

**NATIONAL TRANSPORTATION SAFETY BOARD
Office of Research and Engineering
Vehicle Recorder Division**



GROUP CHAIRMAN'S FACTUAL REPORT OF INVESTIGATION

DCA19IA036

**By
Christopher Babcock**

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

June 14, 2019

Cockpit Voice Recorder

Group Chairman's Factual Report
By Christopher Babcock

1. EVENT SUMMARY

Location: Burbank, California
Date: December 6, 2018
Aircraft: Boeing 737-700, Registration N752SW
Operator: Southwest Airlines, Flight 278
NTSB Number: DCA19IA036

On December 6, 2018, about 0905 Pacific standard time, Southwest Airlines flight 278, a Boeing 737-700, registration N752SW, overran runway 8 during the landing roll at Bob Hope Airport (KBUR), Burbank, California, and came to rest in the Engineered Materials Arresting System (EMAS) at the departure end of the runway. None of the 117 passengers and crew onboard were injured and the airplane sustained minor damage. The regularly scheduled passenger flight was operating under the provisions of Title 14 *Code of Federal Regulations* Part 121 from Metropolitan Oakland International Airport (KOAK), Oakland, California to KBUR. A cockpit voice recorder (CVR) was sent to the National Transportation Safety Board (NTSB) Vehicle Recorder Division for evaluation.

2. GROUP

Chairman:	Christopher Babcock Aerospace Engineer National Transportation Safety Board
Member:	Captain Eric Brandstetter Assistant Chief Pilot/Check Airman Southwest Airlines
Member:	Captain Craig Jakubowski Air Safety Investigator Southwest Airlines Pilots Association
Member:	Captain Richard Lee Safety Pilot Boeing Flight Technical and Safety
Member:	Patrick Lusch Air Safety Investigator Federal Aviation Administration

3. DETAILS OF INVESTIGATION

The NTSB Vehicle Recorder Division received the following CVR:

Recorder Manufacturer/Model: **Allied Signal 6022**
Recorder Serial Number: **2688**

3.1 CVR Carriage Requirements

Per federal regulation, turbine engine powered aircraft operating under Title 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 Allied Signal 6022, 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 3-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 panels sources and a second channel that contains the cockpit area microphone (CAM) source. The 30-minute portion of the recording contains of three channels of audio information: one channel for each flight crew and one channel for a cockpit observer.

3.3 Recorder Damage

Upon arrival at the laboratory, it was evident that the CVR had not sustained any heat or structural damage and the audio information was extracted from the recorder normally, without difficulty.

3.4 Audio Recording Description

Each channel's audio quality is indicated in Table 1.¹

Table 1. Audio Quality.			
Channel Number	Content/Source	Quality	Duration (h:mm:ss)
1	Captain	Excellent	0:30:17
2	First Officer	Excellent	0:30:17
3	PA	Excellent	0:30:17
4	Mixed crew	Excellent	2:01:02
5	CAM	Good	2:05:12

Timing on the transcript was established by correlating the CVR events to common events on the flight data recorder (FDR). Specifically, the last five radio transmissions that the aircraft made were correlated to the radio transmit microphone key parameter from the FDR. Each of the five radio transmissions acted as an anchor point for a linear interpolation between the remaining CVR events. Once a correlation between the two recorders was established, a reference to local time was determined using the recorded

¹ See attached CVR Quality Rating Scale.

time on the FDR offset to local Pacific Daylight Time. Aircraft power was lost at 0903:13 PST. When power was reestablished, the FDR did not start recording due to its system logic. After this time, timing on the transcript was determined by the correlating the radio transmissions recorded on the CVR with the corresponding radio transmissions recorded on the certified, timed recording of the Burbank Tower frequency.

3.5 Description of Audio Events

The recording began at 0716:27 PST and the transcript began at 0818:14 PST and includes events from cruise, descent, approach, and landing. The recording ended at 0922:36 PST.

As part of the Safety Board's accident investigation process, the flight crew was invited to review the CVR transcript and suggest corrections or additions. The crew requested that wind information broadcast by Burbank Tower following the overrun be included. Table 2 includes those broadcasts. Additionally, the first officer requested that the event occurring at 0900:02.9 be documented as [sound of first officer's cell phone alarm] instead of [sound of music].

Table 2. Additional broadcast winds documentation.

Time and Source	Event
0907:51.1 BUR	current winds are two seven zero at one seven.
0914:27.4 BUR	winds are two eight zero at one one gust one niner.
0916:08.7 BUR	information mike is now current. wind two niner zero at four. runway one five in use. wind three zero zero at seven.

Attachment I

CVR Quality Rating Scale

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

Excellent Quality	Virtually all of the crew conversations could be accurately and easily understood. The transcript that was developed may indicate only one or two words that were not intelligible. Any loss in the transcript is usually attributed to simultaneous cockpit/radio transmissions that obscure each other.
Good Quality	Most of the crew conversations could be accurately and easily understood. The transcript that was developed may indicate several words or phrases that were not intelligible. Any loss in the transcript can be attributed to minor technical deficiencies or momentary dropouts in the recording system or to a large number of simultaneous cockpit/radio transmissions that obscure each other.
Fair Quality	The majority of the crew conversations were intelligible. The transcript that was developed may indicate passages where conversations were unintelligible or fragmented. This type of recording is usually caused by cockpit noise that obscures portions of the voice signals or by a minor electrical or mechanical failure of the CVR system that distorts or obscures the audio information.
Poor Quality	Extraordinary means had to be used to make some of the crew conversations intelligible. The transcript that was developed may indicate fragmented phrases and conversations and may indicate extensive passages where conversations were missing or unintelligible. This type of recording is usually caused by a combination of a high cockpit noise level with a low voice signal (poor signal-to-noise ratio) or by a mechanical or electrical failure of the CVR system that severely distorts or obscures the audio information.
Unusable	Crew conversations may be discerned, but neither ordinary nor extraordinary means made it possible to develop a meaningful transcript of the conversations. This type of recording is usually caused by an almost total mechanical or electrical failure of the CVR system.

Transcript of a Allied Signal 6022 solid-state cockpit voice recorder, serial number 2688, installed on an Southwest Airlines Boeing 737-700 (N752SW), which overran the runway after landing at Bob Hope Airport in Burbank, California.

LEGEND

CAM	Cockpit area microphone voice or sound source
HOT	Flight crew audio panel voice or sound source
RDO	Radio transmissions from N752SW
INT	Aircraft interphone sound source
PA	Aircraft public address system sound source
OAK	Radio transmission from Oakland Center controller
LAX	Radio transmission from Los Angeles Center controller
SOCAL	Radio transmission from the SOCAL Approach controller
BUR	Radio transmission from the Burbank airport tower controller
BRK068	Radio transmission from Bauhunia flight 68
EJA420	Radio transmission from ExecJet flight 420
OPS	Radio transmission from Southwest Burbank Operations
Crash2	Radio transmission from Crash 2
VAN41	Radio transmission from Van 41
CAR43	Radio transmission from Car 43
-1	Voice identified as the captain
-2	Voice identified as the first officer
-3	Voice identified as a flight attendant
-4	Voice identified as a flight attendant
-?	Voice unidentified
*	Unintelligible word
#	Expletive
@	Non-pertinent word
[]	Editorial insertion

Note 1: Times are expressed in pacific daylight time (PST).

