovered prior to the first flight of the day; most of the conversation was unintelligible.

At about 13:41:36 CDT, the crew of Lindbergh 3645 could be positively identified on the CAM. The transcript began at 14:02:49.5 CDT and continued through the end of the recording at 15:21:25.3 CDT. The transcribed period included the following overall sequence of events:
- pushback off the gate at GRR, engine start, and takeoff;
- gear extension problem at ORD;
- tower fly-by at ORD; and
- emergency landing at ORD.

The captain was the flying pilot of Lindbergh 3645 and the first officer was the pilot monitoring.

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. On April 7, 2015, the captain and first officer reviewed the CVR transcript and agreed on the following comments; changes are shown in *italics*:
- The sentence by HOT-1 at 14:16:32.4 CDT was "cause I. yeah I *had not heard*-heard one that noisy before really."
- The comment by HOT-1 at 14:33:36.8 CDT was "*localizer* capture."

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[3] GoJet's air traffic control assigned call sign was "Lindbergh."

- The comments made at 14:19:59.6 and 14:34:53.2 CDT attributed to HOT-2 were actually made by HOT-1.

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 an L-3/Fairchild FA2100-1020 solid-state cockpit voice recorder, serial number 000199346, installed on an Gojet Airlines Bombardier CRJ-700 (N157GJ), which landed with the nose gear retracted at Chicago O'Hare International Airport (ORD) in Chicago, Illinois.

LEGEND

CAM	Cockpit area microphone voice or sound source
HOT	Flight crew audio panel voice or sound source
INT	Flight crew interphone voice or sound source
RDO	Radio transmissions from N157GJ
PA	Passenger Address System
CTR-CH	Radio transmission from Chicago center controller
APR-CH-*n*	Radio transmission from the Chicago approach controller
DEP-CH-*n*	Radio transmission from the Chicago departure controller
DEP-GR	Radio transmission from the Grand Rapids departure controller
GND	Radio transmission from the Grand Rapids airport ground controller
TWR-CH-*n*	Radio transmission from the Chicago airport tower controller
TWR-GR	Radio transmission from the Grand Rapids airport tower controller
OPS-CH	Radio transmission from Chicago operations
EGPWS	Enhanced Ground Proximity Warning System
CAS	Crew Alerting System
ARFF	Airport Rescue and Fire Fighting
-1	Voice identified as the captain
-2	Voice identified as the first officer
-3	Voice identified as a flight attendant
-4	Voice identified as ramp personnel
-?	Voice unidentified
*	Unintelligible word
#	Expletive
( )	Questionable insertion
[ ]	Editorial insertion

Note 1: Times are expressed in central daylight time (CDT).

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.

Note 5: *n* is a sequential letter (A, B, C…etc.) to distinguish between air traffic controllers during the event sequence.

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
13:18:00 CDT **START OF RECORDING**			
14:02:49.5 CDT **START OF TRANSCRIPT**			
14:02:49.5 **PA**	[automated passenger briefing announcement for about the next 3 minutes.]		
		14:02:51.4 **INT-1**	and flight deck to ground.
		14:02:54.9 **INT-4**	how ya' doin'.
		14:02:55.5 **INT-1**	good. how you guys doin'.
14:02:56.3 **HOT-2**	you want me to just call. or. **		
		14:02:58.5 **INT-1**	do you have to call for push---
		14:02:58.9 **RDO-2**	* ground Lindbergh ah thirty six forty five ah we're pushing from bravo three heads up we've got ah uniform.
		14:03:04.5 **GND**	ah roger that. ramp's uncontrolled. advise when ready to taxi to the runway. and victor's current. altimeter two niner niner six. wind two nine zero at one five gust two zero.
		14:03:12.7 **RDO-2**	I'll get victor and we're pushing. thanks sir. we'll call you in a bit.

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
		14:03:15.6 INT-1	and sir you ready for brakes?
		14:03:17.8 INT-4	yes we are.
		14:03:18.6 INT-1	brakes (are) released. nosewheel steering's off. cleared to push.
		14:03:20.5 INT-4	roger. cleared to push.
		14:03:21.5 INT-1	roger.
14:03:24.6 HOT-2	I always like to call just to.		
14:03:26.7 HOT-1	yeah. I guess they put our name in the hat that way too. don't they.		
14:03:27.4 HOT-2	**.		
14:03:29.7 HOT-2	right.		
14:03:31.1 HOT-1	[exhale]. makes a lot of sense.		
14:03:49.0 HOT-1	too much stuff in my bag anymore.		
14:03:51.6 HOT-2	I know it. it's crazy.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:04:00.8 HOT-?	t-t-t-t-t [similar to lip smacking]		
14:04:08.0 HOT-2	well we'll see what this nosewheel does (man).		
14:04:10.3 HOT-1	[chuckle]		
14:04:13.2 HOT-1	they were sayin' it was making noises too.		
14:04:16.4 HOT-2	could be somethin' different. man. could be a linkage (something) that's binding.		
14:04:20.8 HOT-1	you think?		
14:04:22.2 HOT-2	there's a whole lot of linkage that we can't see right there behind the nosewheel...could be something there man.		
14:04:27.9 HOT-1	yeeissh.		
14:04:29.1 HOT-2	let's just hope it goes down.		
14:04:30.7 HOT-1	[chuckle]		
		14:04:33.2 INT-4	set brakes please.
		14:04:35.1 INT-1	roger brakes are set are we good to start?

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
		14:04:36.5 **INT-4**	yes you are.
		14:04:37.0 **INT-1**	alright we're startin' 'em up thanks.
14:04:48.8 **HOT-2**	you want both started?		
14:04:49.8 **HOT-1**	sure. what the hell.		
14:04:50.9 **HOT-2**	yeah. I don't think we got a Mecca here of...		
14:04:53.2 **HOT-1**	yeah.		
14:04:53.6 **HOT-2**	...of people going. do you?		
14:04:54.8 **HOT-1**	nah. I think we're gonna be good. we got an extra thousand pounds of gas here.		
14:05:02.9 **HOT-2**	why not. [chuckle]. you feel lucky.		
14:05:06.5 **HOT-1**	yeah. [chuckle].		
14:05:23.4 **HOT-1**	(you) wanna' to say hi to them while you're doing that.		
14:05:24.5 **HOT-2**	good start.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
		14:05:28.2 **INT-4**	tow bar is removed.
		14:05:29.7 **INT-1**	thank you sir.
		14:05:30.9 **INT-4**	cleared disconnect headsets?
		14:05:32.9 **INT-1**	ah yessir you are cleared to disconnect. thanks have a goodday.
		14:05:35.0 **INT-4**	**.
14:05:37.3 **PA-1**	[pre-taxi announcement to passengers. 28 minute flight. altitude 16,000 feet. weather in Chicago area. flight attendants on board primarily for passenger safety.]		
14:06:12.2 **HOT**	[sound of multiple clicks]		
14:06:19.8 **HOT-2**	that was a good start as well. electrics look good.		
14:06:24.6 **HOT-1**	yessir.		
14:06:32.9 **HOT-2**	alright ah. after start ah. bleeds and packs are auto and on. anti-ice is off. probes on. transponder set number ah one. A-P-U electrics.		
14:06:43.0 **HOT-1**	off and checked.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:06:43.9 HOT-2	kay. flaps.		
14:06:45.1 HOT-1	eight degrees indicating.		
14:06:46.6 HOT-2	eight indicating.		
14:06:47.9 HOT-2	(awe let me) do this.		
14:06:49.5 HOT-2	* [chuckle].		
14:06:50.0 HOT-1	* [chuckle].		
14:06:55.8 HOT-1	that girl looks like she's like twelve.		
14:06:56.0 HOT-2	*.		
14:06:58.5 HOT-2	* probably * [whispering].		
14:07:00.2 HOT-?	there you go.		
14:07:00.8 HOT-2	flight controls checked.		
14:07:02.3 HOT-1	and watch your feet.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:07:03.5 **HOT-2**	kay.		
14:07:09.6 **HOT-1**	alright (man).		
14:07:10.7 **HOT-2**	* what she's doin'.		
14:07:13.2 **HOT-2**	um. alright. rudder.		
14:07:14.3 **HOT-1**	checked.		
14:07:14.8 **HOT-2**	nosewheel steering.		
14:07:15.4 **HOT-1**	armed.		
14:07:16.2 **HOT-2**	brake temp.		
14:07:16.8 **HOT-1**	is checked.		
14:07:17.7 **HOT-2**	alright uh. after start check complete.		
		14:07:21.7 **RDO-2**	ground. Lindbergh ah thirty six forty five is ah at bravo three. we're ready for taxi now. with victor.

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
		14:07:29.6 GND	Lindbergh thirty six forty five Grand Rapids Ground runway two six left taxi via victor lima delta. cross runway three five behind the Southwest jet.
		14:07:40.3 RDO-2	okay. that's ah two six left victor lima delta cross three five and ah (behind) the Southwest. Lindbergh thirty six forty five.
14:07:48.8 HOT-1	alrighty. victor lima delta cross three five and behind Southwest. clear left.		
14:07:53.2 HOT-2	okay.		
14:07:54.5 HOT-2	clear right.		
14:08:00.4 HOT-2	oh. delta [whispering]. okay. I see it.		
14:08:04.6 HOT-2	this goes right towards the FedEx. alright.		
14:08:07.9 HOT-1	[lip smack] yep never gone this way before. always seems I go out like what is that. echo. delta. or something.		
14:08:13.9 HOT-2	delta. yep. yep.		
14:08:17.1 HOT-2	victor bravo delta maybe.		
14:08:20.4 HOT-2	bravo. delta. you just parallel it right?		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:08:23.6 HOT-1	yeah.		
14:08:24.2 HOT-2	yep.		
14:08:25.0 HOT-2	not this *.		
14:08:25.9 HOT-1	[chuckle] no.		
14:08:26.7 HOT-2	this doesn't go towards FedEx.		
14:08:28.0 HOT-1	we're doin' the. see the other. how the other side lives over here.		
14:08:32.9 HOT-2	hot dog.		
14:08:33.6 HOT-1	[chuckle].		
14:08:36.0 HOT-1	I'll bet * flying cargo is pretty nice though because you don't have to deal with the regular passenger terminals and stuff huh.		
14:08:41.5 HOT-2	nope.		
14:08:42.0 PA-3	[flight attendant making pre-takeoff announcement.]		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:08:42.1 HOT-1	you just walk right up to the airplane.		
14:08:44.6 HOT-2	walk out to the airplane. hop on in.		
14:08:48.0 HOT-1	sounds pretty nice.		
14:08:51.9 HOT-2	yeah *. they don't have the security I don't think. ah. there's no security. so you don't deal with that.		
14:08:57.1 HOT-1	yeah.		
14:09:01.1 HOT-2	we're cleared to cross. clear right.		
14:09:03.4 HOT-1	clear left. cleared to cross.		
14:09:12.9 HOT-2	looks like a nice day.		
14:09:14.3 HOT-1	yeah.		
14:09:14.8 HOT-2	alright let's hope.		
		14:09:15.8 GND	Lindbergh thirty six forty five you are released void at one five. time now zero niner.
		14:09:20.6 RDO-2	okay thanks.

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:09:24.9 **HOT-2**	that's good.		
14:09:26.2 **HOT-1**	yeah.		
14:09:31.2 **HOT-2**	you're gonna be ah. you're gonna be like one twenty five on this ah ref speed when you go to land. you know what I mean.		
14:09:37.3 **HOT-1**	ahhh. yeah.		
14:09:37.5 **HOT-2**	this will be one twenty five. I'm sure of it.		
14:09:40.2 **HOT-1**	plopping it on.		
14:09:41.3 **HOT-2**	yep.		
14:09:42.8 **HOT-2**	**.		
14:09:43.7 **HOT-1**	before takeoff whenever you are ready.		
14:09:45.1 **HOT-2**	alright I'll call 'em in the back.		
14:09:46.1 **HOT-1**	roger I got one.		
14:09:47.9 **HOT**	[sound of hi-lo chime, similar to flight attendant call chime]		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:09:51.1 INT-3	cabin secure.		
14:09:51.9 INT-2	okay thanks bye.		
14:09:52.3 INT-3	thank you bye.		
14:09:54.8 HOT-2	cabin secure.		
14:09:55.9 HOT-1	roger.		
14:09:58.5 HOT-2	alright (set) that up there [whispering]. alright. ah take-off fuel quantity balance. we need forty three thirty.		
14:10:02.8 HOT-1	we have fifty two on board. that checks.		
14:10:05.1 HOT-2	alright. flight attendants advised. transponder T-CAS is on and auto. radar terrain is terrain terrain. flaps.		
14:10:12.4 HOT-1	eigghhhttt degreeees set for takeoff.		
14:10:15.3 HOT-2	eight set for takeoff. takeoff briefing.		
14:10:18.1 HOT-1	(left) side takeoff. runway two six left. two six left. up to four thousand. back around two six left if we need to.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:10:24.8 HOT-2	okay very good. and runway change check not applicable. before takeoff to the line complete.		
14:10:30.1 HOT-1	soooooo. we're not turning here but the next one. okay.		
14:10:36.4 HOT-2	that's right. yeah that would take you to the ramp. so. yep I see it.		
14:10:40.6 HOT-1	okay.		
14:10:42.1 HOT-2	going to delta.		
14:10:47.6 HOT-2	I think they're working the same (freq).		
14:10:55.4 HOT-1	here's delta. clear left.		
14:10:57.1 HOT-2	clear right.		
		14:11:03.9 RDO-2	Lindbergh thirty six forty five we'll be ready at the end.
		14:11:06.4 TWR-GR	Lindbergh thirty six forty five Grand Rapids Tower fly runway heading runway two six left cleared for takeoff. Cessna traffic five mile final for the crossing runway.
		14:11:13.9 RDO-2	okay. ahhh. two six ah on the heading. cleared for departure two six left. Lindbergh thirty six forty five.