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

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

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

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
0716:26.5			
START OF RECORDING			
0818:14.4			
START OF TRANSCRIPT			
0818:14.4			
HOT-2	ooh. that's gonna be close on the # I-L-S . three hundred— few at three hundred I guess. it's not a ceiling at three hundred so we'll be alright there.		
0818:43.0			
HOT-2	yeah. I-L-S is your lowest mins so.		
		0819:13.5	
		RDO-2	Oakland Southwest two seventy eight two five zero for two seven zero.
		0819:17.5	
		OAK	Southwest two seventy eight Oakland Center roger. climb maintain flight level three three zero. light to moderate chop in the climb uh pretty good ride up at altitude.
		0819:24.4	
		RDO-2	okay up to three three zero now Southwest two seventy eight.
0819:27.9			
HOT-2	alright. thirty three is higher than *.		
0819:32.6			
HOT-1	okay.		
0819:33.1			
HOT-2	release **. [stepped on]		

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
0819:42.3 HOT-2	dude. what a pretty day man.		
0820:52.1 HOT-2	there it is. good Lord.		
0820:55.7 HOT-1	yeah I tried to slow it down a little bit. hoping I could kind of punch up through it and then it just fricking runs out of gas.		
0821:31.0 HOT-2	the # winds are shifting.		
0821:57.9 CAM	[sound similar to trim wheel in motion]		
0822:10.7 CAM	[sound of double chime]		
0822:16.2 HOT-2	* for two.		
0822:17.3 HOT-1	two.		
0822:17.9 HOT	[sound of double chime]		
0822:21.2 CAM	[sound similar to altitude alert]		
0822:22.5 HOT-1	thirty two thirty three.		

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
0822:24.4 HOT-2	roger that.		
0822:39.9 HOT-1	what?		
0822:53.3 HOT-2	five knot tailwind one and a quarter...intense rain. hmm.		
0823:12.4 HOT-2	this might be fun man.		
0823:52.6 HOT-1	I'm gonna crossfeed a little bit. low side off.		
0823:54.8 HOT-2	alright.		
0824:02.0 HOT-2	anti-ice'll be on.		
0824:27.8 CAM	[sound of double chime]		
0824:44.3 HOT-2	twenty six thirty one. it's gonna have to be max. that's still not very nice.		
0824:50.4 HOT-1	max. awesome.		
0824:51.1 HOT-2	yup.		

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
0824:52.9 HOT-2	yeah it's wet with a tailwind...and # short runway.		
0824:58.3 HOT-1	awesome.		
0825:00.0 HOT-2	yeah that's great. what could possibly go wrong. you're gonna have to earn your money man. [sound of laughter]		
0825:16.5 HOT-1	yeah when you do kiss the folks goodbye just kind of tell them that—		
0825:20.2 HOT-2	yeah.		
0825:20.5 HOT-1	cause of the runway conditions that the braking will be uh—		
0825:24.2 HOT-2	pretty abrupt.		
0825:25.0 HOT-1	a— yeah.		
0825:25.8 HOT-2	yeah.		
0825:27.8 HOT-2	I'll have to let them know.		
0825:38.8 HOT-2	should we let em up?		

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
0825:39.8 HOT-1	yeah.		
0825:41.9 HOT-2	yup.		
0825:42.6 HOT-1	cool.		
0825:43.1 HOT-2	I'll talk to them when we get there.		
0825:45.4 HOT-2	alright man.		
0825:46.3 HOT-1	sounds like a plan-ski.		
0825:48.4 HOT-2	sounds like a weener.		
0825:51.2 HOT-2	no comm on the ACARS. thank God we got our numbers.		
0825:55.6 HOT-1	[sound of laughter] yeah it seems to crap out a lot lately.		
0825:58.1 HOT-2	yeah it does.		
0826:04.4 HOT-2	yeah God bless somebody must have kicked my # last night while I was asleep. [sound of grunt]		

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
0826:16.7 HOT-1	watching Fox News last week. they had your quarterback— I don't know if you heard this story. he showed up at like a Dick's Sporting Goods and he's walking around and he had like— I don't know— thirty hundred dollar gift cards and every kid he saw he'd walk up to the kid shake his hand and give him a— a Dick's gift card.		
0826:36.7 HOT-2	really wow. no # that's cool.		
0826:38.5 HOT-1	yeah. yeah. just kind of out of the blue.		
0826:42.7 HOT-2	that's cool. that's kind of a class act. I'm glad he's going that way instead of the thinking I'm the best thing that's ever walked the pla— planet way.		
0826:49.8 HOT-1	yup. yup.		
0826:51.9 HOT-1	they had a little interview with him uh and I don't know if it was a local channel or Fox but he just said yeah it's Christmas time want to keep the kids motivated keep them interested in sports and stuff like that.		
0827:03.7 HOT-2	yeah that's cool.		
0827:04.6 HOT-1	that's cool.		

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
0827:06.1 HOT-1	alright pumps on crossfeed off. I could tell you a story here about—		
0827:10.8 HOT-2	hit me.		
0827:11.6 HOT-1	the ROKKR.		
0827:13.7 HOT-1	starting on the page at uh let's call it RDHOT.		
0827:19.4 HOT-2	okay.		
0827:20.6 HOT-1	then we got HONZK at or above twenty four...PRPLE two hundred eighty knots between twenty two and twenty. XXELL between nineteen and seventeen. YUTOO two hundred seventy knots between sixteen and fourteen. TRAVV ROKKR two fifty between twelve and eleven. ZEPPE between ten and nine. IVINS at or above eight. MIKEI at seven and then a discontinuity...and then after MIKEI maybe just go to uh SILEX.		
0827:58.6 HOT-2	okay.		
0827:59.1 HOT-1	and then BUDDE and then on in.		
0828:01.3 HOT-2	sounds like a plan.		

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
0828:02.4 HOT-1	we got our I-L-S for uh runway eight. page eleven dash one.		
0828:07.4 HOT-2	yup.		
0828:09.9 HOT-1	um effective ten november. frequency is one oh nine point five. set courses zero seven nine set. glideslope with BUDDE at twenty seven fifty three. decision altitude is a thousand and seven. touchdown elevation is seven twenty seven. min safe coming in from the west is uh forty seven hundred. missed out to the east is ninety three hundred. three degree glideslope. PAPIs on the left hand side and they got MALSRs too. missed approach is straight ahead * thirteen hundred. climbing right turn forty six hundred on a two ten heading and then uh go out to hold at Ventura.		
0828:53.2 HOT-2	alright.		
0828:54.2 HOT-1	we need uh R-V-R five hundred or a mile and we got uh a mile and a quarter and rain. autobrake will be max. we will uh roll out cross uh one five and then park at alpha two and no cervezas.		
0829:14.8 HOT-2	sounds like a plan.		
0829:17.4 HOT-1	roger that.		

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
0829:18.6 HOT-2	minimums?		
0829:20.3 HOT-1	are set.		
0829:21.3 HOT-2	V ref target?		
0829:22.7 HOT-1	was uh twenty six thirty one. set noted.		
0829:24.8 HOT-2	okay autobrake?		
0829:27.1 HOT-1	max-o.		
0829:28.3 HOT-2	and recall?		
0829:30.1 HOT-1	check-o.		
0829:32.7 HOT-?	*. [stepped on]		
0830:14.8 HOT-1	so you were in the van last night?		
0830:16.9 HOT-2	no I stayed at a buddy's place.		
0830:18.0 HOT-2	oh okay.		

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
0830:19.1 HOT-2	yeah there's that couple who bought that boat are still in their apartment so I just crash over there lots of times. we were supposed to sail yesterday but it was so crappy in the morning we blew it off. yeah. we tried to sail the day before that but we got about fifteen minutes of good sailing in and then the wind just went to # just [sound of flatulence]. we're just sitting there like a # bobber.		
0830:42.1 HOT-1	[sound of laughter]		
0830:43.2 HOT-2	alright we motored over tried to see some friends played around a little bit and came back and...called it a day.		
0830:55.8 HOT-2	I could sail on the twelfth I've got off. I think we'll go—we may go sail **. [stepped on]		
0831:06.6 HOT-1	a little shakedown cruise.		
0831:07.9 HOT-2	yeah.		
0831:09.8 HOT-2	yup.		
		0832:19.7 OAK	Southwest two seventy eight contact L-A Center one three five point three.

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
		0832:24.0 RDO-2	thirty five three Southwest two seventy eight. see ya.
		0832:37.3 RDO-2	L-A good uh morning Southwest two seventy eight three three zero. smooth ride.
		0832:41.3 LAX-A	Southwest two seventy eight L-A Center good morning.
		0833:08.0 BRK068	L-A Center one one nine point zero five. good day. Bauhunia zero six eight.
0833:13.2 HOT-1	he's saying Bohemian?		
0833:15.9 HOT-2	I don't know. [sound of laughter] I'm not sure what the # that guy's saying.		
0833:19.2 HOT-1	yeah. [sound of laughter]		
0833:20.0 HOT-2	come again? over? [sound of laughter] oh goodness.		
0833:58.8 HOT-1	how many days did you have off on your last stretch?		

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
0834:02.0 HOT-2	two. I— yeah— I mean I— I came back— well dude I— I screwed up my bids in November so I had to work a trip uh on Thanksgiving and I uh got done Thanksgiving Day and uh I worked Thanksgiving Day and uh two days after that. I went to Germany spent eight days there came back worked that trip and went back for another six days and then I came back and worked a trip the first second and third. I've got two days off and now I've got six in a row then a day off three in a row and then done on the fifteenth. for December.		
0834:36.4 HOT-1	awesome.		
0834:37.0 HOT-2	yeah so I— my plan is to go over— I'm gonna go up see my mom and dad. drive the van up and leave it up at their place. spend a couple days with them. family.		
		0834:44.2 LAX-A	Southwest two seventy eight I have an amendment to your routing.
		0834:47.0 RDO-2	go ahead.
		0834:48.4 LAX-A	Southwest two seventy eight cleared to Burbank Airport via direct HIHWY. that's hotel india hotel whiskey yankee. and the ROKKR Two arrival.
		0834:57.3 RDO-2	okay we're now uh direct HIHWY for the ROKKR Two in to Burbank Southwest two seventy eight.

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
0835:02.6 HOT-2	alright then.		
0835:08.5 HOT-2	interesting.		
0835:11.5 HOT-1	okay I misspelled that I guess.		
0835:13.2 HOT-2	it's— it's uh hotel india hotel whiskey yankee.		
0835:17.3 HOT-1	oh okay.		
0835:18.0 HOT-2	so you're gonna have to go uh the REBRG transition. here I can get it if you want. let me do this...uh where are we? uh...go— go heading select and then we got to go Burbank uh ROKKR Two * HIHWY.		
0835:42.6 HOT-1	huh?		
0835:45.9 HOT-2	that'll work.		
0835:51.5 HOT-2	okay so now we can go direct to HIHWY. like that? does that look alright?		
0835:57.4 HOT-1	yeah.		

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
0836:00.0 HOT-2	alright then and then we could go back to LNAV...there we go.		
0836:09.4 HOT-2	I have no idea.		
		0836:10.4 LAX-A	Southwest two seventy eight descend via the ROKKR Two arrival except maintain niner thousand.
		0836:16.0 RDO-2	okay descend via the ROKKR Two down to— except maintain nine thousand we're direct HIHWY at this time. Southwest uh two seventy eight.
		0836:22.9 LAX-A	roger.
0836:23.8 HOT-2	alright.		
0836:24.2 HOT-1	okay nine thousand. we're in VNAV...twenty two miles.		
0836:31.8 HOT-2	at or below twenty two to *. [stepped on]		
0836:39.4 HOT-1	** [stepped on] how close the winds are out.		
0836:42.5 HOT-2	twenty two to the descent point. that makes sense. okay...alright.		

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
0836:46.5 HOT-1	it would help if I— I spelled HIHWY H-I-W-A-Y highway. [sound of laughter]		
0836:51.5 HOT-2	[sound of laughter] nice. yeah. wha? yeah you would think. um. yeah but my plan is to go up there drop the van off so they can drive it because I'm gonna— I'm gonna take the last half of December first part of April. err sorry. first part of January.		
0837:07.8 HOT-1	cool.		
0837:08.2 HOT-2	and then come back. that'll shift all my work. so I'll work last part of January last part of February last part of March and last part of April so I'll have the beginning of April off for spring break.		
0837:20.6 HOT-1	way cool.		
0837:21.3 HOT-2	yeah.		
0837:24.5 HOT-2	and then I've got a week of vacation at the end of February so I can do my uh— I'm gonna try to go to Belize on a sailing expedition. should be interesting.		
0837:37.8 HOT-1	are you gonna do— like rent a boat down there or are you gonna crew with somebody's?		

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
0837:41.0 HOT-2	yeah they're uh— uh well I'm gonna— I'm trying to get a cabin with some folks and just uh— one of the big catamarans and we'll cruise around an go scuba diving and stuff. but it's a chance to sail around in the Caribbean some more. I did the Virgin— the Virgin Islands but I have not been down south like by Belize so...		
0837:56.2 HOT-1	hmm.		
0838:02.8 HOT-1	I'm gonna talk to the flight attendant.		
0838:05.3 HOT-2	okay.		
0838:15.4 INT-3	this is @.		
0838:17.0 INT-1	hey @.		
0838:17.8 INT-3	yes?		
0838:18.3 INT-1	when we go— we'll be descending here in a little bit. probably going to be a little bumpy so uh...		
0838:23.1 INT-3	** . [stepped on]		

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
0838:24.4 INT-1	yeah it just got bumpy uh but uh it might get a little worse so uh you guys might want to do your uh cleanup anytime you get a smooth chance then we'll just ding you at ten for electronics.		
0838:32.5 PA-2	alright folks from the flight deck uh fasten seatbelt sign back on if you are up and about please make your way to your seats and buckle up uh A-T-C is telling us there may be some bumps on the descent in to uh uh Burbank at least initially so we're gonna have the seatbelt sign on a little bit early. uh currently we're about a hundred miles from the field so uh we're just going to leave it on. the computer's showing us getting you there about fifteen minutes ahead of schedule which is the good news. bad news is that unlike it normally is in southern Cal it's raining so uh they got low ceilings there. uh light winds. just uh just looks like uh a drizzly day. bout uh fifty degrees right now. just a— a heads up for you as you know Burbank's got a pretty short runway and since it is wet uh the braking action when we land is going to be a little bit more abrupt than uh you are probably used to. nothing to worry about just want to make sure we get the plane slowed down so uh once we do touch down the brakes are going to come on pretty hard. uh nothing to be worried about. just hold on and we'll get you to the gate on time.		
0838:35.9 INT-3	sounds good. thank you.		
0839:29.2 HOT-2	alright. I'm back.		