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:11:20.3 **HOT-2**	alright.		
14:11:20.9 **HOT-1**	runway heading. cleared for takeoff. roger. below the line.		
14:11:22.7 **HOT-2**	alright. lights strobes.		
14:11:23.9 **HOT-1**	they're on.		
14:11:24.4 **HOT-2**	ignition. anti-ice is off. CAS checked.		
14:11:27.3 **HOT-1**	takeoff configs okay. N-one's are good. toe-toe and clear.		
14:11:30.8 **HOT-2**	clear. alright and confirm runway and heading.		
14:11:33.9 **HOT-1**	ah runway two six left is confirmed.		
14:11:36.8 **HOT-1**	runway heading.		
14:11:38.9 **HOT-1**	is that the heading were supposed to confirm? the...		
14:11:40.6 **HOT-2**	I think we just...		
14:11:41.4 **HOT-1**	...assigned heading or the runway heading?		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:11:42.6 **HOT-2**	I think. I think it's when you get on there that. that it. it lines up with your mag.		
14:11:47.7 **HOT-1**	okay.		
14:11:48.3 **HOT-2**	I think [emphasis].		
14:11:49.4 **HOT-1**	(because) some F-O's like they'll do like the confirm. you know. this heading or that heading or whatever.		
14:11:54.0 **HOT-2**	*.		
14:11:54.6 **HOT-1**	(our) final's clear.		
14:11:55.4 **HOT-2**	right. yep. clear right.		
14:11:56.9 **HOT-2**	looks like a pretty good crosswind from the right here.		
14:11:58.4 **HOT-1**	from the right. okay.		
14:11:59.8 **HOT-2**	yep.		
14:12:00.4 **HOT-1**	take it on the roll?		
14:12:01.4 **HOT-2**	take it on the roll man.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:12:02.3 **HOT-1**	let's do it.		
14:12:07.2 **CAM**	[sound of increased noise, similar to tires accelerating on pavement]		
14:12:14.6 **HOT-1**	set thrust.		
14:12:15.9 **HOT-2**	thrust set.		
14:12:23.4 **HOT-2**	there's eighty knots.		
14:12:24.1 **HOT-1**	checks.		
14:12:31.4 **HOT-2**	v-one rotate.		
14:12:33.7 **HOT**	[sound of vibration, similar to expected sound of free spinning nosewheels after leaving pavement]		
14:12:36.3 **HOT**	[sound of click, similar to gear handle solenoid unlocking]		
14:12:37.5 **HOT-2**	positive rate.		
14:12:38.2 **HOT-1**	gear up.		
14:12:38.6 **HOT**	[sound of click, similar to gear handle selection]		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:12:38.9 **HOT-1**	speed mode.		
14:12:41.3 **HOT-2**	yeah. she's gonna climb.		
14:12:43.1 **HOT**	[chuckle]		
14:12:44.5 **HOT-1**	yeah. she's ah a little bit better than yesterday coming out of Toronto.		
14:12:46.2 **HOT-2**	[exhale]		
		14:12:47.0 **TWR-GR**	Lindbergh thirty six forty five turn left direct WLTER contact departure goodday.
14:12:47.7 **CAM**	[sound of clunk]		
		14:12:51.2 **RDO-2**	okay turn left direct WLTER and over to departure Lindbergh thirty six forty five.
14:12:54.9 **HOT-2**	dude did you hear that clunk?		
14:12:55.9 **HOT-1**	yeah I sure did actually.		
14:12:57.9 **HOT-2**	okay. WLTER. go direct.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:13:01.6 HOT-1	that looks good. execute NAV please.		
14:13:03.4 HOT-2	NAV.		
14:13:05.0 HOT-2	I heard a clunk man.		
14:13:05.8 HOT-1	I did too.		
		14:13:07.7 RDO-2	ah departure Lindbergh thirty six forty five is with you we're out of two point two for four thousand.
		14:13:11.7 DEP-GR	Lindbergh thirty six forty five Grand Rapids Departure radar contact. climb and maintain one zero thousand. ten thousand.
		14:13:16.1 RDO-2	up to ten thousand Lindbergh thirty six forty five.
14:13:19.2 HOT-2	yeah I heard it. it's gonna clunk comin' down.		
14:13:21.6 HOT-1	twwwwoooo hundred. flaps one.		
14:13:31.2 HOT-1	flaps zero.		
14:13:36.2 HOT-1	and ten thousand is confirmed if I didn't say it. I think I did but.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:13:38.8 **HOT-2**	okay. yep.		
14:14:00.6 **HOT-2**	that wasn't worth turnin' on--		
14:14:01.7 **HOT-1**	yeah. I was thinkin' the same thing.		
14:14:03.8 **HOT-1**	two fifty.		
14:14:07.2 **HOT-1**	climb thrust. climb checks.		
14:14:13.3 **HOT-1**	I thought about it. [chuckle]		
14:14:15.1 **HOT-2**	ahh *.		
14:14:17.0 **HOT-2**	[chuckle]		
14:14:19.0 **HOT-2**	alright. passing through five point four.		
14:14:21.4 **HOT-1**	that checks.		
14:14:27.2 **HOT-2**	climb check complete.		
14:14:28.3 **HOT-1**	thank you sir.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
		14:14:34.1 DEP-GR	Lindbergh thirty six forty five contact Chicago Center one two eight point fife. have a good day.
		14:14:38.6 RDO-2	alright twenty eight point five. Lindbergh ah thirty six ah forty five.
14:14:43.5 HOT-2	twenty-eight [whisper].		
14:14:44.5 HOT-2	twenty eight point five.		
		14:14:49.3 RDO-2	Chicago good morning Lindbergh thirty six forty five is with you we're out of six point nine for one zero thousand.
		14:14:56.2 CTR-CH	Lindbergh thirty six forty five Chicago Center roger. climb and maintain one six thousand.
		14:15:01.1 RDO-2	one six thousand Lindbergh thirty six forty five.
14:15:04.0 HOT-2	alright c-- confirm one. confirm one six thousand.		
14:15:06.8 HOT-1	one six thousand confirmed.		
14:15:09.0 HOT-1	okay. how about autopilot engage.		
14:15:11.8 HOT-1	alright. time to get to work.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:15:16.9 **HOT-2**	yeah. that's weird. whatever that is it's gonna it's gonna be a problem. man you can't just keep. you can't keep clunkin' like that and not expect something--		
14:15:25.3 **HOT-1**	what do ya think is goin' on with that thing?		
14:15:26.8 **HOT-2**	it-it's something when it's retract...		
14:15:28.1 **HOT-1**	is it binding or something?		
14:15:28.9 **HOT-2**	...I think when it's retracting it's binding or something. uhm. yeah. I-ah. that's-that's just a matter of time before something breaks man. [snort] it's just a matter of time. [chuckle]		
14:15:43.5 **HOT-1**	ten thousand foot checks please.		
14:15:44.8 **HOT-2**	ten thousand foot checks [whispering].		
14:15:46.6 **HOT**	[sound of single chime, similar to out-of-sterile notification]		
14:15:47.1 **HOT-2**	man I'm not trying to be a bearer of bad news but...		
14:15:49.5 **HOT-2**	ah exiting sterile.		
14:15:50.8 **HOT-1**	roger.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:15:51.3 HOT-2	I just think it's a matter of time man.		
14:15:53.5 HOT-1	I think you're right.		
14:15:54.8 HOT-2	yeah I wouldn't wanna' keep flying this airplane to tell ya the truth.		
14:15:58.0 HOT-1	yeah.		
14:15:58.5 HOT-2	cause. you know landing on the. putting it on its nose is not gonna be pretty man.		
14:16:05.6 HOT-1	no.		
14:16:06.7 PA-3	[ten thousand foot announcement].		
14:16:08.8 HOT-2	he just said it made a clunk. I definitely uhm. I would definitely seems like it would be. man they really (ought'a)--		
14:16:19.6 HOT-1	let's see how it does when we land. I mean if I need to call 'em again I'll call 'em again and. somebody come out and check it out.		
14:16:32.4 HOT-1	cause I. yeah I-I (heard)-heard one that noisy before really.		
14:16:38.3 HOT-2	yeah...		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:16:38.8 HOT-2	this...		
14:16:38.9 HOT-1	(yeah).		
14:16:39.0 HOT-2	it's binding somewhere.		
14:16:49.8 HOT-2	did you put the two seven left. two seven right in there. two seven left?		
14:16:51.4 HOT-1	no.		
14:16:52.7 HOT-1	is that what they were landing?		
14:16:54.5 HOT-2	two seven. well. the WYNDE uhm.		
14:16:58.9 HOT-1	it's for the two sevens. yep.		
14:17:03.1 HOT-2	WYNDE will be-- will be two seven right.		
14:17:05.6 HOT-1	okay.		
14:17:09.4 HOT-2	what do you have *.		
14:17:10.2 HOT-1	two seven left.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:17:12.2 **HOT-2**	two seven right.		
14:17:13.1 **HOT-1**	you think it's gonna be the left or the right?		
14:17:14.4 **HOT-2**	it'll be the right.		
14:17:14.7 **HOT**	[sound of c-chord, similar to altitude alert]		
14:17:15.2 **HOT-1**	the right. okay.		
14:17:16.4 **HOT-2**	** fifteen for sixteen **.		
14:17:17.2 **HOT-1**	fifteen for sixteen. alts cap.		
14:17:22.8 **HOT-2**	I'm not to say they. they don't # with you occasionally but.		
14:17:25.9 **HOT-1**	more than likely it's the right.		
14:17:28.0 **HOT-2**	absolutely.		
14:17:29.1 **HOT-2**	I'm giving it a ninety-nine percent. [chuckle]		
14:17:30.8 **HOT-1**	there's two seven right from VOGLR. I'll get rid of VOGLR.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:17:33.6 **HOT-2**	yep. yeah. then you take and you run uh you take uh.		
14:17:40.1 **HOT-1**	you mean like that?		
14:17:42.5 **HOT-2**	yep.		
14:17:42.9 **HOT-1**	sure. yeah.		
14:17:51.2 **HOT-2**	VOGLR's gotta a little crook in it. which. you don't want that.		
14:17:56.4 **HOT-1**	I'm gonna. I'm gonna flip these landing lights off. you know. we're below.		
14:17:59.2 **HOT**	[sound of click]		
14:17:59.7 **HOT-2**	yeah I agree.		
14:18:00.5 **HOT-1**	(frickin') we're in cruise so.		
14:18:15.2 **HOT-2**	twenty five thousand scattered.		
14:18:26.4 **HOT-2**	amazing. put that in already huh.		
14:18:28.4 **HOT-1**	yeah.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:18:28.9 **HOT-2**	kind'a weird isn't it. [chuckle]. we're never goin' above eighteen. that's funny.		
14:18:33.5 **HOT-1**	** zero zero two.		
14:19:16.7 **HOT-2**	we'll land with closer to ah.		
14:19:22.3 **HOT-2**	ah maybe not three thousand but.		
14:19:24.5 **HOT-2**	we'll land we'll land with more fuel than that. that's...		
14:19:27.2 **HOT-1**	yeah.		
14:19:27.8 **HOT-2**	...see how that goes out and then comes back?		
14:19:30.7 **HOT-1**	yeah.		
14:19:31.2 **HOT-2**	well at somewhere around FIYER or something we'll-we'll switch over.		
14:19:35.6 **HOT-1**	yeah.		
14:19:36.0 **HOT-2**	FIYER or whatever we'll go right over so it cuts out a fairly good amount of bull#.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT

14:19:41.3
HOT-1   yeah.

14:19:48.5
HOT-2   I already know you're gonna be at ah your gonna be at one twenty five on your ref. [chuckle] we all know this right.

14:19:52.4
HOT-1   [chuckle]

14:19:55.1
HOT-1   I'd say there is a good-good strong possibility huh? [chuckle]

14:19:59.6
HOT-2   yeah. strong-strong possibility.

14:20:04.6
HOT-2   yep.

14:20:15.7
HOT-2   sometimes they'll give you that left side. sometimes. you know.

14:20:19.5
HOT-1   I guess if they're not too busy maybe or something.

14:20:21.8
HOT-2   but if they if they put you on a frequency of one nineteen nothin' you've got the left side.

14:20:29.4
HOT-1   okay.

14:20:30.4
HOT-2   so if she gives us--

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
		14:20:30.9 **CTR-CH**	(Lindbergh) thirty six forty five cross FIYER at niner thousand and the O'Hare altimeter is three zero zero two.
		14:20:37.8 **RDO-2**	FIYER at nine ah three zero zero two. Lindbergh thirty six forty five.
14:20:41.9 **HOT-1**	there's FIYER at nine thousand. how does that look to you?		
14:20:43.7 **HOT-2**	yep. I like it.		
14:20:47.3 **HOT-2**	alright. I'm off one for a little bit. you got it? [exhale]		
14:20:49.3 **HOT-1**	I got it.		
14:20:50.1 **HOT-1**	I'm gonna delete out this other WYNDE below eleven earlier.		
14:20:52.2 **HOT**	[sound of hi-lo chime, similar to flight attendant call]		
14:20:56.3 **INT-3**	what.		
14:20:56.6 **INT-2**	what do have for ah specials?		
14:20:58.8 **INT-3**	nothing.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:20:59.7 **INT-2**	nothing. alright we're about uhm we're about uh twenty five minutes out. okay?		
14:21:05.6 **INT-3**	[sigh] uh so long.		
14:21:07.3 **INT-2**	I know it [chuckle].		
14:21:08.0 **INT-3**	[chuckle]		
14:21:09.1 **INT-2**	alright we'll see you in a bit alright.		
14:21:10.4 **INT-3**	alright bye.		
14:21:11.3 **INT-2**	see ya. bye.		
		14:21:19.5 **RDO-2**	ah Chicago uhm operations. United Operations Lindbergh thirty six forty five.
		14:21:28.7 **OPS-CH**	and ah three six four five calling in range I'm showing charlie one as your gate assignment that's an open gate.
		14:21:37.2 **RDO-2**	outstanding. okay charlie one and uhm no specials thank you we'll see you in like about twenty five minutes.

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT

14:21:54.3
PA-2   good afternoon ladies and gentlemen we're going to be starting our descent ah short flight today uhm into Chicago. the weather over there is clear and fifty seven degrees. we'll be going to gate C-one. charlie one. thanks for flying with us today.

14:22:29.0
HOT-2   and uhm most likely to the North Port. most likely.

14:22:36.0
HOT-1   okay cool.

14:22:37.3
HOT-2   I mean you-you could do it either way. they could take us through the bravo and then and enter you know that way but. normally odds go down the go down the chute there. you know down the. through the North Port.

14:22:45.6
HOT-1   yeah.

14:22:51.3
HOT-1   uh I'm gonna start us down real quick and give you a brief. uhm.

14:22:54.0
HOT-2   go ahead.

14:22:55.6
HOT-1   visual two seven right backed up with the I-L-S. we've got eleven seventy five on both sides. two seventy three is going to be course. toofff twenty two hundred at SIBLY. eight seventy on the M-D-As for reference.

14:23:05.1
HOT-2   okay.