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
0839:31.5 HOT-1	nothing new.		
0839:42.3 HOT-1	what the #.		
0839:44.0 HOT-2	yeah.		
0839:45.4 HOT-1	I— I— some— I don't get this VNAV sometimes.		
0839:48.7 HOT-2	yeah. I— I don't—		
0839:49.8 HOT-1	I mean it's— it's like your—		
0839:54.7 HOT-2	what the #.		
0839:55.8 HOT-1	it would have oversped.		
0839:56.5 HOT-2	yeah.		
0839:57.6 HOT-1	I don't get it.		
0839:58.7 HOT-2	yeah I don't uh...stupid # thing. and now it's trying to push the # power up.		
0840:05.5 HOT-?	[sound of laughter]		

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
0840:12.7 HOT-1	about once a week lately that's been doing that where it just starts going faster faster—		
0840:17.8 HOT-2	yeah.		
0840:17.9 HOT-1	if you— if you don't do something—		
0840:18.8 HOT-2	it'll # take you right—		
0840:19.8 HOT-1	you're gonna get a clacker.		
0840:21.0 HOT-2	yeah.		
0840:23.9 HOT-2	alright.		
0840:27.0 HOT-2	you're getting a headwind now. you'll be able to get this # down. alright		
0840:36.3 HOT-1	you got to be below twenty two ahh.		
0840:38.2 HOT-2	yeah.		
		0841:14.6 LAX-A	Southwest two seventy eight contact L-A Center on one one niner point zero five. good one.

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
		0841:19.9 RDO-2	nineteen oh five Southwest two seventy eight. we'll see ya.
		0841:40.0 RDO-2	L-A good morning Southwest two seventy eight uh twenty seven four on the uh ROKKR Two.
		0841:47.5 LAX-B	Southwest two seventy eight Los Angeles Center uh roger. verify niner thousand for the bottom altitude.
		0841:52.5 RDO-2	yup I forgot. uh descend via except maintain nine thousand Southwest two seventy eight.
		0841:56.8 LAX-B	Southwest two seventy eight roger. Burbank altimeter two niner eight six.
		0842:00.1 RDO-2	eight six.
0842:01.6 HOT-1	eight six.		
0842:25.8 HOT-2	so now it's like freaking fifteen knots slow.		
0842:29.8 HOT-1	yeah I mean it— yeah it's crap.		
		0842:43.4 LAX-B	Execjet four twenty descend and maintain one zero thousand. areas of moderate to extreme precipitation on your route of flight beginning in five miles and extending to the airport.

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
0842:58.7 HOT-1	there is not much on the old radar but—		
0843:02.0 HOT-2	yeah.		
0843:37.1 CAM	[sound of double chime]		
0843:41.6 INT-1	hello it's @?		
0843:42.5 INT-3	okay dear I think we've got it all done and we're seated.		
0843:46.3 INT-1	awesome great job.		
0843:47.3 INT-3	thank you. bye.		
0844:14.8 HOT-2	what could possibly go wrong?		
0844:16.4 HOT-?	[sound of laughter]		
0844:18.8 HOT-1	we could break down in Burbank and just skip one of the turns. do a little maintenance fly back to Oakland and then a little trip down to Ontario.		
0844:25.5 HOT-2	well. dig it. [sound of laughter]		

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
0844:30.6 HOT-1	that's what I'm talking about.		
0844:31.8 HOT-2	yup. only if we get paid extra. [sound of laughter]		
0844:36.5 HOT-1	harassment pay.		
0844:38.1 HOT-2	[sound of laughter] exactly.		
		0844:52.0 EJA420	* one two five decimal five. [breaking up]
0844:55.3 HOT-2	yes you sound like you got a #— well never mind.		
0844:59.0 HOT-1	[sound of laughter]		
		0845:28.4 LAX-B	Southwest two seventy eight descend via except maintain one three thousand.
		0845:32.2 RDO-2	descend via the uh ROKKR except maintain one three thousand. Southwest two seventy eight.
0845:37.6 HOT-1	okay.		
		0845:53.3 BRK068	ZUUMA Two arrival descend eight thousand. Bauhunia zero six eight.

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
0845:59.4 HOT-2	it's like Bohemia or bulimia or—		
0846:01.4 HOT-1	yeah. [sound of laughter]		
0846:11.2 HOT-2	you're not from around these parts are you boy?		
0846:13.2 HOT-1	[sound of laughter]		
0846:16.4 HOT-2	[sound of laughter]		
0846:19.1 HOT-2	alright altimeters?		
0846:21.2 HOT-1	uh nine eight six set.		
0846:22.6 HOT-2	packs?		
0846:23.1 HOT-1	auto.		
0846:23.9 HOT-2	start switches?		
0846:24.6 HOT-1	left continuous.		
0846:25.3 HOT-2	done.		

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
		0846:44.7 LAX-B	Southwest two seventy eight. Los Angeles Center one three two point six.
		0846:47.6 RDO-2	thirty two six Southwest two seventy eight. see ya.
		0847:25.5 BRK068	L-A Center good morning Bauhunia zero six eight ZUUMA Two arrival start descent to eight thousand feet.
0847:29.5 HOT-1	this guy.		
0847:30.7 HOT-2	Jesus.		
0847:38.7 HOT-1	where does the ZUUMA go into? do you know?		
0847:42.5 HOT-2	no.		
0847:43.0 HOT-1	* get rid of that dude.		
0847:44.4 HOT-2	yeah.		
0847:46.0 HOT-1	good God.		
0847:53.8 HOT-2	got to be L-A. *.		

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
		0847:58.2 RDO-2	Center Southwest two seventy eight fifteen two on the ROKKR down to thirteen.
		0848:02.9 LAX-C	Southwest two seventy eight L-A Center roger descend via the ROKKR two arrival except maintain niner thousand. Burbank altimeter two nine eight nine.
		0848:09.6 RDO-2	got it. down to ROKKR down to nine thousand now Southwest two seventy eight.
		0848:13.6 LAX-C	moderate to heavy to extreme weather precipitation on your route of flight between you and the airport. nothing worse than light chop so far. if you get anything worse than light chop advise.
		0848:24.8 RDO-2	who's that for?
		0848:25.9 LAX-C	that's for everybody.
0848:27.2 HOT-1	[sound of laughter] nice.		
0848:29.8 HOT-?	[sound of laughter]		
		0848:35.6 LAX-C	South— [stepped on] turn twenty degrees left vectors for the descent expect ROKKR.