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:23:06.3 HOT-1	touchdown six sixty four thirty four hundred is the highest M-S-A is that's off the Chicago V-O-R. altitude no VASI or PAPI just a glideslope. go around with the tower at four thousand feet if not we'll do the published and make a right turn out.		
14:23:17.9 HOT-1	ten thousand. *.		
14:23:19.8 HOT-2	yep. where's it taking you to Northbrook? O-B-K?		
14:23:22.1 HOT-1	yyyyyeessss. Northbrook.		
14:23:25.0 HOT-2	yep. oh behave I always say.		
14:23:26.6 HOT-1	Northbrook. O-O-B-K. yeah.		
14:23:28.7 HOT-2	oh behave.		
14:23:29.4 HOT-1	oh behave? [chuckle]		
14:23:30.2 HOT-2	[chuckle].		
14:23:30.3 HOT-2	you remember on the Austin. Austin.		
14:23:33.7 HOT-1	on what? [chuckle]		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:23:34.4 **HOT-2**	Austin Powers.		
14:23:35.3 **HOT-1**	oh. [laughter]		
14:23:38.6 **HOT-1**	I-I kept trying to remember that Dutch comment. so I'm glad you remembered it. because I couldn't remember. if I knew there was something there's like two things I can't stand or something.		
14:23:46.3 **HOT-2**	intolerable and Dutch. [chuckles]		
14:23:47.0 **HOT-1**	and Dutch. [chuckles]		
14:23:49.3 **HOT-2**	freaky deeky Dutch. I don't understand freaky deeky Dutch.		
14:23:54.9 **HOT-1**	[chuckle] well you want to do an in range?		
14:23:56.6 **HOT-2**	alright. very good.		
14:23:59.2 **HOT-2**	kind'a wild there's no ice out there.		
14:24:01.3 **HOT-1**	I know. it's warmin' up huh.		
14:24:03.5 **HOT-2**	sure is.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:24:05.6 **HOT-2**	alright uh. in range. landing elevation is set. fuel.		
14:24:06.1 **HOT-1**	**.		
14:24:10.9 **HOT-1**	we have forty two hundred on board. balanced and checked.		
14:24:14.1 **HOT-2**	okay altimeters.		
14:24:15.4 **HOT-1**	is ah three zero zero two left and center.		
14:24:17.7 **HOT-2**	three zero zero two set right. radar terrain is terrain terrain. CAS checked.		
14:24:22.6 **HOT-1**	annnndddd clear.		
14:24:25.0 **HOT-2**	now we're buttin' 'em up.		
14:24:26.5 **HOT-2**	uhm. landing data is set. approach briefing.		
14:24:29.5 **HOT-1**	any questions?		
14:24:30.2 **HOT-2**	no.		
14:24:30.6 **HOT-1**	roger that.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:24:31.2 **HOT-2**	in range check complete.		
14:24:34.7 **HOT-2**	yep.		
14:24:38.4 **HOT-1**	yeah it's funny. all the ice is on that side. must be colder over there or something.		
14:24:41.9 **HOT-2**	ah the wind blows it over there and it drifts that way.		
14:24:43.6 **HOT-1**	ah. and it just piles up.		
14:24:46.4 **HOT-2**	yep.		
14:24:48.3 **HOT-2**	yep.		
14:24:49.9 **HOT-2**	in their spring of the year. or you know in the lake that-that I live on. uhm it's about five maybe. four miles five miles across and what happens the ice starts melting all around the uhm all around the-the rim. so you got ice out there but then you'll have an open water between the shore and the ice. and sometimes the-the wind will blow it like if you get a good wind that pushes it kind of east...		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:25:16.8 HOT-2	...and it opens up maybe a hundred feet and then the wind switches around to the west this ice flow will start to come in man. and it's I mean it is a force to be reckoned with man. it hits # and it just starts piling up you get like a four foot five foot mound of ice on the shoreline you know building there. I seen it come in I seen it come in like twice in my lifetime it's really quite...pretty cool--		
14:25:32.3 HOT-1	oh wow.		
		14:25:40.2 CTR-CH	Lindbergh thirty six forty five contact Chicago Approach one two four point three five.
		14:25:46.5 RDO-2	twenty four thirty five Lindbergh thirty six forty five have a good day.
		14:25:50.1 CTR-CH	(see ya).
14:25:51.3 HOT-2	alrighty.		
14:25:55.3 HOT-2	(is it) two four three five?		
14:25:57.2 HOT-1	so we're getting the right side. okay.		
14:25:59.1 HOT-2	yeah. should.		
14:26:00.8 HOT-1	that's fine by me. we're going to be early anyways.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:26:01.0 HOT-2	yeah. [exhale]. yeah.		
14:26:03.1 HOT-2	ahhh. it doesn't (really) matter.		
		14:26:04.5 RDO-2	and good morning good afternoon chi-Chicago Lindbergh thirty six forty five is with you uhm delta and we're going down to nine.
		14:26:11.5 APR-CH-A	Lindbergh thirty six forty five expect two seven left.
		14:26:14.7 RDO-2	two seven left Lindbergh thirty six forty (five) [chuckle].
14:26:16.9 HOT-2	** they're gonna make a liar out of me man. I swear to God [exclaiming, chuckling]. #.		
14:26:20.4 HOT-1	knew that had to happen.		
14:26:22.3 HOT-1	there's two seven left from VOGLR. I'll get rid of VOGLR. this is gonna be a quick one straight in North Port ah.		
14:26:29.3 HOT-2	alpha one yep or whatever. boom.		
14:26:33.7 HOT-2	them #. [chuckle]. * they always make me a liar.		
14:26:36.5 HOT-1	that's funny.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:26:39.0 HOT-2	not always but.		
14:26:40.3 HOT-1	they did.		
14:26:41.3 HOT-2	they did-(did) straight up. eight sixty then.		
14:26:46.0 HOT-2	they straight up made me a liar.		
14:26:48.3 HOT-1	ten thousand foot checks whenever you're ready and then we'll ah.		
14:26:50.7 HOT-2	alright you're good.		
14:26:51.7 HOT-1	I'll do this.		
14:26:52.4 HOT	[sound of chime, similar to sterile notification]		
14:26:57.2 HOT-2	ten. ten thousand foot's complete.		
14:26:59.0 HOT-1	so ten five eight (sixty). everything else is about the same. does that sound good? where's the left turn? alpha one right to North Port?		
14:27:06.6 HOT-2	alpha one yep.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
		14:27:07.7 **APR-CH-A**	Lindbergh thirty six forty five turn left heading two one zero. contact approach on one one niner point zero.
		14:27:13.3 **RDO-2**	two one zero and nineteen zero Lindbergh thirty six forty five thanks.
14:27:17.1 **HOT-2**	as I was right about that frequency. right? [chuckle]		
14:27:17.6 **HOT-1**	[chuckle]		
14:27:21.2 **HOT-1**	God we're gonna like be super early. alright so I'm gonna bring this up uhh.		
14:27:26.1 **HOT-2**	yep.		
14:27:27.9 **HOT-2**	yep.		
14:27:29.0 **PA-3**	[ten thousand foot announcement]		
14:27:30.6 **HOT-2**	perfect.		
14:27:31.4 **HOT-1**	two seventy three. okay cool.		
		14:27:41.1 **RDO-2**	good afternoon Chicago Lindbergh thirty six forty five is with you ah two one zero on the heading down to nine.

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
		14:27:46.1 **APR-CH-B**	Lindbergh thirty six forty five Chicago Approach with the I-L-S two seven left. descend and maintain seven thousand.
		14:27:50.8 **RDO-2**	(okay) we'll expect two seven left down to seven thousand Lindbergh thirty six forty five. thanks.
14:27:54.7 **HOT-1**	seven thousand confirmed.		
14:27:57.2 **HOT-2**	yeah.		
14:27:57.7 **HOT-1**	yeah.		
14:27:58.3 **HOT-2**	occasionally they will they will dump you into this ah occasionally but.		
14:28:02.5 **HOT-1**	well they did switch us to nineteen zero just not right off the bat. you were kind'a right. yeah. [chuckle]. you were still right.		
14:28:04.9 **HOT-2**	right. but uh what happened is there's just not a lot of people coming up from the east. er from the south.		
14:28:12.8 **HOT-2**	the south and east. then-then they use pretty. coming from the southeast they use two seven ah left. coming in from the like south and south and west they use two eight center.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:28:25.0 HOT-1	okay.		
14:28:25.3 HOT-2	and then coming in from the north or from the east and north they'll use two seven right. uhm so it's kind'a.		
14:28:33.3 HOT-2	we're switching over. we're-we're going acrosst and grabbing the left side. which is fine but it's not a very ah. not a very long. I mean you'll-you'll get down and get on the brakes a little bit.		
14:28:46.0 HOT-1	yeah.		
14:28:46.5 HOT-2	and you're at alpha one at the North Port. boom.		
14:28:49.6 HOT-1	do they ah do they still when you land on the right side do they still do zulu tango and then like.		
14:28:55.5 HOT-2	yep charlie one zulu tango to hold short at uh golf. [grunt]		
14:29:01.0 HOT-1	[hiss].		
14:29:01.7 HOT-1	oh they changed some of these taxiways there's no more whiskey is there?		
14:29:04.9 HOT-2	nope.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:29:05.2 HOT-1	is it romeo to cross now?		
14:29:07.6 HOT-2	they uhm yeah romeo yep.		
14:29:08.0 HOT-1	* cross four left or whatever?		
14:29:09.9 HOT-2	four left yep.		
14:29:11.3 HOT-1	ohhh okay.		
14:29:12.6 HOT-1	it used to be whiskey didn't it? whiskey cross four left?		
14:29:15.5 HOT-1	maybe I'm just remembering things wrong.		
14:29:16.4 HOT-2	no you're right. no they just changed it. [inhale]		
14:29:18.8 HOT-2	they. it'll be uhm...		
14:29:19.8 HOT	[sound of c-chord, similar to altitude alert]		
14:29:20.4 HOT-2	...charlie one zulu.		
14:29:21.5 HOT-1	eight for seven.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:29:22.6 HOT-2	eight for. charlie one zulu tango hold short of golf.		
14:29:26.0 HOT-2	and then the hard-- contact ground one twenty one nine. at golf. they'll take you down...		
14:29:31.6 HOT-2	...tango to romeo cross four left. and then ah depending on which gate you are going on in it is either bravo or alpha to the North Port but.		
14:29:39.5 HOT-1	okay.		
14:29:41.3 HOT-2	yep.		
14:29:45.7 HOT-2	which I don't mind that route. I know that route. but they the new one is the uhm. they've changed up the. the. they changed all those taxiways over there on the no-- north side of...		
14:29:58.7 HOT-1	ten left.		
14:29:59.1 HOT-2	...right there yeah.		
14:30:00.4 HOT-2	so some of that is new over there so. it used to be lima. now they do it with kilo or somethin'.		
14:30:06.6 HOT-1	is that pad gone. is there still a pad right there? er yeah that's probably a pad right there *.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:30:11.1 HOT-2	** not sure **. maybe.		
14:30:22.8 HOT-1	interesting.		
14:30:50.4 HOT-2	wow. this is beautiful isn't it?		
14:30:52.6 HOT-1	I know.		
14:30:55.8 HOT-1	oh you know what. it's Saturday. reduced schedules on Saturday isn't it. I'll bet that's why it's not as crazy.		
14:31:07.3 HOT-2	the other thing that's kind'a nice we're able to see around the country. I mean Florida can be kind'a.		
14:31:16.0 HOT-2	similar. you know you know what I mean. nice to see the snow a little bit.		
14:31:22.6 HOT-1	yeah.		
14:31:23.2 HOT-2	you get to see some change of scenery.		
14:31:25.6 HOT-1	fly around the mountains and everything. *.		
14:31:28.0 HOT-2	the mountains yep.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:31:31.6 HOT-1	might be kind'a cold back there. (I'm'a) turn it up a little bit.		
14:31:38.7 HOT-2	those dang things don't read properly you know what I mean.		
14:31:40.3 HOT-1	I know.		
14:31:42.0 HOT-2	it's ah. it's ah. toss up. what-what is it back there you know. [chuckle]		
14:31:47.9 HOT-1	I find myself just looking more at the output than what the actual temperature says anymore.		
14:31:52.9 HOT-2	like right that little box. that right there. yeah me too. that's what I always look at.		
14:31:54.6 HOT-1	yeah. yeah.		
14:31:58.5 HOT-2	I had one captain said to me that-that's not. that doesn't mean anything. [chuckle]		
14:32:01.9 HOT-1	that only means what kind'a air it's pumpin' out. [chuckle]		
14:32:03.3 HOT-2	* right *. [chuckle]		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:32:06.1 **HOT-1**	that doesn't mean anything except the temperature of the air that's going into the cabin. that's it.		
14:32:09.4 **HOT-2**	right [chuckle].		
14:32:09.9 **HOT-1**	[chuckle].		
14:32:11.1 **HOT-2**	now I was told too that uhm. that this is all one box. this eleven and eleven there are two probes but that box is mixing all together.		
14:32:16.6 **HOT-1**	oh.		
14:32:21.9 **HOT-1**	the mixing manifold I think is one box. yeah but there's two different ducts within the mixing manifold I'm pretty sure.		
14:32:26.8 **HOT-2**	right but...oh okay.		
14:32:28.7 **HOT-2**	yeah.		
14:32:29.5 **HOT-1**	yeah because that's where it separates you know the air for the front and the back or whatever.		
14:32:34.4 **HOT-2**	yeah.		
14:32:35.4 **HOT-1**	it's that's my understanding it's in the mixing manifold		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:32:39.4 HOT-2	yep.		
14:32:40.5 HOT-2	I don't know. yeah he said. I-I remember them telling me it was one box. but yeah maybe they're separate in that box.		
14:32:48.1 HOT-1	that's probably what it is. yeah.		
14:32:49.8 HOT-2	the mixing box is one box but it's separated.		
14:32:54.1 HOT-1	yeah because what's ah. pack one sends thirty percent up here or no. seventy up here thirty in the back and then (sumps) it. yeah.		
14:33:04.0 HOT-2	yep.		
14:33:10.6 HOT-1	God this is a huge lake. isn't it?		
14:33:12.4 HOT-2	huh.		
14:33:13.0 HOT-1	I mean you think an ocean across a lake. you'll like man * that's--		
		14:33:15.7 APR-CH-B	Lindbergh thirty six forty five turn right heading two five zero intercept the localizer.

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
		14:33:19.8 **RDO-2**	two five zero to intercept the localizer ah two six left Lindbergh thirty six forty five.
14:33:24.0 **HOT-1**	er two seven left.		
		14:33:25.2 **(RDO-2)**	two seven left.
14:33:26.0 **HOT-2**	[chuckle] it is.		
14:33:28.0 **HOT-1**	of course they know there is no two six left is there?		
14:33:29.8 **HOT-2**	I was doin' I was doin' the ah [chuckle] Grand Rapids.		
14:33:31.8 **HOT-1**	oh that's right. Grand Rapids. *. [chuckle].		
14:33:36.8 **HOT-1**	** capture.		
14:33:39.7 **HOT-2**	it's comin' in.		
		14:33:45.9 **APR-CH-B**	Lindbergh thirty six forty five descend and maintain six thousand.
		14:33:49.5 **RDO-2**	six thousand Lindbergh thirty six forty five.
14:33:55.1 **HOT-1**	six thousand there it is.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:34:03.2 HOT	[sound of c-chord, sound of c-chord, similar to altitude alert]		
		14:34:16.4 APR-CH-B	Lindbergh thirty six forty five one five miles from RIPPR cross RIPPR at six thousand cleared I-L-S runway two seven left approach maintain two five zero knots.
		14:34:24.0 RDO-2	alright two fifty uh six thousand to RIPPR cleared for the I-L-S two seven left approach Lindbergh thirty six forty five.
14:34:31.6 HOT-1	stay fast huh. alright.		
14:34:37.5 HOT-2	two fifty till RIPPR.		
14:34:39.7 HOT-1	oh was it just until RIPPR?		
14:34:41.0 HOT-2	right. two fifty till RIPPR then they normally have you back off.		
14:34:44.3 HOT-1	cause we need to start slowing (down) at some point.		
14:34:46.0 HOT-2	we-we can't do two fifty to the marker [chuckle].		
14:34:49.5 HOT-2	guess. I * that you can. I-I would say.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:34:53.2 **HOT-2**	you know it sometimes I've been able to do it and it's worked out. then there's other times I'm like #. It's like slow down. [chuckle].		
14:34:59.3 **HOT-2**	today you could slow down 'cause you're light probably. you know what I mean.		
14:35:02.3 **HOT-1**	I think the only way you could pull it off is if you're level to the marker.		
14:35:06.6 **HOT-2**	(yeah if you had to)--.		
14:35:06.9 **HOT-1**	then you can shhh boards everyth-- you know then it does but. if you're trying to go down the glideslope man that's.		
14:35:12.9 **HOT-2**	[inhale]. what's this dude doing. * came up ahead of us [exhale] he must be high.		
14:35:18.8 **HOT-1**	yeah I guess so.		
14:35:30.9 **HOT-1**	well did we get everything?		
		14:35:32.4 **APR-CH-B**	Lindbergh thirty six forty five reduce speed to two one zero.
		14:35:35.5 **RDO-2**	two one zero Lindbergh thirty six forty five.

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:35:37.9 HOT-2	yeah we did.		
14:35:51.9 HOT-1	heading mode. blue going green.		
14:35:54.5 HOT-2	the uhm.		
14:35:56.3 HOT-1	approach * [whispering].		
14:35:58.3 HOT-2	Embraer one forty five's they can hall # all the way in.		
14:36:01.9 HOT-1	oh can they.		
14:36:02.8 HOT-2	they slow down quick. I've seen 'em do it.		
14:36:07.8 HOT	[sound of click-clack]		
14:36:11.0 HOT-1	yeah this will *. the two hundred you can drop the gear at two fifty so it was a lot easier. you could drop the gear first ahh.		
14:36:34.6 HOT-2	spoilers are retracted?		
14:36:36.7 HOT-1	they are retracting [chuckle].		
14:36:39.0 HOT-2	[chuckle]		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:36:41.5 HOT-2	I think that's probably the biggest thing is to cut yourself some slack when you make mistakes.		
14:36:47.3 HOT-1	yeah. absolutely.		
14:36:47.8 HOT-2	don't beat yourself up. you know.		
14:36:49.9 HOT-1	try not to dwell on it too much.		
14:36:50.8 HOT-2	I'm trying to learn how to not let [stammer] you know I don't want to dwell on it. how to give myself a break. you know what I mean.		
14:36:58.4 HOT-1	yeah.		
14:36:59.3 HOT-2	uhm. I'm working with that inconsistency stuff. that you know I'm just trying to. trying to get ah. I guess just keep rolling man. just keep doing it. eventually those inconsistencies will go further and further apart. you know.		
14:37:14.4 HOT-1	I think you're right.		
		14:37:27.0 APR-CH-B	Lindbergh thirty six forty five maintain one eight zero knots TAFFS. TAFFS contact tower one two six point niner.
		14:37:32.1 RDO-2	okay one eighty to TAFFS and uh twenty six nine at TAFFS uhm Lindbergh thirty six forty five.

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:37:36.9 HOT-1	flaps one and eight please.		
14:37:38.4 CAM	[sound of click-clack, similar to flap handle]		
14:37:39.9 HOT	[sound of cavalry charge, similar to autopilot disconnect]		
14:37:42.3 HOT-1	oh Jeze roll the trucks.		
14:37:44.8 HOT-2	[chuckle]		
14:37:46.4 HOT-2	oh that's right.		
14:37:56.4 HOT-2	you wanna try getting it down early?		
14:37:58.5 HOT-1	what's that? oh flaps twenty.		
14:38:00.6 CAM	[sound of click]		
14:38:01.2 HOT-2	alright. no I meant the ah the ah gear.		
14:38:03.6 HOT-1	[gasp] oh ahh yeah we could definitely do that actually.		
14:38:07.6 HOT-2	you wanna. you wanna try it?		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:38:09.0 HOT-1	sure. go for it.		
14:38:09.8 HOT-2	here we go.		
14:38:10.5 CAM	[sound of click-clack, similar to gear handle]		
14:38:12.3 CAM	[sound of increased ambient sound]		
14:38:13.5 HOT-1	got me worried for a second I didn't hear anything.		
14:38:19.3 HOT-2	no problem.		
14:38:19.5 HOT-1	that sounded that fine. well. [chuckle].		
14:38:24.0 HOT-1	uh-oh.		
14:38:27.7 HOT-2	oh man you spoke to soon [loud].		
14:38:30.0 HOT-1	you have got to be # kidding me.		
14:38:31.5 HOT-2	maybe.		
14:38:33.3 HOT-2	you spoke too soon. oh man [loud]. really?		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:38:39.0 HOT-1	yeah seriously.		
14:38:39.6 HOT	[sound of triple chime, similar to master warning]		
14:38:41.7 HOT-1	#.		
14:38:42.0 CAS	gear disagree.		
14:38:42.8 HOT-2	you want me to go up with it?...and down?		
14:38:45.1 HOT-1	[sigh] sure.		
14:38:46.9 HOT-2	let's try it once. otherwise.		
14:38:47.4 CAM	[sound of click]		
14:38:49.8 HOT-2	oh we- we are going to land without a nosewheel man. honestly it did not come down man.		
14:38:53.0 HOT	[sound of triple chime, similar to master warning]		
14:38:55.1 CAS	nose door.		
14:38:57.4 HOT-2	it's stuck. the # thing is [stammer] one more time. coming down.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:39:03.9 **CAM**	[sound of click-clack]		
14:39:05.9 **HOT-2**	here we go. come on baby. come on. come on. come on. come on. come on.		
14:39:14.4 **HOT-2**	come on. come on. come on.		
14:39:17.4 **HOT-2**	awe #.		
14:39:18.7 **HOT-1**	alright tell him we gotta go around.		
14:39:20.5 **HOT-2**	you wanna go out and do some circles or something.		
14:39:22.0 **HOT-1**	yeah absolutely.		
14:39:23.2 **HOT-2**	okay.		
		14:39:24.3 **(RDO-2)**	and ah
14:39:27.4 **HOT-2**	if we come up to.		
14:39:33.0 **HOT**	[sound of triple chime, similar to master warning]		
14:39:33.3 **HOT-2**	*** still on ground.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:39:35.2 **CAS**	gear disagree.		
		14:39:37.9 **RDO-2**	and uh approach Lindbergh uhm thirty six forty five we're having problems with our nose gear sir as I [stammer] where would you like us to go. haven't talked to tower yet.
		14:39:45.5 **APR-CH-B**	Lindbergh thirty six forty five track the localizer inbound. climb and maintain four thousand cancel the approach clearance. and contact the tower now one two six point niner.
		14:39:53.5 **RDO-2**	we'll track the localizer inbound up to four thousand and over to tower. Lindbergh thirty six forty five thanks.
14:40:00.2 **HOT-1**	alright so.		
14:40:01.5 **HOT-2**	four thousand.		
14:40:02.4 **HOT-1**	up to four thousand. let's get speed mode.		
14:40:04.8 **HOT-2**	okay do you want me to uhm.		
14:40:05.9 **HOT-1**	leave the a gear down for now.		
14:40:08.1 **HOT-2**	okay very good.		
14:40:08.9 **HOT-1**	ahhh.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:40:10.8 **HOT-1**	let's get--		
		14:40:11.2 **RDO-2**	tower Lindbergh thirty six forty five is tracking the localizer inbound we're going up to four thousand and we are ah having some ah issues with our nose gear.
		14:40:19.7 **TWR-CH-A**	Lindbergh thirty six forty five thank you. I'll have a turn for you shortly.
		14:40:22.6 **RDO-2**	roger sir.
14:40:23.4 **HOT-2**	okay I talked to them now uhm.		
14:40:25.4 **HOT-1**	alright I'm in heading mode.		
14:40:29.1 **HOT-2**	do you want me do you wanna go to.		
14:40:29.9 **HOT-1**	speed mode. flaps one.		
14:40:31.9 **HOT**	[sound of click]		
14:40:32.8 **HOT-2**	okay flaps one coming up.		
14:40:34.2 **HOT-1**	flaps zero.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:40:35.3 **HOT-2**	flaps zero.		
14:40:35.6 **HOT**	[sound of c-chord, similar to altitude alert]		
14:40:36.5 **HOT-2**	well okay. you're at one right now but a little slow. right.		
14:40:39.8 **HOT-1**	*.		
14:40:39.9 **HOT-2**	do you. do you want to be a little faster then?		
		14:40:42.1 **TWR-CH-A**	Lindbergh thirty six forty five turn right heading three six zero. I'll have one more turn for you in the air.
14:40:42.7 **HOT-2**	okay *.		
		14:40:47.0 **RDO-2**	alright right three sixty on the heading Lindbergh thirty six forty five.
14:40:51.9 **HOT-2**	okay. we're leaving the gear down.		
14:40:53.5 **HOT-1**	yeah I'm not gonna go any faster than two hundred. right turn three six zero.		
14:40:56.7 **HOT-2**	okay right turn three sixty.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:40:58.5 HOT-1	[sigh] and.		
14:40:59.9 HOT-2	#.		
14:41:00.5 HOT-1	alright let's do a ah.		
14:41:02.1 HOT-1	let's do a climb check real quick. and then we'll come back to that.		
14:41:06.5 HOT-2	alrighty. [stammer] reversers up. annnnd.		
14:41:14.5 HOT-1	uh no that should be off.		
14:41:15.4 HOT-2	do you want them off? okay.		
14:41:16.4 HOT-1	climb check. yeah.		
14:41:17.9 HOT-2	oh yeah. that's right. duh.		
14:41:19.7 HOT-1	alts cap.		
14:41:21.4 HOT-2	alts cap four thousand.		
14:41:23.3 HOT-2	alright. fuel cross flow's off.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:41:26.9 HOT-2	thrust reversers are not armed. okay off. CAS checked.		
14:41:30.2 HOT-2	and. hit clear [whispering].		
14:41:32.0 HOT-2	alright. well we're gonna do some # on this now aren't we. #. I-I don't want to land on this # nose gear man. alright where do we go here uhm.		
14:41:43.5 HOT-2	we got gear-gear disagree. let me see here. where is that.		
14:41:49.9 HOT-2	alright [whispering]. looking. looking. landing gear. alright gear--		
		14:41:55.5 TWR-CH-A	Lindbergh thirty six forty five turn right heading zero four zero.
		14:41:58.9 RDO-1	right turn zero four zero Lindbergh thirty six forty five.
14:42:00.6 HOT-2	if you can handle it all I'll-I'll work this--		
		14:42:01.3 TWR-CH-A	Lindbergh thirty six forty five contact approach one two five point *.
14:42:02.3 HOT-1	I've got the radios you run the checklist. yessir.		
14:42:05.8 HOT-2	okay.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:42:06.4 HOT-2	here we go. gear disagree. it says confirm landing gear manual release handle is fully stowed.		
		14:42:10.6 TWR-CH-A	*** one two five point zero.
14:42:14.3 HOT-1	does it look *.		
14:42:15.0 HOT-2	and it is fully stowed.		
14:42:16.0 HOT-1	fully stowed. yessir.		
14:42:17.1 HOT-2	okay. alrighty.		
14:42:20.3 HOT-2	and this uh then the next thing is gear up disagree. airspeed no more than two hundred knots.		
14:42:26.5 HOT-1	we're at two hundred.		
14:42:27.6 HOT-2	okay. hydraulic pump three B pump.		
14:42:29.0 HOT-1	no more than two hundred is that it?		
14:42:30.9 HOT-2	what what's that?		
14:42:31.6 HOT-1	no more than two hundred that's what it says?		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:42:32.3 **HOT-2**	yep. no more than two hundred.		
		14:42:33.1 **TWR-CH-A**	Lindbergh thirty six forty five.
14:42:35.4 **HOT-1**	uh I got it.		
14:42:36.0 **HOT-2**	(go ahead).		
		14:42:36.5 **RDO-1**	yessir go ahead.
		14:42:37.6 **TWR-CH-A**	Lindbergh thirty six forty five departure one two five point zero.
		14:42:40.8 **RDO-1**	twenty five zero Lindbergh thirty six forty five goodday.
14:42:43.3 **HOT-2**	twenty five nothin'.		
		14:42:48.0 **RDO-1**	departure Lindbergh thirty six forty five four thousand.
		14:42:50.4 **DEP-CH-C**	Lindbergh thirty six forty five Chicago Departure radar contact say intentions.
		14:42:54.5 **RDO-1**	ah sir. we're running the checklists right now ah. more than likely we'll be declaring an emergency here. we've got a problem with the nose gear. but I'll be right back with you.

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
		14:43:01.0 **DEP-CH-C**	Lindbergh thirty six forty five roger.
14:43:04.6 **HOT-2**	alright. hydraulic pump ah hydraulic three B pump on.		
14:43:09.0 **HOT-2**	three B pump on is. okay. is on.		
14:43:13.4 **HOT-2**	okay. very good. landing gear lever down. is down.		
14:43:16.7 **HOT-1**	it is down.		
14:43:17.9 **HOT-2**	nosewheel steering off then armed.		
14:43:21.5 **HOT-2**	and then armed. [sound of click]		
14:43:23.7 **HOT-2**	alright. cycle the nosewheel ah steering switch from armed to off and then back to armed. okay.		
14:43:30.9 **HOT-2**	to enable nosewheel steering monitoring. okay.		
14:43:33.8 **HOT-2**	ah landing at the nearest suita--. land at the nearest suitable airport. gear disagree warning message persists. alright and (it's)...we're saying yes it does. alright.		
14:43:49.7 **HOT-2**	oh let's see here yes. gear down disagree procedure accomplish. okay. thirteen four.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:43:58.0 **HOT-2**	alright airspeed no more than two hundred. hydraulic pump three B pump on.		
14:44:03.5 **HOT-2**	landing gear leverrr up. then down.		
14:44:06.8 **HOT-1**	alright go ahead.		
14:44:07.9 **HOT**	[sound of click-clack]		
		14:44:12.3 **DEP-CH-C**	Lindbergh thirty six forty five turn right heading zero niner zero.
14:44:13.4 **HOT**	[sound of triple chime, similar to master warning]		
14:44:15.5 **CAS**	nose door.		
		14:44:15.5 **RDO-1**	right turn zero nine zero Lindbergh thirty six forty five.
		14:44:18.6 **DEP-CH-C**	Lindbergh thirty six ah disregard.
14:44:21.0 **HOT-2**	***. it says not to. okay then. uh. up and then down. it says not to do it more than once. but alright.		
14:44:26.7 **HOT-1**	ah. alright.		
14:44:27.9 **HOT-2**	it doesn't matter.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:44:29.4 **HOT-2**	let's-let's make this bad boy work on this one. come on. [exhale]		
14:44:37.7 **HOT-2**	nope.		
14:44:39.5 **HOT-2**	alright.		
14:44:40.5 **HOT-2**	ah gear-gear disagree warning persists. yes. hydraulic pump. hydraulic two pump on. hydraulic two pump. which is this one.		
14:44:51.0 **HOT-1**	yes.		
14:44:51.8 **HOT-2**	on.		
14:44:52.1 **CAM**	[sound of click]		
14:44:54.0 **HOT**	[sound of triple chime, similar to master warning]		
14:44:54.1 **CAS**	gear disagree.		
14:44:54.3 **HOT-2**	okay landing gear lever confirm down.		
14:44:57.7 **HOT-1**	it is confirmed down.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:44:58.5 **CAS**	gear disagree.		
14:44:59.1 **HOT-2**	okay landing gear manual release. pull to full extension.		
14:45:05.0 **HOT-1**	ah you take the. oh actually yeah you could probably get it. unless you want me to get it.		
14:45:08.4 **HOT-2**	okay.		
14:45:09.2 **HOT-1**	just push in that button.		
		14:45:10.3 **DEP-CH-C**	Lindbergh thirty six forty five expect vectors for the visual approach runway two seven right. contact Chicago Center ah correction Chicago Approach one three three ***.
14:45:12.7 **HOT-2**	pull to full ext--		
14:45:14.2 **HOT**	[sound of click]		
14:45:18.3 **HOT-2**	caution. nosewheel steering may not be available upon landing.		
14:45:21.9 **HOT-2**	okay.		
		14:45:23.0 **RDO-1**	ah Lindbergh thirty six forty five say again.