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
0848:40.6 HOT-1	that us?		
0848:41.1 HOT-2	was that— was it twenty?		
		0848:42.4 RDO-2	say again for uh two seventy eight?
		0848:43.9 LAX-C	that's no delay in the descent.
		0848:46.5 RDO-2	okay. say again for Southwest two seventy eight.
		0848:48.7 LAX-C	two zero degrees left. no delay in the descent Southwest two seventy eight.
		0848:52.6 RDO-2	twenty left no delay. Southwest two seventy eight.
0848:58.4 HOT-1	whatever that means I'm just going like go level change and # it to nine.		
0849:03.9 HOT-2	yeah.		
0849:09.6 HOT-2	expect ROKKR he said.		
0849:15.7 HOT-2	I'll double check.		

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
		0849:17.1 RDO-2	L-A Southwest two seventy eight. you want us all the way down to nine or are we going to go back to ROKKR?
		0849:21.6 LAX-C	no down to nine. Southwest two seventy eight cleared direct ROKKR descend and maintain uh cross ROKKR at nine thousand thanks for the help.
		0849:26.9 RDO-2	yup not a problem man and we're cleared direct ROKKR now down to nine thousand Southwest two seventy eight.
0849:32.1 HOT-2	alright.		
0849:38.1 HOT-1	ROKKR.		
0849:41.1 HOT-1	on top.		
0849:43.0 HOT-2	**.		
0849:58.9 HOT-1	yeah we're not gonna hit ROKKR at nine.		
0850:01.9 HOT-2	*.		
0850:07.3 HOT-1	close enough.		
0850:08.1 HOT-2	yeah.		

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
0850:08.7 HOT-1	[sound of laughter]		
0850:12.9 HOT-2	we're gonna hit ROKKR where we should have # hit ROKKR.		
0850:16.5 HOT-1	yeah.		
0850:29.6 CAM	[sound of double click]		
0850:41.9 HOT-1	ten thousand. flight attendants notified.		
0850:45.1 HOT-1	ten for niner.		
0850:47.0 HOT-2	roger.		
0850:58.7 CAM	[sound similar to altitude alert]		
		0851:06.2 LAX-C	Southwest two seventy eight Socal one two eight point seven five. you have a good day.
		0851:09.0 RDO-2	twenty eight seventy five. we'll see you guys.
		0851:21.7 RDO-2	Socal good morning. Southwest two seventy eight level at nine thousand on the ROKKR.

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
		0851:26.8 SOCAL-A	Southwest two seventy eight Socal Approach uh Burbank altimeter two niner niner two and expect I-L-S Zulu runway eight descend and maintain eight thousand.
		0851:35.5 RDO-2	okay down to eight thousand expect runway eight got hotel Southwest two seventy eight.
0851:39.5 HOT-1	okay eight. level change.		
0851:41.8 HOT-2	roger. nice. there's some nice # out here.		
0851:47.6 HOT-2	what the hell is all of that?		
0851:48.9 CAM	[sound similar to altitude alert]		
0851:50.8 HOT-2	that's pretty.		
0851:53.6 HOT-1	eh * get a little bit of uh rain a little bit of ice I guess.		
0851:57.6 HOT-2	yeah.		
		0851:58.3 ?	Operations uh Delta sec—
0852:00.6 HOT-2	guard.		

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
0852:02.0 HOT-1	[sound of laughter]		
0852:03.5 HOT-2	you hear the guy on guard he's calling in Operations—Delta.		
0852:14.1 HOT-1	wing on *. [stepped on]		
0852:38.9 HOT-2	alrighty then. yeah. [sound of laughter]		
		0853:03.2 SOCAL-A	Southwest two seventy eight descend and maintain uh seven thousand. contact approach one three four point two.
		0853:08.9 RDO-2	seven thousand thirty four two Southwest two seventy eight.
0853:11.9 HOT-1	seven level change.		
0853:13.3 HOT-2	roger.		
		0853:18.9 RDO-2	Socal good morning. Southwest two seventy eight uh eight thousand for seven thousand.
0853:19.5 CAM	[sound similar to altitude alert]		
		0853:25.6 SOCAL-B	Southwest two seventy eight Socal Approach at MIKEI cleared I-L-S Zulu runway eight.

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
		0853:30.6 RDO-2	at MIKEI cleared the I-L-S Zulu runway eight Southwest two seventy eight.
0853:34.0 HOT-2	alright then you heard the man yo.		
0853:35.2 HOT-1	okay I'm gonna go like MIKEI to SILEX.		
0853:38.3 HOT-2	big move...big move.		
0853:45.1 HOT-1	I'll put three thousand in there too. go to VNAV.		
0853:53.3 HOT-2	what could go wrong?		
0853:54.5 HOT-?	[sound of laughter]		
0853:55.8 HOT-2	nothing.		
0853:58.2 HOT-2	it's simple...good stuff man. [sound of laughter]		
0854:04.7 HOT-2	steep descent after MIKEI.		
0854:06.5 HOT-1	*.		

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
0854:08.6 HOT-2	chaos ensuing after MIKEI. look at this man what a # day. bout time these guys down here got some of it.		
0854:23.3 HOT-1	put two ten in at SILEX just so this # starts slowing down a little bit. [sound of laughter]		
0854:29.1 HOT-2	[sound of laughter] there you go *. #. alright.		
		0854:37.3 SOCAL-B	Southwest two seventy eight be advised a Kingair about one zero minutes ago reported a fifteen knot loss on uh final.
		0854:45.2 RDO-2	nice thanks for the heads up.
0854:47.8 HOT-1	okay.		
		0854:48.9 RDO-2	did they give you an altitude with that.
		0854:51.1 SOCAL-B	no I didn't get an altitude and it also looks like a Challenger jet just went around at Burbank also.
		0854:56.4 RDO-2	okay thanks.
0854:58.8 HOT-2	perfect. alright. suggest holding— well you don't want # to be too fast you won't get the thing shut down.		

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
0855:06.2 HOT-2	alright. thirteen hundred feet straight ahead right turn to forty six hundred feet on a two ten heading.		
0855:12.3 HOT-1	roger.		
0855:12.9 HOT-2	that one'll probably matter. [sound of laughter] we don't want— it's in there.		
0855:22.4 HOT-2	we're all— we're all depending on you. we're all counting—		
0855:26.0 HOT-1	that's wrong.		
0855:26.7 HOT-2	[sound of laughter]		
0855:33.2 HOT-1	flaps one.		
0855:34.4 HOT-2	uno.		
0855:35.5 CAM	[sound of click]		
0855:42.8 CAM	[sound similar to trim wheel in motion]		
0855:48.2 HOT-1	flaps five.		