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
		14:45:25.3 DEP-CH-C	Lindbergh thirty six forty five expect vectors for the visual approach runway two seven right. contact Chicago Approach one two four point three five.
		14:45:32.7 RDO-1	two four three five. goodday sir.
		14:45:42.2 RDO-1	Lindbergh thirty six forty five with you four thousand.
		14:45:45.1 APR-CH-D	Lindbergh thirty six forty five roger ah. what runway you want. two seven left or two eight center.
		14:45:50.1 RDO-1	probably gonna need two eight center sir Lindbergh thirty six forty five. we're still in the middle of a checklist.
14:45:52.3 HOT-2	the longest.		
		14:45:54.1 APR-CH-D	okay. just let me know when you're ready to come back in when you have a second give me ah your fuel [stammer] and souls on board. fuel in pounds.
		14:46:03.4 RDO-1	roger. stand by.
14:46:04.5 HOT-1	okay. let's. * we'll continue with the checklist.		
14:46:07.3 HOT-2	okay very good. uhm. nosewheel steering may not be available. caution. all landing gear down and locked following manual release attempt.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:46:14.8 HOT-2	no. landing gear up unsafe. okay. yup. that's right.		
14:46:22.3 HOT-2	landing procedure accomplish. go to thirteen five.		
14:46:26.7 HOT-2	guess we're gonna do it man.		
14:46:28.2 HOT-2	airspeed no more than two hundred and twenty knots.		
14:46:31.7 HOT-2	hydraulic-hydraulic pump two. on. which it is.		
14:46:36.6 HOT-2	landing gear manual release handle. pull and full extend. yes we did.		
14:46:41.0 HOT-2	caution. nosewheel steering may not be available on landing. the gear disagree warning message which will appear with the landing gear lever jammed in the up position and the landing gear down disagree or gear disagree emergency procedure under this condition.		
14:46:57.0 HOT-2	alright. nosewheel steering. off.		
14:47:00.1 HOT-1	nosewheel steering's off.		
14:47:01.4 HOT-2	all landing gear down and locked ah following manual release. no.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:47:05.5 HOT-2	landing gear up unsafe landing procedure accomplish. refer-refer to emer-emergency thirteen point five. end.		
14:47:14.3 HOT-2	and. that's what we're doing so. no more than two twenty on the speed.		
14:47:19.7 HOT-2	and that's-that's. we're done man. alright.		
14:47:24.3 HOT-1	alright. so what do you think? so you ran the checklist. this is supposed to stay in the up position. is that correct?		
14:47:28.8 HOT-2	it (did) say push it down.		
14:47:31.3 HOT-1	so if something is out right now. I can't tell what it is---		
14:47:34.3 HOT-2	do you want to do a low pass and see if it's down?		
14:47:37.0 HOT-1	we have enough fuel for a low pass.		
14:47:39.6 HOT-2	y-you want to do that?		
14:47:39.6 HOT-1	* do that but let's get everything ready so that we can just come right back around and land again.		
14:47:45.1 HOT-2	what about uhm. what about (our) people in the back. and-and do they do a do you do a precautionary on this one.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:47:51.4 HOT-1	this is gonna be. no. this is gonna be an emergency landing we don't know if it's down or not. we're there's a good chance we're landing without a nose gear. so let me tell this guy.		
14:47:59.8 HOT-2	kay.		
14:48:00.4 HOT-1	we have thirty. our souls on board are gonna be ah.		
14:48:04.6 HOT-2	that's us right here isn't it. but I don't see it anywhere *.		
14:48:08.6 HOT-2	perf.		
14:48:14.9 HOT-1	souls on board is thirty--		
14:48:16.3 HOT-2	we've got the baby too yep.		
14:48:17.2 HOT-1	forty-one.		
14:48:18.5 HOT-2	okay.		
		14:48:21.0 RDO-1	and ah Lindbergh thirty six forty five we are declaring an emergency at this time. ah. it appears as though our nose gear is not down and locked. ah souls on board (are) forty-one. uh. fuel on board thirty-two hundred pounds. ah if we could we'd like to do a low pass. ah one low pass and then come back around to two eight center.

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
		14:48:43.5 **APR-CH-D**	Lindbergh thirty six forty five thanks. fly heading one eight zero.
		14:48:46.8 **RDO-1**	heading one eight zero Lindbergh thirty six forty five.
14:48:48.3 **HOT-2**	okay. I'll handle the radios from here. don't you think. you fly it man. you do everything.		
14:48:50.4 **HOT-1**	okay. you got the radios.		
14:48:52.8 **HOT-1**	I'm gonna talk to the flight attendants real quick.		
14:48:54.3 **HOT-2**	okay. got it.		
14:48:56.5 **HOT**	[sound of hi-lo chime, similar to flight attendant call]		
14:48:59.4 **INT-3**	hello.		
14:49:00.0 **INT-1**	hey guys.		
14:49:00.6 **INT-3**	hey.		
14:49:00.9 **INT-1**	ah it appears as though the nose gear is not coming down and locking.		
14:49:04.9 **INT-3**	okay.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:49:06.3 **INT-1**	so. ah we've run the checklists. ah we don't know if it's down or not. we hear something out there.		
14:49:12.9 **INT-1**	but we're going to do one. (hang on).		
		14:49:13.2 **APR-CH-D**	Lindbergh thirty six forty five contact approach on one three three point six two. you can setup for two eight center and plan on your low pass.
		14:49:20.5 **RDO-2**	okay thirty-three sixty two and we'll plan on that thank you sir. Lindbergh thirty six forty five.
14:49:23.0 **INT-1**	we're going to do one low pass and see what they tell us.		
14:49:25.2 **INT-3**	okay.		
14:49:26.0 **INT-1**	ah but this will be an emergency landing.		
14:49:28.1 **INT-3**	okay.		
14:49:29.2 **INT-1**	ah so ah I'll make a quick P-A to the folks and let them know that we're gonna. you gotta do what you need to. we're gonna do one low pass and then come back around.		
		14:49:30.9 **RDO-2**	and approach ah Lindbergh thirty six forty five is with you sir.

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
		14:49:35.7 APR-CH-E	Lindbergh thirty six forty five Chicago Approach roger. expect visual approach runway two eight center.
14:49:38.1 INT-3	okay.		
14:49:38.3 INT-1	you've got time to do whatever you need to do just let me know.		
		14:49:39.8 RDO-2	okay. we'll expect a visual approach ah two eight center. and-ah we'd like to do a low pass. we've got enough fuel to do a low pass and maybe you guys can tell us what you see as far as the ah nose gear on the airplane.
14:49:40.8 INT-3	okay thanks *.		
14:49:41.9 INT-3	I'll call. thanks bye.		
14:49:48.2 PA-1	folks from the flight deck this is your captain speaking...		
		14:49:50.1 APR-CH-E	Lindbergh thirty six forty five roger and ah turn right heading two zero zero.
		14:49:55.0 RDO-2	two zero zero Lindbergh thirty six forty five.
14:49:58.2 HOT-2	alright two eight center I'll get that all setup for ya. one oh nine ninety five.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:50:01.3 PA-1	folks from the flight deck this is your captain speaking. a little issue with the nose gear uhm we're getting a message up here saying that the gear is ah not coming down. it's not coming down and locking. our two main gears ah over the wings under the wing those are down. ah but we're having a problem with the nose gear here. so. ah what we're gonna do is we're gonna do a low pass by the airport here and we're going to have them take a look at it. ah it could be just an indication problem. but ah this will be an emer I've instructed the flight attendants it will be an emergency landing so.		
		14:50:32.3 APR-CH-E	Lindbergh thirty six forty five can you take a low pass to runway two seven left. it will be closer to the tower they'll get a better look at it.
14:50:38.6 HOT-1	sure.		
		14:50:39.0 RDO-2	yeah. that'll be fine sir. ah we'll do the low pass to two seven left is fine. Lindbergh thirty six forty five.
		14:50:44.2 APR-CH-E	Lindbergh thirty six forty five roger expect a low pass runway two seven left. runway two seven left localizer frequency one one zero point five.
14:50:51.7 HOT-2	okay one one zero point five point five. roger. alright [whispering].		
		14:50:55.8 APR-CH-E	Lindbergh thirty six forty five turn right heading two five zero.

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
		14:50:58.8 RDO-2	alright two five zero. Lindbergh thirty six ah forty five.
14:51:01.4 HOT-2	alright we're gonna go. low pass two seven left. ah one ten point five.		
14:51:09.1 HOT-2	on that. ten point five.		
14:51:11.9 PA-3	[begin emergency landing cabin preparation]		
14:51:12.9 HOT-2	it's in there. I'll execute this.		
		14:51:14.2 APR-CH-E	Lindbergh thirty six forty five heading two five zero intercept two seven left localizer.
14:51:16.8 HOT-2	it didn't say we had to do anything with slowing down or I mean with flaps. we can do whatever we want with flaps but. uhm.		
14:51:22.4 HOT-1	okay. we'll stay at two hundred. that'll be easy.		
14:51:25.4 HOT-1	if that's good with you.		
14:51:26.2 HOT-2	yep. it-it we're gonna we're gonna do a low pass over two seven left. *--		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
		14:51:30.3 APR-CH-E	Lindbergh thirty six forty five heading two five zero intercept two seven left localizer.
		14:51:35.5 RDO-2	okay. two five to join the two seven left. Lindbergh thirty six forty five.
14:51:40.0 HOT-1	alright.		
14:51:40.1 HOT-2	do you think we should go by slower maybe do like flaps [stammer] you know eight or-or twenty. and just do a low pass I mean a little slower so they get a maybe a good look at it. because if we go screaming by. they may not be able to get a good look at it.		
14:51:51.0 HOT-1	is--		
14:51:52.8 HOT-1	is one eighty or two hundred going to make any difference though? yeah.		
14:51:57.0 HOT-2	I know. it's up to you man.		
14:51:57.8 PA-3	[briefs the brace position and protection of infants during brace]		
14:51:59.0 HOT-1	I'm thinking we could do this there I mean they're either gonna-		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
		14:51:59.7 **APR-CH-E**	Lindbergh thirty six forty five what speed would you like to do to the marker?
		14:52:05.0 **RDO-1**	ah Lindbergh thirty six forty five ah are we going to stay at four thousand sir?
		14:52:09.7 **APR-CH-E**	Lindbergh thirty six forty five ah you'll descend into the with the approach.
		14:52:14.2 **RDO-1**	okay thirty six forty five ah.
		14:52:17.8 **(RDO-1)**	hundred-hundred and seventy?
14:52:20.0 **HOT-2**	a hundred and seventy ooh that would be flaps twenty. I don't think that's bad. I-I think we should do that.		
14:52:24.4 **HOT-1**	flaps twenty?		
14:52:25.0 **HOT-2**	yep.		
14:52:26.5 **HOT-1**	okay.		
14:52:27.3 **HOT-2**	I think flaps twenty and that [stammer] gives us plenty of room to be slower and. you know what I mean.		
14:52:33.3 **HOT-1**	so let's get this going here.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
		14:52:35.6 APR-CH-E	Lindbergh thirty six forty five can you do one eight zero knots or greater to the marker.
14:52:38.6 HOT-2	yeah.		
14:52:39.2 HOT-1	yeah.		
		14:52:39.8 RDO-2	oh yeah. one eighty is no problem sir. Lindbergh thirty six forty five.
		14:52:42.4 APR-CH-E	Lindbergh thirty six forty five roger.
14:52:43.8 HOT-2	alright there it comes in right there.		
14:52:46.3 HOT-2	you could probably just do it visually [chuckle] but.		
14:52:49.3 HOT-2	I think-I think we go slower I think it would be better. you know. that maybe that two seconds might just be enough to make visual on it. you know what I mean.		
14:52:56.7 HOT-1	yeah. you might er you might be right about that.		
14:52:59.4 HOT-2	uhm. yep.		
14:53:02.9 HOT-1	two seven left.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:53:04.9 **HOT-2**	you go out VOGLR and then get rid of ah.		
14:53:11.5 **HOT-1**	just bring it up from TAFFS *.		
14:53:12.9 **HOT-2**	yeah sure why not that's fine.		
14:53:16.9 **HOT-2**	what about company do we call them.		
14:53:18.8 **HOT-1**	I let them know. they asked if we had done the manual extension yet. can you tell them that we have done the manual extension.		
14:53:21.0 **PA-3**	[asks passengers if any questions and to refer to emergency briefing card]		
14:53:23.8 **HOT-2**	who were we talking to. ops?		
14:53:25.4 **HOT-1**	oh no. I just-I just ACARSed them.		
		14:53:26.4 **APR-CH-E**	Lindbergh thirty six forty five (four) miles from EBENS cross EBENS at four thousand. cleared I-L-S runway two seven left approach.
14:53:27.7 **HOT-2**	oh.		
14:53:31.3 **HOT-2**	alright.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:53:32.4 HOT-2	I don't know if I'm gonna [trails off to mumble].		
		14:53:34.1 RDO-1	kay EBENS at four thousand cleared for the I-L-S ahh two seven left Lindbergh thirty six forty five.
		14:53:38.9 APR-CH-E	Lindbergh thirty six forty five the tower knows that you would like to do a low approach. they'll be ready to look at your nose gear. maintain one eight zero knots till TAFFS.
		14:53:46.1 RDO-1	one eighty till TAFFS thirty six forty five.
14:53:47.5 HOT-2	I'm not gonna dink with those guys. we'll-we'll get to it in a minute. right let's just ah. let's focus on what we're doing now. they-they already know we're having trouble so.		
14:53:55.3 HOT-1	alright.		
14:53:57.6 HOT-1	so where are we at. how are you likin'. how are we--		
		14:53:59.2 APR-CH-E	Lindbergh thirty six forty five contact O'Hare Tower at TAFFS one one correction one two six point niner twenty six niner at TAFFS.
14:54:04.4 HOT-2	you. yup.		
14:54:05.8 HOT-1	that's you twenty six niner at TAFFS.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:54:07.1 **HOT-2**	okay twenty five. ah twenty six nine at TAFFS Lindbergh thirty six forty five.		
		14:54:11.6 **APR-CH-E**	okay there were two calling there at once. two at once. Lindbergh thirty six forty five contact O'Hare Tower at TAFFS one two six point niner.
		14:54:17.8 **RDO-2**	ah yeah one twenty six point nine at TAFFS Lindbergh thirty six forty five.
14:54:23.9 **HOT-1**	[sigh] uh alright. flaps one.		
14:54:27.2 **CAM**	[sound of click]		
14:54:27.5 **HOT-2**	I think it gives us more it gives us more maneuverability at a slower speed. like if we go to turn to the right or left. come back around. you know what I mean.		
14:54:37.8 **HOT-1**	yeah.		
14:54:38.2 **HOT-2**	circling approach is thirty. flaps thirty. so maybe.		
14:54:43.6 **HOT-2**	I-I'm not really fast with the reports so [chuckle].		
14:54:53.4 **HOT-2**	I think...I think when we go to tower maybe we'll offset. look at we can probably offset a little bit to the left towards that tower. like where is the tower.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:55:09.2 HOT-2	do they put 'em in crash position and everything?		
14:55:11.5 HOT-1	I let them know that we are doing one pass.		
14:55:15.6 HOT-2	holy # man [chuckle]. what the hell man.		
14:55:21.0 PA-1	folks from the flight deck just to ah ah give you a better idea what's going on here. we're headed back inbound to the airport right now. ah we will be descending but not landing at this point. ah we are gonna have the tower take a very close look at our nose gear as we go by. so ah. well we will ah as soon as we get a report back from them. there's a chance that it is down and locked and we just have a bad message up here so. once we get a report back from them we'll come right back with ya and let you know uh uh what uh what the situation is. thanks.		
14:55:50.4 HOT-2	alright. there's one eighty to TAFFS. alright I'm gonna go over to tower right now.		
14:55:56.6 HOT-1	okay. let's get flaps eight.		
14:55:58.4 HOT	[sound of click]		
14:56:03.6 HOT	[sound of hi-lo chime, similar to flight attendant call]		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
		14:56:04.3 **RDO-2**	tower Lindbergh thirty six forty five is coming up on TAFFS. uhm uh I was gonna say. how uhm close do you want us to get (to) you guys to have you take a look at that?
14:56:19.2 **INT-1**	hey. what's up.		
14:56:19.7 **INT-3**	cabin is secure.		
14:56:20.5 **INT-1**	alright. thank you.		
14:56:20.8 **INT-3**	thanks.		
14:56:26.7 **HOT-1**	yeah I wonder how low they want us to get. huh?		
14:56:28.9 **HOT-2**	what's that?		
14:56:29.3 **HOT-1**	I wonder how low they want us to get. huh?		
14:56:31.3 **HOT-2**	that's what I was trying to find out.		
14:56:42.0 **HOT-1**	we don't have a whole lot of extra fuel so we're just gonna have to basically kind'a comeback around to two eight center. uhm so we'll just be ready to get that all that data and get me setup.		
14:56:56.6 **HOT-2**	yep. we're.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
		14:56:58.2 RDO-2	a tower Lindbergh thirty six forty five is with you sir. and uhm how close would you like us to fly by for this ah nosewheel?
		14:57:04.3 TWR-CH-B	Lindbergh thirty six forty five O'Hare Tower uhm if you could just go right over the runway we should get a good look. you're cleared low app- ah low approach runway two seven left. the wind three zero zero at one six gust two zero. plan a left turn out after.
		14:57:15.1 RDO-2	okay left turn out and then uhm yeah if we can bring it around and land on uh two eight uh center uhm fairly quickly that would be great.
14:57:29.0 HOT-2	I don't wanna screw around too much.		
14:57:30.4 HOT-1	I'm not gonna go too low on this thing. I mean. let's go--		
		14:57:32.9 TWR-CH-B	Lindbergh thirty six forty five we are planning on ah runway two eight center for your arrival. uhm and we'll get you in as soon as we can.
		14:57:39.3 RDO-2	okay. very good. thank you sir.
		14:57:41.0 TWR-CH-B	the missed approach instructions will be a one forty heading at four thousand.
		14:57:44.6 RDO-2	okay one forty at four thousand on the missed approach Lindbergh thirty six forty five.

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:57:48.0 HOT	[sound of cavalry charge, similar to autopilot disconnect]		
14:57:49.3 HOT-2	one-(th)--		
14:57:49.5 HOT-1	alright. I'm hand flying a little bit right now.		
14:57:52.0 HOT-2	yeah.		
14:57:55.4 HOT-1	I'm not gonna go much lower than a thousand feet I don't think we need to do that. do we?		
14:57:57.7 HOT-2	*. I don't think so. I think that's good man.		
14:58:01.4 HOT-2	alright. one forty and four thousand is set. the missed is set.		
14:58:08.5 HOT-2	we've done everything we can to get this down. we've actually cycled it one more time than it said.		
14:58:12.0 HOT	[sound of about 700 Hz tone, similar to landing gear warning horn begins and continues for 40 seconds]		
14:58:13.4 HOT-1	just ah don't worry about that obviously.		
14:58:15.3 HOT-2	gear disagree.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:58:18.4 **HOT-2**	is that the prox right here?		
14:58:21.2 **HOT-1**	ah. nah. I wouldn't worry about it.		
14:58:23.4 **HOT-2**	okay.		
14:58:25.2 **HOT-2**	I don't know how to silence [whispering].		
14:58:25.8 **HOT-1**	we'll just have to ah.		
14:58:30.6 **HOT-1**	just have to deal with it.		
14:58:32.3 **HOT-1**	alright. how's this look if we levelled out about right here [louder].		
14:58:34.5 **HOT-2**	I think we're good. yep.		
14:58:35.6 **HOT-1**	okay.		
14:58:37.9 **HOT-2**	come on man. let's hope it's down. you know what I mean.		
14:58:41.1 **HOT-1**	yeah.		
14:58:44.8 **HOT-2**	I could try hit'n this. what the hell. it's just gonna turn it off. right?		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:58:51.0 HOT-2	nope.		
14:58:51.7 HOT-1	oh don't-don't hit (those). don't worry about it. don't worry about that.		
14:58:52.2 HOT	[sound of 700Hz tone stops for 2.5 seconds]		
14:58:54.8 HOT	[sound of about 700 Hz tone, similar to landing gear warning horn begins again and continues for 2 seconds]		
14:58:55.9 HOT-1	we're okay. I don't want to do anything that's not on the checklist.		
14:58:59.2 HOT-2	I know. okay. I'll turn it back on again.		
14:59:01.0 HOT-1	yeah.		
14:59:02.4 HOT-2	there you go.		
14:59:04.0 HOT-2	[chuckle]. it's--		
14:59:04.8 HOT	[sound of about 700 Hz tone, similar to landing gear warning horn begins again and continues for 18 seconds]		
14:59:05.5 EGPWS	five hundred.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:59:11.0 HOT-2	yep. I think that's.		
14:59:12.6 HOT-1	that good enough? you want to go back up?		
14:59:13.4 HOT-2	that's perfect. well. no I mean let's--		
		14:59:13.6 TWR-CH-B	Lindbergh thirty six forty five I got two main gears down. the nosewheel is definitely not down. or appears not down.
14:59:19.6 HOT-2	God-#.		
		14:59:21.1 RDO-2	okay. thank you sir. we're gonna go miss now.
14:59:24.3 HOT-2	#. [whispering]		
14:59:26.0 HOT-1	[sighing] alright.		
14:59:26.1 HOT-2	alright man. well. hey.		
		14:59:27.4 TWR-CH-B	Lindbergh thirty six forty five the doors appear open but ah no gear.
		14:59:33.0 RDO-2	okay sir. ah we'll come back around land on uh two sev-- two eight center then.

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
14:59:37.7 **HOT-1**	yeah. alright. ch--		
		14:59:38.3 **TWR-CH-B**	Lindbergh thirty six forty five turn left heading one four zero. climb and maintain four thousand.
		14:59:43.9 **RDO-2**	okay one four zero on the heading and up to four thousand Lindbergh thirty six forty five.
14:59:47.7 **HOT-2**	I'll get it-- I'll get it for you.		
14:59:47.8 **HOT**	[sound of cavalry charge, similar to autopilot disconnect]		
14:59:48.8 **HOT-1**	oops. thanks.		
14:59:50.0 **HOT-2**	okay. one forty on the heading.		
14:59:52.4 **HOT-1**	let's go. flaps ah one and zero. speed mode. heading mode.		
14:59:56.5 **CAM**	[sound of click]		
15:00:01.8 **HOT-2**	alright.		
15:00:05.0 **HOT-2**	no more than two twenty.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
15:00:07.3 HOT-1	autopilot's engaged.		
15:00:11.4 HOT-2	well. my guess.		
15:00:15.0 HOT-2	I would say ah.		
15:00:16.8 HOT	[sound of c-chord, similar to altitude alert]		
15:00:18.6 HOT-2	I would sayyyy. get down as slow as you can. and let the nose down as slow as possible.		
15:00:23.4 HOT-1	I'll just haul back on it.		
15:00:25.6 HOT-2	yep.		
15:00:26.5 HOT-1	alright. can you.		
15:00:27.0 HOT-2	get on the brakes. and you know. keep it straight down with the brakes and stuff.		
15:00:30.0 HOT-1	[sigh].		
15:00:30.8 HOT-1	can-- [sigh].		
15:00:31.2 HOT-2	(what'd) you need?		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
15:00:34.1 **HOT-1**	let's see ah--		
		15:00:35.0 **TWR-CH-B**	Lindbergh thirty six forty five contact departure one two six point six two.
		15:00:40.2 **RDO-2**	twenty six sixty two ah Lindbergh ah thirty six ah forty five roger.
15:00:44.4 **HOT-1**	can you set me up for two eight center when you get a chance?		
15:00:47.1 **HOT-2**	I sure will.		
15:00:47.6 **HOT-1**	and as ah---		
		15:00:48.1 **RDO-2**	and departure Lindbergh thirty six forty five is with you.
		15:00:53.8 **DEP-CH-F**	Lindbergh thirty six forty five Chicago Departure you are radar contact two south of O'Hare at four thousand feet and ah I was advised that your nose gear still appears to be up.
		15:01:03.0 **RDO-2**	ah yes sir it is. and we'd like to come in and land. ah ah yes uhm. we're-we're good to go anytime here sir for the landing.
		15:01:11.2 **DEP-CH-F**	roger. Lindbergh thirty six forty five say runway requesting.
		15:01:14.0 **RDO-2**	ah. two eight center sir. and uhm we have it in sight.

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
		15:01:17.9 DEP-CH-F	Lindbergh thirty six forty five roger. and uh speed your-- actually are-are you able to do one eight one eight zero knots on the airspeed?
15:01:25.1 HOT-1	yeah.		
		15:01:25.3 RDO-2	yeah one eighty's not a problem sir. Lindbergh thirty six forty five.
15:01:29.0 HOT-2	eighteen nine [whispering].		
15:01:29.4 HOT-1	flaps one.		
		15:01:30.7 DEP-CH-F	Lindbergh thirty six forty five okay stand by. let me I was just told we need to talk to tower real quick. maintain a hundred and eighty knots and four thousand feet. we'll turn you downwind here in about two miles.
15:01:30.9 CAM	[sound of click]		
		15:01:39.3 RDO-2	okay. uh one eighty uh. and uh one ah forty on the heading. Lind-- four thousand. and uh one forty on the heading. Lindbergh thirty six forty five.
		15:01:47.8 DEP-CH-F	thanks.
15:01:48.3 HOT-1	you set me up for that. I'm gonna let them know.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
15:01:50.1 **HOT-2**	I will do that right now. yep.		
15:01:51.4 **HOT**	[sound of hi-lo chime, similar to flight attendant call]		
15:01:52.7 **HOT-2**	two eight center [whispering].		
15:01:54.4 **INT-3**	hello.		
15:01:55.1 **INT-1**	hey this will be an emergency landing.		
		15:01:56.0 **DEP-CH-F**	Lindbergh thirty six forty five do you need ah equipment on the ground as well standing by?
15:01:56.9 **INT-3**	okay.		
15:01:58.0 **INT-1**	stand by.		
15:02:00.0 **HOT-1**	yes.		
		15:02:00.9 **RDO-2**	yessir. that would be fine. Lindbergh thirty six forty five.
		15:02:03.8 **DEP-CH-F**	Lindbergh thirty six forty five turn left heading zero nine zero.
		15:02:06.6 **RDO-2**	zero nine zero Lindbergh thirty six forty five.

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
15:02:08.9 INT-1	the nose gear is confirmed not down.		
15:02:11.4 INT-3	okay.		
15:02:11.9 INT-1	uhm so. we--		
		15:02:12.7 DEP-CH-F	Lindbergh thirty six forty five can you accept runway three two right?
15:02:16.6 HOT-1	three two right? [whispering] uhhhh.		
		15:02:19.3 RDO-2	uh well we need the longest runway. I guess that two-two eight center would be you kind'a what we need sir for Lindbergh thirty six forty five.
15:02:22.7 HOT-1	[captain speaking while first officer responding to approach] actually. three two right would be. actually.		
15:02:27.7 HOT-2	yeah? what d'ya--		
15:02:28.7 HOT-1	actuall--		
		15:02:29.0 RDO-1	actually sir Lindbergh thirty six forty five ah let us ah look at that real quick get right back with you.
		15:02:33.1 DEP-CH-F	okay. let me know.