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
0855:49.1 CAM	[sound of click]		
0855:57.3 HOT-1	VOR LOC.		
0856:02.6 HOT-2	picking up the ground. ceiling.		
0856:29.3 CAM	[sound similar to trim wheel in motion]		
0856:45.5 CAM	[sound similar to trim wheel in motion]		
		0856:48.7 SOCAL-B	and Southwest two seventy eight. uh the go around that just happened they reported because of the winds.
		0856:57.4 SOCAL-B	and for both Southwest two seventy eight and twenty eighty eight just be advised there was just a go around at Burbank because of the winds.
0856:58.7 HOT-1	flaps ten.		
0856:59.6 CAM	[sound similar to trim wheel in motion]		
0857:00.3 CAM	[sound of click]		
0857:00.4 HOT-2	flaps ten.		

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
		0857:05.0 RDO-2	copy thanks.
0857:06.2 HOT-2	alright.		
0857:22.1 HOT-1	we'll be ready Freddie.		
0857:24.5 HOT-2	yup. where we gonna go? L-A? if we can't get in here.		
0857:25.7 CAM	[sound of several clicks]		
0857:27.7 CAM	[sound similar to trim wheel in motion]		
0857:35.4 HOT-1	VOR LOC.		
0857:38.8 HOT-2	okay.		
0857:39.0 HOT-1	approach armed.		
0857:41.2 HOT-2	glideslope.		
0857:44.3 HOT-2	you're good brother.		
0857:45.3 HOT-1	okay.		

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
0857:46.9 HOT-1	it's locked in. zeros.		
0857:49.9 HOT-2	roger.		
0857:59.4 HOT-2	six knots on the beak. and they're callin five knot tailwind so.		
0858:01.0 CAM	[sound similar to trim wheel in motion]		
0858:05.4 HOT-1	so it'll swap around here somewhere I guess.		
0858:07.4 HOT-2	yup.		
0858:17.3 HOT-1	landing gear down.		
0858:18.9 CAM	[sound of click]		
0858:22.2 HOT-1	flaps fifteen.		
0858:23.3 HOT-2	fifteen.		
0858:23.9 CAM	[sound of click]		
0858:37.1 HOT-1	flaps thirty.		

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
0858:38.9 HOT-2	thirty.		
0858:39.4 CAM	[sound similar to trim wheel in motion]		
0858:41.2 CAM	[sound of two clicks]		
0858:43.0 HOT-2	flaps thirty.		
0858:52.7 HOT-1	flaps forty.		
0858:53.5 CAM	[sound of click]		
		0858:53.9 SOCAL-B	Southwest two seventy eight contact Burbank Tower one one eight point seven.
0858:54.1 HOT-2	forty.		
		0858:57.1 RDO-2	switching we'll see you guys.
0859:04.1 HOT-2	okay.		
0859:05.0 HOT-1	before landing check.		
0859:05.8 HOT-2	speedbrake?		

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
0859:06.4 HOT-1	armed green light.		
0859:07.1 HOT-2	landing gear?		
0859:07.6 HOT-1	down three green.		
0859:08.2 HOT-2	flaps?		
0859:08.4 HOT-1	thirty green light— forty green light.		
0859:10.1 HOT-2	roger. you got twenty six thirty one. that would probably behoove us to be a little bit hot but I don't know.		
0859:16.4 HOT-1	alright.		
0859:16.6 HOT-2	okay.		
		0859:17.4 RDO-2	Tower Southwest uh two seventy eight's with you on the I-L-S for eight.
		0859:21.4 BUR	Southwest two seventy eight Burbank Tower. moderate to heavy precipitation uh current position all the way to the field. wind two six zero at niner. runway eight clear to land.

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
		0859:31.9 RDO-2	okay. copy the winds. clear to land on eight. Southwest two seventy eight.
0859:35.6 HOT-1	clear to land.		
		0859:36.1 BUR	two seventy eight braking action reported good ten minutes ago by a seven thirty seven.
		0859:39.0 RDO-2	roger thanks.
0859:40.8 HOT-2	alright man.		
0859:43.2 HOT-1	probably go to uh you know high— or whatever it is— low on the wipers as we get closer in.		
0859:50.2 HOT-2	alright.		
0859:52.0 HOT-1	okay there's are BUDDE twenty sevenish.		
0859:55.6 HOT-2	alright BUDDE. crosschecked.		
0900:01.4 CAM	[sound similar to trim wheel in motion]		
0900:02.9 HOT	[sound of music]		

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
0900:06.4 HOT-2	[sound of laughter]		
0900:09.5 HOT-1	shh did I hear some music?		
		0900:23.0 BUR	South two uh— Southwest two seventy eight area of heavy precipitation now directly over top of Burbank Airport.
		0900:28.5 RDO-2	perfect thanks.
0900:30.1 HOT-1	[sound of laughter]		
0900:30.6 HOT-2	[sound of laughter] alright man. you got it's actually quartering tailwind right now so we're already got part of that switch done.		
0900:39.8 HOT-1	okay. works for me.		
0900:41.8 HOT-2	yup.		
		0900:42.5 BUR	wind two seven zero at one zero.
0900:48.1 HOT-2	zero...two sixty at ten is— is the max.		
0900:51.3 HOT-1	max.		

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
0900:53.3 HOT-2	alright.		
0900:55.2 HOT-1	so far George [autopilot] has got a handle on it. not doing too bad.		
0901:05.4 CAM	[sound similar to trim wheel in motion]		
0901:06.2 HOT-2	okay.		
0901:07.4 CAM	[sound similar to trim wheel in motion]		
0901:07.4 HOT-1	a thousand feet. one thirty four. sinking a thousand.		
0901:10.2 HOT-2	a thousand feet. you're showing— your not showing anything on the radars.		
0901:14.0 HOT-1	yeah I might— I don't know if that's ground or what.		
0901:16.4 HOT-2	well you got six positive so.		
0901:21.1 HOT-2	and a thousand feet I saw it.		
0901:21.3 CAM	[sound similar to trim wheel in motion]		

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
0901:22.3 CAM	[sound similar to windshield wipers]		
0901:22.8 HOT-1	yeah.		
0901:26.8 HOT-2	that's twenty knots on the butt.		
0901:32.6 HOT-1	yeah I'll take high now. on those wipers.		
0901:34.9 CAM	[sound similar to trim wheel in motion]		
		0901:36.2 BUR	wind two seven zero at one one.
0901:41.3 HOT-2	#.		
0901:43.2 HOT-2	er there's five hundred.		
0901:44.8 HOT-1	roger.		
0901:48.9 HOT-1	we need some kind of lights. I got some lights.		
0901:51.6 HOT-2	alright we got eleven knots. you want to call it good?		
0901:54.5 HOT-1	yeah.		