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
15:02:34.1 HOT-1	the wind is actually favoring three two right I believe.		
15:02:36.5 HOT-2	oh.		
15:02:37.0 HOT-1	isn't it?		
15:02:37.9 HOT-1	or maybe it's not.		
15:02:37.9 HOT-2	(ah--).		
		15:02:39.0 RDO-2	and the wind sir for Lindbergh thirty six forty five is it ah favoring three two?
		15:02:43.2 DEP-CH-F	* three two zero at one one gust two zero.
15:02:45.8 HOT-1	yeah. let's take three two.		
		15:02:47.0 RDO-2	okay let's stay with that then. three two will be fine. Lindbergh thirty six forty five.
		15:02:50.8 DEP-CH-F	okay. so three two right with the equipment. is that correct?
15:02:53.5 HOT-1	yes.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
		15:02:53.9 **RDO-2**	three two right ah with the equipment. yessir. Lindbergh thirty six forty five.
		15:02:57.2 **DEP-CH-F**	okay. stand by.
15:02:58.0 **HOT-1**	tell him we'll. yeah.		
15:02:58.6 **HOT-2**	you're gonna have to. well let me see if I can get this approach in here.		
15:03:00.9 **INT-1**	hey. ah so this will be an emergency landing		
15:03:03.2 **INT-3**	okay.		
15:03:03.6 **INT-1**	you got about five minutes.		
15:03:04.7 **INT-3**	great.		
15:03:05.0 **INT-1**	the mains are down but the nose gear is not down.		
15:03:07.4 **INT-3**	will you uhm--		
15:03:08.6 **INT-1**	I'll tell the folks.		
15:03:09.4 **INT-3**	will you call and tell us when to brace?		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
15:03:11.7 **INT-1**	ah yeah. when do you want me to do that?		
15:03:13.6 **INT-3**	uhm. whenever you do it. what's your thing like right before we land or?		
15:03:17.6 **INT-1**	well there's a lot going on...		
15:03:18.8 **INT-3**	yeah.		
15:03:19.1 **INT-1**	...right before then so you let me know when ah. how long before we touch down do you want the brace?		
15:03:24.2 **INT-3**	well ah. prob-- a minute before?		
15:03:25.7 **INT-1**	a minute before? okay.		
15:03:26.4 **INT-3**	that'd be good. thanks.		
15:03:27.2 **INT-1**	that sounds good. thanks bye.		
15:03:27.3 **INT-3**	bye.		
15:03:32.4 **PA-1**	folks from the flight deck uh bit of bad news here. the nose landing gear is confirmed not down and locked. so this will be an emergency landing uh we do have both of our main landing gears uhm---		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
		15:03:43.3 **DEP-CH-F**	Lindbergh thirty six forty five contact approach one three three point six two.
15:03:45.8 **PA-1**	uh over that are under the wing those are both down and locked. so ah I have instructed the flight attendants this will be an emergency landing. ah I do want you to follow their instructions. ah we should have you on the ground here in about five minutes. thank you.		
		15:03:48.7 **RDO-2**	thirty three sixty two. ah Lindbergh ah thirty six forty five.
		15:03:59.2 **RDO-2**	and uhm approach Lindbergh thirty six ah forty five is with you now sir.
		15:04:08.7 **APR-CH-G**	Lindbergh thirty six forty five Chicago Approach roger expect the I-L-S runway three two right.
		15:04:12.4 **RDO-2**	we'll expect three two right. Lindbergh thirty six forty five.
15:04:17.0 **HOT-1**	okay so. let's get all set up with that.		
15:04:20.1 **HOT-2**	alright. I got it. that's what I been working on [chuckle]. ah let's see. MUNDY. so-we'll bring that up. there. and it's ah three two three inbound. execute. alright and it's ah yep ten seven five. I got it in both sides. it's up. it's in the uhm. it's in there for you now. looks like they're gonna make you do a right turn probably come back around.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
		15:04:55.6 APR-CH-G	Lindbergh thirty six forty five turn right heading one four zero.
		15:04:59.1 RDO-2	kay one four zero Lindbergh thirty six forty five.
15:05:02.1 HOT-1	alright so. not obviously gonna worry about the numbers. that's in there. uhm. this is a visual approach runway three two right backed up with the I-L-S we got the frequency in there ten seventy five left and right.		
15:05:12.7 HOT-2	alright. uhm.		
15:05:13.5 HOT-1	eight sixty-- well eight sixty on the M-D-As for reference.		
15:05:16.6 HOT-2	flight attendants advised. thrust reversers. [whispering]		
		15:05:16.8 APR-CH-G	Lindbergh thirty six forty five turn right heading two two zero.
		15:05:21.0 RDO-2	two two zero Lindbergh thirty six ah forty five.
15:05:23.7 HOT-2	two two zero. and I've got the ah before landing check. I've got flight attendants and thrust reversers are. okay.		
15:05:30.7 HOT-1	uhm they want the brace about a minute before. but you know what we didn't talk about? is ah is an emer-- er is a passenger evacuation.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
15:05:37.8 HOT-2	kay.		
15:05:38.4 HOT-1	so how do you want to handle this when we get on the ground? because we'll have to shut everything down. uhm.		
15:05:42.6 PA-3	please make sure your seatbelts are fastened. pull 'em tight. check 'em. the captain will command me to brace. I will again remind you to brace. then you'll lean over on the seat in front of you and hold that position. when I say brace do it. until I tell you to release from your seats.		
15:05:43.3 HOT-2	okay. passenger evacuation. parking brake. evacuation command. uh ground lift dump. thrust levers. shut off evacuation--		
15:05:50.3 HOT-1	hold-hold on one second.		
15:05:52.5 HOT-2	okay.		
		15:05:53.9 RDO-1	and approach Lindbergh thirty six forty five can we get ah vectors through the localizer and back again.
		15:06:00.0 APR-CH-G	Lindbergh thirty six forty five how far through the localizer do you need to go?
		15:06:05.2 RDO-1	ah just maybe like five miles and back around again to give-give a little bit more time.

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
		15:06:09.6 **APR-CH-G**	Lindbergh thirty six forty five roger.
15:06:13.2 **HOT-2**	five m-- five miles? [chuckle] okay. uhm. you wanna just you want me to just read through it so you know uhm---		
15:06:18.1 **HOT-1**	well no. I want to talk about what we're gonna do. we land--		
		15:06:20.7 **APR-CH-G**	Lindbergh thirty six forty five turn right heading three two zero. I'll just box you back around.
15:06:24.5 **HOT-1**	okay.		
		15:06:25.3 **RDO-2**	three two zero on the heading. Lindbergh thirty six forty five.
15:06:29.3 **HOT-2**	when we land. yep. okay. go ahead.		
15:06:33.0 **HOT-1**	nah I want to talk about when we land uhm obviously the main cabin door is not going to open. uh so how do you. what do you want do about a passenger evacuation. how do you feel about that?		
15:06:45.8 **HOT-2**	uhm. well I don't think. well. I mean. yeah. uhm. I think if we see smoke maybe. er-er if we see fire or smoke. maybe then. but otherwise I don't if we need to do an emergency evacuation. what do you think?		
15:07:00.4 **HOT-1**	if--		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
		15:07:00.5 **APR-CH-G**	Lindbergh thirty six forty five do you know about how much longer you're going to need?
15:07:02.9 **HOT-1**	five minutes.		
		15:07:04.5 **RDO-2**	yep. maybe five minutes sir and then we'll be in.
		15:07:06.9 **APR-CH-G**	Lindbergh thirty six forty five roger.
15:07:09.5 **HOT-2**	uhm.		
15:07:13.0 **HOT**	[sound of hi-lo chime, similar to flight attendant call]		
15:07:13.4 **HOT-2**	yeah.		
15:07:13.7 **HOT-1**	let me ask them.		
15:07:15.4 **INT-3**	hello.		
15:07:16.3 **INT-1**	hey once we land. what do you want to do about a possible passenger evacuate-uh?		
15:07:20.1 **INT-3**	well uhm. you-I'll wait to hear Easy Victor from you.		
15:07:22.7 **INT-1**	okay.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
15:07:22.8 INT-3	and if I don't hear anything from you. I'll wait and then a minute a second and then I'll evacuate.		
15:07:27.6 INT-1	okay.		
15:07:27.9 INT-3	will you. c--. will you do that?		
15:07:28.9 INT-1	the main cabin door is not gonna open.		
15:07:30.9 INT-3	it will not open.		
15:07:31.6 INT-1	no because the-- it will not it's not you're not gonna be able to use it. it is not gonna open fully.		
		15:07:34.6 APR-CH-G	Lindbergh thirty six forty five turn right heading zero niner zero.
15:07:35.8 INT-3	okay. service door.		
15:07:37.9 INT-1	uhm.		
		15:07:38.4 RDO-2	zero nine zero Lindbergh thirty six forty five.
15:07:40.1 INT-3	do you prefer over wing?		
15:07:41.2 INT-1	stand-by ah zero nine zero okay.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
15:07:43.0 **INT-1**	ah dah yeah I mean the overwing and service doors will both be fine.		
15:07:47.6 **INT-3**	okay.		
15:07:48.1 **INT-1**	but the main cabin door's not gonna work. so. uhm.		
15:07:52.5 **INT-1**	let's see so. if we come on and say Easy Victor Easy Victor you're gonna go. and then if we don't. are you gonna do it if there's something that looks fishy or. how do you wanna?		
15:08:03.1 **INT-3**	do you want me to evacuate if I don't hear from you?		
15:08:06.2 **INT-1**	uhm.		
15:08:09.5 **INT-1**	yeah. I'll call you back if-if...		
15:08:11.0 **INT-3**	okay.		
15:08:11.3 **INT-1**	...if I don't want t--. give it a few seconds and if you don't hear Easy Victor Easy Victor.		
15:08:16.2 **INT-3**	okay.		
15:08:16.8 **INT-1**	ah #.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
15:08:18.4 **INT-1**	this is a tricky situation.		
15:08:19.3 **INT-3**	it's very tricky.		
15:08:21.5 **INT-3**	if I don't hear from you within three to five seconds. I'm going to evacuate.		
15:08:24.6 **INT-1**	okay.		
15:08:25.0 **INT-3**	okay.		
15:08:25.5 **INT-1**	alright sounds good.		
15:08:26.0 **INT-3**	bye okay bye.		
15:08:26.4 **INT-1**	alright bye.		
15:08:27.4 **HOT-1**	if she doesn't hear with us within three to five seconds she's gonna evacuate.		
15:08:30.9 **HOT-2**	she's gonna do an evacuation?		
15:08:32.6 **HOT-1**	don't you think? yeah.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
15:08:32.7 HOT-2	okay. then just from okay. here's the evacuation. parking brake set. alright. evacuation command. then you have gear. the ground lift dumping. okay. which is right there. to man-- to ah to man disarm. okay.		
15:08:45.1 HOT-1	actually we need more time than that don't we? yeah.		
15:08:47.0 HOT-2	what's that?		
15:08:47.8 HOT-1	we need more time than that don't we whenever we stop.		
15:08:51.6 HOT-2	yeah. and then uhm.		
15:08:52.8 HOT	[sound of hi-lo chime, similar to flight attendant call]		
15:08:54.1 HOT-2	A-P-U left and right hand fire push select.		
15:08:56.0 INT-3	hello.		
15:08:56.5 INT-1	hey just wait for me. uh to...		
15:08:58.0 INT-3	okay.		
15:08:58.1 INT-1	...to evacuate cause we have to run kind of a lengthy checklist		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
15:09:01.1 INT-3	okay as long as I hear from you. if I-if I hear you guys talking I'll be okay with that.		
15:09:04.4 INT-1	okay sounds good.		
15:09:05.0 INT-3	great thank you.		
15:09:05.8 INT-1	alright. thanks bye.		
15:09:06.5 HOT-2	I think. yeah just wait for us to give the command.		
15:09:08.6 HOT-1	yeah.		
15:09:09.0 HOT-2	you know because I-I-I mean if this goes well and [stammer] just keep your braking nice and even go straight down the runway it shouldn't be any---		
15:09:15.1 HOT-1	just back me up on everything you can ah.		
15:09:16.2 HOT-2	it shouldn't be. it shouldn't be any big deal you know what I mean?		
15:09:19.2 HOT-1	yeah.		
15:09:19.5 HOT-2	uhm. thrust reversers--		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
		15:09:20.0 **APR-CH-G**	Lindbergh thirty six forty five turn right heading one four zero.
		15:09:22.4 **RDO-2**	okay one four zero Lindbergh thirty six forty five.
15:09:24.9 **HOT-2**	uhm. the thrust reversers are armed. uhm. just remember ground lift dumping if we-if we're gonna put 'em out. ground-ground lift dumping. thrust levers shutoff. evacuation uh initiate. A-P-U ah left hand (and) right hand fire push. select. ma-- battery master off. okay?		
15:09:43.0 **HOT-1**	okay.		
15:09:43.5 **HOT-2**	good. you know all those part that [chuckle].		
15:09:46.4 **HOT-2**	are you kidding me? [loud] huh? [chuckle]		
		15:09:49.4 **APR-CH-G**	Lindbergh thirty six forty five just advise when you're ready for a turn inbound.
15:09:52.3 **HOT-2**	we're ready?		
15:09:53.7 **HOT-1**	[sigh] sure.		
		15:09:54.7 **RDO-2**	okay. yeah. we're ready for the turn now sir. Lindbergh thirty six forty five.

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
		15:09:58.9 APR-CH-G	Lindbergh thirty six forty five roger I'll ah have a turn inbound shortly.
15:10:03.3 (HOT-2)	roger.		
15:10:05.7 HOT-2	alright. let's get make sure nothing's gonna fly around and hit us in the head.		
15:10:11.3 HOT-2	[chuckle].		
15:10:13.9 HOT-2	alright man. well. I don't know how much more we can do. we're ready. we-we're light on fuel.		
15:10:20.5 HOT-1	[inhale] alright so.		
15:10:22.6 HOT-2	just the nose down nice and easy let it bleed off. I guess eventually the-the airflow over the-the-the wing and-or the tail will-will diminish in much. I guess you'd probably want to get it on the ground before it completely diminishes uh with rudder or with elevator effectiveness--		
15:10:37.8 HOT-1	so it doesn't slam down.		
15:10:39.1 HOT-2	so it doesn't slam down. so.		
		15:10:40.9 RDO-2	Lindbergh thirty six forty five turn right heading one correction turn right heading two two zero.

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
		15:10:45.5 **RDO-2**	two two zero Lindbergh thirty six forty five.
15:10:47.8 **HOT-2**	that-that was my only thought is if-if you let it go too far and too slow it'll slam. so you might wanna. you might have to lowwwwer it. you know. when it gets so you have rudder effectiveness. or elevator effectiveness. otherwise it will slam. and we don't wanna do that either.		
15:11:03.3 **HOT-1**	yeah.		
15:11:03.4 **HOT-2**	you know what I mean so. nice and nice easy. I don't think it's gonna matter so much if it's touching the ground and sliding on the nose. uhm if it slams it's gonna break. it could cause you and I to be disoriented or somethin' like that. so nice I think touching down and having control of it you know I think is a better way to go.		
15:11:25.3 **HOT-2**	parking brake. then we if we do the evacuation. uhm. I guess we're just gonna shut it off anyways. aren't we?		
		15:11:31.5 **RDO-2**	Lindbergh thirty six forty five turn right heading three zero zero intercept runway three two right localizer.
15:11:31.7 **HOT-1**	yeah.		
		15:11:35.2 **RDO-2**	three zero zero to intercept the three two right ah localizer. Lindbergh thirty six forty five.