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
0901:55.0 HOT-2	alright.		
0901:55.8 HOT-2	approaching mins.		
0901:56.6 HOT-1	going outside.		
0901:57.8 HOT-2	roger.		
0902:00.5 HOT-2	minimums. you got *?		
0902:01.2 HOT-1	landing.		
0902:01.8 CAM	[sound similar to autopilot disconnect]		
0902:02.2 HOT-2	roger.		
0902:22.0 CAM	one hundred. [automated voice]		
0902:25.2 CAM	fifty. [automated voice]		
0902:27.5 CAM	thirty. [automated voice]		
0902:30.7 CAM	ten. [automated voice]		

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
0902:34.8 CAM	[sound similar to speedbrake handle]		
0902:35.4 CAM	[sound similar to landing gear touchdown]		
0902:36.5 CAM	[sounds similar to thrust reverser handle deployment]		
0902:42.2 CAM	[sound similar to heavier vibration]		
0902:44.8 HOT-2	come on baby.		
0902:48.0 HOT-1	whoa-ah.		
0902:51.8 HOT-1	#.		
0902:52.9 HOT-2	*.		
0902:54.4 CAM	[sound similar to engine rpm decrease]		
0902:54.5 HOT-1	#.		
0902:55.7 CAM	[sounds of impact]		
0902:56.9 CAM	[sound similar to engine rpm decrease]		

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
0902:59.9 HOT-?	shut em off.		
0903:00.6 HOT-?	#.		
0903:04.9 HOT-1	are the engines still on?		
0903:06.0 HOT-2	no I shut em off.		
0903:08.2 HOT-1	#.		
0903:12.4 HOT-2	dude that—		
[Loss of power from 0903:13 to 0904:10]			
0904:10.0 CAM	[sound of chime]		
0904:17.7 INT-1	hey guys? yeah we had full braking and then we went in to the overrun. so the engines shut down. we're gonna have to get towed out of here. we're probably have to have a uh ladders to come get the folks. so it's going to be a bit.		
0904:30.4 INT-4	oh okay.		
0904:31.9 HOT-2	alright so we got power back on the jet.		

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
0904:33.9 INT-4	so it's going to be a bit. copy that.		
0904:34.2 INT-3	okay okay. so just stay put? * right now.		
0904:36.4 INT-1	yeah just stay put.		
0904:38.0 INT-3	okay alright. will do. um don't disarm or anything?		
0904:40.2 CAM	[sound similar to windshield wipers stop]		
0904:41.4 INT-4	no don't disarm.		
0904:41.9 INT-1	nope.		
0904:42.6 INT-3	alrighty. will do.		
0904:43.4 INT-4	okay. thanks.		
0904:44.5 INT-3	will wait to hear from you.		
0904:45.5 CAM	monitor radar display. [automated voice]		
		0904:50.0 RDO-1	ops two seventy eight.

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
		0904:53.5 OPS	go for ops.
		0904:54.7 RDO-1	yeah we went in to the overrun. and uh the engines— we probably foddod the engines. we're going to need a tow out of here.
		0905:05.1 OPS	copy that.
0905:10.2 HOT-1	have you talked to tower?		
0905:11.5 CAM-2	yeah they talked to us. they said they were rolling the trucks.		
		0905:13.0 Crash2	Burbank Tower Crash two.
		0905:14.6 BUR	Crash two Burbank Tower. proceed as requested. cross all runways as necessary.
		0905:18.2 Crash2	Burbank Tower Crash two understand. crossing both runways as necessary to aircraft with company.
		0905:24.1 RDO-2	okay. Tower Southwest two seventy eight. motors are shutdown. no fire hazard. we got the APU running we have power on the aircraft.
		0905:34.2 BUR	Southwest twenty eight Burbank Tower you on?

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
		0905:37.9 RDO-2	yeah we're with you can you copy me?
		0905:39.9 BUR	Southwest twenty eighty eight are you on?
0905:42.8 HOT-2	oh that's twenty eighty eight.		
0906:09.2 HOT-2	how fast were we going when we went off the end. we weren't going very fast.		
0906:14.2 HOT-1	I don't know. I— man. I had— I had all I could give it.		
0906:16.8 HOT-2	oh dude you— you're fine. you were— it was just like it was too much.		
		0906:21.7 RDO-2	hey Tower Southwest two seventy eight. you copy us?
		0906:25.2 BUR	Southwest two seventy eight affirmative.
		0906:27.4 RDO-2	okay. copy. just want to make sure you copy. we got power on the aircraft. uh motors are obviously shut down. we're just sitting tight here. no problem.
0906:39.4 HOT-2	okay.		
		0906:40.4 BUR	Crash two Burbank tower did you copy all that?

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
0906:43.9 HOT-1	let's see here.		
		0906:45.5 Crash2	Tower Crash two's copy. all power shut down on the aircraft uh we show no signs of any uh hazardous materials at this time.
		0906:52.3 BUR	Crash two thank you.
0906:55.5 HOT-1	okay so we're not evacuating. let's see. I guess we could do flaps up.		
0907:01.0 HOT-1	uhh or do you want to leave it?		
0907:01.7 HOT-2	I would just leave it.honestly.		
0907:02.3 HOT-1	okay. what do you think we need to do on here?		
0907:07.4 HOT-2	well #.		
0907:09.9 HOT-1	uh start levers are cutoff.		
0907:11.0 HOT-2	yeah.		
0907:12.2 HOT-1	talked to tower.		

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
0907:13.7 HOT-2	I don't know if we even need to pull those. you think?		
0907:16.7 HOT-1	no.		
0907:17.3 HOT-2	I wouldn't do it. I mean they're shut down.		
0907:20.7 CAM	[sound of two clicks]		
0907:22.4 HOT-2	run the after just see if you don't want to move those.		
0907:27.5 HOT-2	ah that that that.		
0907:29.7 HOT-1	# #. that that.		
0907:39.7 HOT-1	I got that— I'm gonna grab that. I got one of those cards it's like if you have an incident thing.		
0907:44.3 HOT-2	yeah okay. I got it right here I think.		
0907:47.8 HOT-1	you got it?		
0907:50.0 HOT-2	yeah right here.		
0908:01.6 CAM	[sound of double chime]		

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
0908:05.3 INT-3	hey.		
0908:06.1 INT-1	go ahead.		
0908:06.5 INT-3	* that want to go to the bathroom. want to let them up or no?		
0908:10.2 INT-1	yeah one— just one person. we're still trying to sort this out. I'm sorry.		
0908:13.4 INT-3	okay. that's okay.		
0908:14.6 INT-1	okay.		
0908:14.8 INT-3	thanks bye.		
0908:22.5 HOT-1	okay I'm— I'm gonna— do you mind handling radios? I'm gonna call these guys real quick.		
		0908:50.3 RDO-2	hey tower Southwest two seventy eight. you want us to stay with you or go to ground?
		0908:54.7 BUR	Southwest two seventy eight um you can just monitor this frequency I don't think you're going anywhere for a while.

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
		0909:00.7 RDO-2	yeah okay. sounds good.
		0910:22.3 ?	[sound of garbled radio transmission]
		0910:27.9 RDO-2	he's asking if you have a frequency you want to go to for everybody working with two seventy eight.
0910:39.2 CAM-1	hey @ this is @ on two seventy eight Burbank.		
		0910:43.4 RDO-2	tower did you copy Southwest two seventy eight? the handheld that your having trouble understanding is asking for a single freq to deal with all of this.
0910:44.2 CAM-1	yeah we had an incident. uh we landed we went in to the overrun. into that matting. the aircraft— yeah.		
		0910:52.3 BUR	yeah they can— they can just continue to using this frequency until advised. can you understand them?
0910:55.3 CAM-1	yeah we're still stuck in it. we got— yeah we're surrounded with aircraft. I don't know we're probably like forty feet from the end of it maybe.		
		0910:57.5 RDO-2	barely.
		0910:59.2 VAN41	Burbank Tower Van forty one.