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
15:11:40.1 **HOT-2**	uhm. you probably want to shut everything off. you know what I mean?		
15:11:44.0 **HOT-1**	how come my localizer's not.		
15:11:46.3 **HOT-2**	localizering?		
15:11:47.3 **HOT-1**	yeah.		
15:11:50.2 **HOT-2**	oh mine didn't either did it.		
15:11:52.9 **HOT-1**	is it. thhhhreee twenty three.		
15:11:54.7 **HOT-2**	three twenty three. yep.		
15:11:57.3 **HOT-2**	maybe I put it in uhm. maybe I put it in ah before I. I think I actually I uh put it in green needles ah before. it was in green needles bef--. when I put the. when I put in the box.		
15:12:12.8 **HOT-1**	okay.		
15:12:13.4 **HOT-1**	he-he said to join the localizer.		
15:12:14.6 **HOT-2**	he sure did. yep.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
15:12:15.4 **HOT-1**	okay.		
		15:12:16.1 **APR-CH-G**	Lindbergh thirty six forty five information Echo is current at O'Hare. verify you have Echo if not I can read it to you real fast.
		15:12:21.0 **RDO-2**	ah if you would please. ah Lindbergh thirty six forty five.
		15:12:23.8 **APR-CH-G**	Lindbergh thirty six forty five roger information Echo at one niner five one zulu. wind currently three four zero at one five gust one niner. visibility one zero. few clouds five thousand. temperature one four. dewpoint two. altimeter three zero zero one.
		15:12:41.5 **RDO-2**	okay thank you.
15:12:42.5 **HOT-2**	uhm. yeah. yeah I'm thinkin' if you-if you have [stammer] with the gustiness and everything it's gonna have a tendency to wanna you know lose so I-I think you're better to set it down.		
		15:12:52.6 **APR-CH-G**	Lindbergh thirty six forty five six miles from MUNDY cross MUNDY at four thousand cleared I-L-S runway three two right approach.
		15:13:00.4 **RDO-2**	okay four thousand ah cross MUNDY at four thousand cleared for the I-L-S three two ah right approach. Lindbergh thirty six forty five.
15:13:07.9 **HOT-1**	so what do you think about thrust reversers.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
15:13:10.6 **HOT-2**	well. thrust reversers have a tendency to pick up the uhm (will) have a tendency to pick up the-the nose which is not good. so maybe.		
15:13:18.7 **HOT-1**	oh you don't think so. I was thinking that would that I could ke-keep it off the ground as much as possible.		
15:13:24.7 **HOT-2**	but they could. you could get into this ah teetering thing. I think just use the brakes.		
15:13:28.1 **HOT-1**	okay.		
15:13:29.7 **HOT-2**	cause-cause the thrust reversers have a tendency to throw the nose up. and if you went into 'em heavy. but yeah I mean. I think maybe deploy them but maybe just maybe not heavy on it. because if you get too heavy on it will pick the nose up. you know what I mean?		
15:13:44.4 **HOT-1**	okay. yeah.		
15:13:46.7 **HOT-2**	and braking. ah once the nose touches I think you can get on the brakes pretty # hard. you know what I mean.		
15:13:50.6 **HOT-1**	ah huh. yeah let's do that actually to get it stopped as quick as possible.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
15:13:53.8 HOT-2	yep. I mean make sure you're lev-- make sure you're straight but I would say more braking. braking pushes the nose down.		
		15:13:59.8 APR-CH-G	Lindbergh thirty six forty five speed your discretion contact O'Hare Tower at INDDY one two six point niner.
		15:14:07.3 RDO-2	alright twenty six nine at IND at uhm uhm INDDY ah Lindbergh thirty six ah forty five.
15:14:14.2 HOT-2	alright. you got this man. you got it.		
15:14:21.4 HOT	[sound of click]		
15:14:22.8 HOT-2	I-I don't know. I don't know what to say as far as thrust reversers and stuff. but-but I would guess uhm heavy into 'em will would uhm could have a tendency to could actually lift the nose up. like you know--		
15:14:35.9 HOT-1	I think I'm gonna pop 'em...		
15:14:37.4 HOT-2	pop 'em.		
15:14:37.7 HOT-1	...but not go full because that may h-help me be able to easing that down. let's go flaps twenty.		
15:14:43.4 HOT	[sound of click]		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
15:14:43.4 HOT-2	okay flaps twenty. I think you're right. yep. I like that.		
15:14:55.2 HOT-1	uh there's really no goin' around anymore. we got a little bit of gas but.		
15:14:58.8 HOT-2	oh [exhale].		
15:15:00.5 HOT-1	[chuckle]		
15:15:00.7 HOT-2	[chuckle]		
15:15:04.8 HOT-2	and I think we're slow enough at one twenty five I think we can you can actually be uhm I mean you could actually touchdown you know a little slower than that cause we're light. we're as light as we're gonna be. you know what I mean.		
15:15:13.4 HOT-1	yeah. yeah.		
15:15:15.8 HOT-2	so probably realistically a ref of one twenty is probably more one twenty one is probably realistic as far as what the actual ref is.		
15:15:24.9 HOT-1	yeah. I think you're right about that.		
15:15:25.7 HOT-2	you know so.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
15:15:27.1 **HOT-2**	so slower. if you're going a little bit slow isn't gonna be the end of the world. you know what I mean.		
15:15:32.4 **HOT-2**	I'll set that ref now if you want.		
15:15:34.4 **HOT-1**	ah sure.		
15:15:35.5 **HOT-2**	it doesn't matter does it?		
15:15:36.8 **HOT-1**	no (we can go) flaps thirty.		
15:15:40.6 **HOT**	[sound of click]		
15:15:41.2 **HOT-2**	okay. ah. we got four minutes.		
15:15:44.9 **HOT-2**	[chuckle]		
15:15:45.4 **HOT-1**	so one minute before she wants you to go on the P-A and go brace brace brace.		
15:15:49.7 **HOT-2**	uh brace brace brace?		
15:15:51.1 **HOT-1**	yeah.		
15:15:51.6 **HOT-2**	okay.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
15:15:51.7 HOT-1	they're gonna do the brace. but we don't know exactly what's gonna happen. you know. so.		
15:15:55.0 HOT-2	okay. do you want me to tell them that?		
15:15:57.0 HOT-1	yes. I said that you would tell them that. you would go on it [stammer] all you have to do is go on and go brace brace brace.		
15:16:02.4 HOT-2	alright.		
15:16:03.1 HOT-1	if we make a landing and come to a stop and everything seems fine I'm gonna go right back to her and say don't evacuate. how does that sound?		
15:16:09.9 HOT-2	perfect. yeah I-I like that.		
15:16:11.5 HOT-2	I if we're not smokin' [chuckle] and we're not on fire. it-it there's fire trucks here. I think evacuation might be an extreme.		
15:16:18.1 HOT-1	yeah. I agree.		
15:16:18.6 HOT-2	don't you?		
15:16:19.7 HOT-1	I was just wondering if--.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
15:16:20.2 **HOT-2**	I mean if we're on fire obviou--		
15:16:20.9 **HOT-1**	flaps forty five. ref and five. before landing checklist.		
15:16:24.4 **HOT-2**	alright.		
15:16:27.6 **HOT-2**	alright. uhm. thrust reversers.		
15:16:30.8 **HOT-1**	they're both armed.		
15:16:31.9 **HOT-2**	ok uhm. I-she's you want me to tell her in the back?		
15:16:36.3 **HOT-1**	uh.		
15:16:37.4 **HOT-2**	we up on INDDY yet? okay here we go over to tower.		
		15:16:42.3 **TWR-CH-C**	rescue go ahead.
15:16:43.4 **HOT-2**	okay. we're over on tower now. uhm. thrust reversers.		
		15:16:43.8 **ARFF**	[unintelligible due to intra-cockpit overlapping talk]
15:16:47.2 **HOT-1**	they're armed.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
15:16:47.8 HOT-2	landing gear. phhh. and flaps.		
		15:16:49.6 TWR-CH-C	[mostly unintelligible due to overlapping intra-cockpit talk] six mile final.
15:16:50.6 HOT-1	forty five indicating.		
15:16:51.8 HOT-2	okay. before landing check complete.		
15:16:54.1 HOT-2	uhm.		
15:16:56.9 HOT-2	I'll tell 'em when we're about. I'll tell 'em when we're about- about a minute away.		
15:17:00.9 HOT-1	okay.		
		15:17:02.3 TWR-CH-C	rescue six *** hold short ***.
15:17:02.7 HOT-2	okay you got it man.		
15:17:04.5 HOT-1	just back me up man. if there's anything you don't like. just get on there okay.		
15:17:08.5 HOT-2	just straight down the runway man.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
15:17:10.8 HOT-2	braking. just keep it on the runway man. that's--		
15:17:12.8 HOT-1	yeah we gotta stay on the runway.		
15:17:14.1 HOT-2	and you're gonna do that with braking okay.		
15:17:15.3 HOT-1	no matter what. okay.		
15:17:16.9 HOT-2	maybe start flying here and get-get a feel for it man.		
15:17:19.7 HOT-1	okay.		
15:17:20.1 HOT-2	I mean. what do you think.		
15:17:20.5 HOT-1	oh yeah you're right.		
15:17:21.5 HOT-2	get a feel for it.		
15:17:21.8 HOT	[sound of cavalry charge, similar to autopilot disconnect]		
15:17:22.5 HOT-2	you're flyin' you know what I mean?		
15:17:23.7 HOT-1	alright. autopilot's off.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
15:17:25.0 **HOT-2**	alright good.		
		15:17:26.8 **RDO-2**	tower Lindbergh thirty six forty five is with you.
		15:17:30.0 **TWR-CH-C**	Lindbergh thirty six forty five O'Hare Tower wind three three zero at one two gust one niner altimeter three zero zero one. runway three two right. cleared to land.
15:17:38.0 **CAM**	[sound of clunk]		
		15:17:38.2 **RDO-2**	okay. cleared to land three two right. Lindbergh thirty six forty five.
15:17:42.7 **HOT-1**	cleared to land three two right roger.		
15:17:44.0 **HOT-2**	three two right.		
		15:17:49.8 **ARFF**	tower city one nineteen.
		15:17:51.7 **TWR-CH-C**	city one nineteen.
		15:17:53.3 **ARFF**	one nineteen and company holding short at bravo thirty two right to follow the aircraft that is on arrival.
		15:17:59.1 **TWR-CH-C**	city one nineteen roger.

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
15:18:02.5 HOT-2	yep. keep it goin' straight down the runway. ease the nose down nice and easy. don't wait till the very end. you know of-of speed. because we don't want it to slam down. you're gonna pop the reversers. uhm. once you get on the ground get on the brakes and slow down man. because I think less-less time travelling on the nose and sparkage will be ah will be better than. you know. right. [chuckle].		
15:18:25.1 HOT-1	yeah.		
15:18:26.1 HOT-2	(I mean). I guess. I don't know. heavy braking. you just want to make sure you're equal on your brakes. you know what I mean the. make sure that both are grabbing at the same time and. you know so you don't go veering left or right cause you're not gonna have a nosewheel to steer it. so. braking easy at first and maybe heavier as you feel the brakes out you know.		
15:18:44.4 HOT-1	okay.		
15:18:44.8 HOT-2	I-I'm just throwing things out there man. just [stammer] talkin' through it man.		
15:18:47.7 HOT-1	yeah. you know this is ah.		
15:18:52.2 HOT-2	hey. just keep it on the runway man [loud] [chuckling].		
15:18:53.9 HOT-1	stay on the runway. I agree.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
15:18:55.0 HOT-2	you got you're you got you're ah. ah what are we uhm. one minute to go. you want me to tell them to brace brace brace?		
15:18:59.2 HOT-1	yep. you wanna do the brace.		
15:19:01.6 HOT-2	alright.		
15:19:01.7 HOT	[sound of about 700 Hz tone, similar to landing gear warning horn begins and continues for 27 seconds]		
15:19:06.3 PA-2	and brace brace brace.		
15:19:09.1 HOT	["brace brace brace" "keep your head down" (and similar directives) repeats in background from flight attendants]		
15:19:13.5 HOT-1	sil-- see if you can shut that thing up.		
15:19:20.4 HOT-1	nah you probably can't. that's okay you can undo 'em.		
15:19:26.0 HOT-2	kay. I tried.		
15:19:27.2 HOT-1	you could do those on that side if you want.		
15:19:28.4 CAM	[sound of two clicks]		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
15:19:29.1 HOT-2	okay.		
15:19:30.1 HOT	[sound of 700Hz tone stops]		
15:19:30.9 HOT-1	that get it. okay.		
15:19:31.3 HOT-2	who knew.		
15:19:31.4 HOT	[sound of about 700 Hz tone, similar to landing gear warning horn begins and continues for 1 seconds]		
15:19:33.1 HOT-1	yep. my * thanks.		
15:19:36.1 HOT	["brace brace brace" "keep your head down" (and similar directives) continues in background from flight attendants]		
15:19:38.0 HOT-2	she's doin' brace brace brace [chuckle].		
15:19:45.2 HOT-2	alright man nice and easy.		
15:19:45.7 EGPWS	five hundred		
15:19:46.5 HOT-2	you'll do real good. normal landing. just ah nose down and that is the only thing that you're gonna be ah concerned with.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
15:19:53.5 **HOT-2**	birds on the left [chuckle].		
15:19:56.7 **HOT-2**	nice easy normal landing.		
15:19:58.1 **HOT-1**	roger that.		
15:19:58.8 **HOT-2**	just ah.		
15:20:11.2 **EGPWS**	minimums.		
15:20:12.7 **HOT-1**	visual landing.		
15:20:16.8 **HOT-2**	alrighty.		
15:20:19.5 **HOT-2**	lookin' good man.		
15:20:20.7 **EGPWS**	one hundred.		
		15:20:23.7 **TWR-CH-C**	city one nineteen and company you can drive on runway three two right cross runway two seven left cross runway four left.
15:20:25.0 **EGPWS**	fifty.		
15:20:25.7 **EGPWS**	glideslope.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
15:20:26.8 **EGPWS**	thirty.		
15:20:28.2 **EGPWS**	twenty.		
15:20:29.6 **EGPWS**	ten.		
15:20:30.0 **HOT-2**	there's one. one twenty.		
15:20:32.9 **CAM**	[sound of bump, similar to main gear touchdown]		
15:20:33.9 **HOT-2**	hold it off. nice and easy.		
15:20:34.6 **HOT**	[sound of click]		
15:20:35.3 **HOT**	["brace" and similar directives continue in background from flight attendants]		
15:20:36.1 **HOT**	[sound of multiple clicks]		
15:20:37.1 **HOT-2**	one twenty [whispering].		
15:20:38.5 **HOT-2**	there's a hundred and ten.		
15:20:44.4 **HOT-2**	there's ninety.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
15:20:50.3 CAM	[sound of scraping begins and continues for about 11 seconds]		
		15:20:50.4 ARFF	tower rescue six ***.
15:20:51.2 HOT-2	alright. brakage. put on the brakes man.		
15:20:54.5 CAM	[sound of increased whining, similar to heavy braking for about 6 seconds]		
		15:20:55.1 TWR-CH-C	rescue six five five drive on three two right.
		15:20:59.9 ARFF	tower tower. six five six at uniform two to go on that runway three two right.
15:21:00.2 CAM	[sound of multiple clicks]		
15:21:00.9 CAM	["stay down" repeated in background by flight attendants]		
15:21:02.5 HOT	[sound of hi-lo chime, similar to flight attendant call]		
		15:21:04.9 TWR-CH-C	everybody permission to cross all *** on three two right. *** cross four left. cross two seven left. proceed to the aircraft.
15:21:06.6 INT-3	yes.		

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
15:21:06.7 **HOT-2**	what do you want me to tell 'em?		
15:21:07.0 **INT-1**	do not evacuate.		
15:21:07.9 **HOT**	do not evacuate [observed in background of HOT channels]		
15:21:08.5 **HOT-2**	good job man.		
15:21:10.6 **HOT-1**	alright.		
15:21:12.0 **HOT-2**	I'll tell them no-no evac.		
15:21:13.8 **PA-2**	and no evacuation. no evacuation. uhm.		
		15:21:18.0 **ARFF**	(guards and city) one eighteen just like to confirm ***.
15:21:19.6 **HOT-2**	good job man.		
15:21:20.4 **HOT-1**	I'm just gonna shut it down alright.		
15:21:21.4 **HOT-2**	yeah shut'r down.		
		15:21:21.9 **TWR-CH-C**	** three two right is closed.

TIME and SOURCE	INTRA-AIRCRAFT CONTENT	TIME and SOURCE	AIR-GROUND COMMUNICATION CONTENT
15:21:23.1 **CAM**	[sound of applause]		
		15:21:24.0 **ARFF**	roger.
15:21:24.5 **HOT-2**	alright let me go to the--		
15:21:25.3 **HOT**	[end of recording]		

END OF TRANSCRIPT
END OF RECORDING
15:21:25.3 CDT