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
		0911:01.9 BUR	Van twenty one you're loud and clear now. you can remain on this frequency.
		0911:05.8 VAN41	roger. confirm the aircraft's also here as well? um hold on we're going to see what we need to do to get all of you out.
0911:10.9 CAM-1	the peeps are still on. it's— it's pouring down rain. I'm not quite sure how we get them from here to the uh uh— okay. yes sir. uh @.		
0911:57.5 CAM	[sound of two double clicks]		
0912:01.8 INT-4	hey it's @.		
0912:03.4 INT-2	hey guys it's @. hey you don't have anybody hurt back there or anything do you?		
0912:06.4 INT-3	we walked through and asked if everybody's okay and everybody's fine.		
0912:06.9 INT-4	no.		
0912:08.1 INT-2	alright.		
0912:09.6 INT-4	yeah everybody's fine.		

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
0912:10.7 INT-2	yeah we're good. we're on power obviously. it just—the # thing just didn't stop.		
0912:13.8 INT-3	yeah.		
0912:14.2 INT-2	um they're working on getting a way to get these folks off now. that's what they're talking about. we'll let you know as soon as we find out.		
0912:18.6 INT-3	okay. alright. we'll keep them seated like you said. one at a time if they have to go but everybody's fine.		
0912:24.7 INT-2	okay okay.		
0912:26.5 INT-3	and uh hell of a job guys.		
0912:27.9 INT-4	yeah.		
0912:28.4 INT-2	yeah # I wish.		
0912:29.4 INT-3	I know I know.		
0912:30.8 INT-4	it happens.		
0912:31.3 INT-3	but yeah. thank you.		

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
0912:33.0 INT-2	sure no problem.		
0912:33.7 INT-4	bye bye thanks.		
0912:34.6 INT-2	see ya.		
		0912:49.1 RDO-2	ops two seventy eight?
0912:50.6 CAM-1	okay. hello @? yeah this is @. yeah two seventy eight in Burbank. sorry man but we went in to the overrun.		
		0912:52.3 OPS	go for ops.
		0913:53.4 RDO-2	yeah you guys have any idea how we're gonna do as far as getting the people off of here? anybody talk to ya'll yet?
		0913:01.5 OPS	not yet. stand by.
		0913:03.8 BUR	Car forty three Burbank Tower.
0913:04.4 HOT-2	I think they're working on it right now.		
		0913:05.7 CAR43	I'll be inspecting runway two six. is it okay to cross runway one five?

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
0913:08.7 CAM-1	yeah yup nope nobody. we— I don't know how fast we were going maybe like uh you know fifteen knots or something but uh there— there was no brake— the braking was pretty much nil. we had autobrakes max and uh I don't know.		
		0913:10.1 BUR	Car forty three uh no. proceed on runway eight hold short of runway one five.
		0913:16.2 CAR43	proceed uh runway eight hold short runway one five. Car forty three.
		0913:19.8 BUR	and Car forty three just so we're clear we can cross runway eight at the tie ins and at the terminal.
		0913:26.3 CAR43	yes ma'am they're good to cross. uh can you just hold off just so I can inspect it all the way down just to make sure there's no debris?
		0913:33.4 BUR	Car forty three cross runway one five. full length. advise when off.
0913:34.6 CAM-1	yeah yeah. everybody's fine.		
		0913:38.8 CAR43	crossing runway one five. will advise.
0913:53.7 CAM-1	okay.		

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
0914:23.5 CAM-1	okay.		
0914:46.5 CAM-1	okay.		
		0914:51.8 BUR	Van forty one Burbank Tower you on frequency?
		0914:54.8 VAN41	go ahead for Van forty one.
		0914:57.5 BUR	Van forty one that Southwest jet at gate alpha seven needs to push back. is there enough room?
		0915:03.6 VAN41	uh stand by. we're gonna get— get everything sorted out. want to make sure everything's clear on the taxiway before I give you the go ahead.
0915:10.2 CAM-1	sure sure.		
0915:20.0 CAM-1	okay. yeah I'm all set.		
		0915:20.6 CAR43	Car forty three I'm at the approach end of eight I need to go back just confirm you do still have runway eight two six closed. is that correct?
		0915:27.2 BUR	Car forty three. yes I do. proceed westbound. hold short of runway one five. traffic departing.

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
		0915:33.0 CAR43	proceed westbound will hold short of runway one five. Car forty three.
0915:37.5 CAM-1	yeah yeah. well we were coming in to uh Burbank for the uh I-L-S eight and uh it's heavy rain. we had the radar on. it was showing uh um you know green and uh a— a little bit of red. uh we had it all configured by the final approach fix and uh came down. um the tower said the aircraft in front of us went around for uh um a wind shift or something like that and we continued on. we had uh about a— a nine knot uh tailwind component at about a thousand feet and then uh but you know pretty heavy rain and caught the uh runway um just a little bit before minimums. landed. deployed the autobrake. uh the um antiskid was in max went to max braking and the aircraft uh just did not seem to decelerate and we went into the overrun um probably maybe like at about fifteen knots— ten to fifteen knots.		
		0916:09.4 BUR	Car forty three cross runway one five.
		0916:12.5 CAR43	crossing runway one five. Car forty three.
0916:53.8 CAM-1	uh no it's— it's the main— we're— we're— by looking at it we're right in the middle of it. we got about as much behind us as we have in front of us.		
		0917:03.8 BUR	Car forty three Tower?

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
		0917:05.5 CAR43	Car forty three go ahead.
		0917:07.1 BUR	yeah just want to verify uh we can do the crossing and uh just to make sure the intersection runway one five is open.
		0917:14.6 CAR43	stand by just one more second.
		0917:19.1 Crash2	Burbank Ground Crash two?
		0917:20.4 BUR	Crash two Burbank Tower.
		0917:21.9 Crash2	have we ascertained how many souls on board?
0917:27.2 CAM-2	uh let's see.		
		0917:28.2 BUR	Southwest two seventy eight?
0917:29.9 CAM-2	we got one twelve uh.		
		0917:30.2 Crash2	disregard Burbank Tower we just found out.
0917:32.4 CAM-1	well uh— I don't know um yeah we— we didn't uh the engines shut down let me ask *.		

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
0917:39.7 CAM-2	yeah they shut down on their own.		
0917:40.7 CAM-1	yeah the engines shut down on their own. um like I— I was gonna ask the F-O you know should we shut the engines down and then they were down with the uh start levers were in idle.		
		0918:06.4 BUR	Car forty three Tower?
		0918:10.2 CAR43	go ahead for Car forty three. give me one more minute and I'll let you know when you're okay for crossing.
0918:11.7 CAM-1	yeah uh we were— all the customers are on. everybody is safe and there's uh you know like a half dozen fire trucks around us and then about another half dozen support vehicles. and we're just— um it's raining really hard and we just haven't come up with an egress plan yet for the uh for the folks.		
		0918:16.7 BUR	and one five departures.
		0918:18.6 CAR43	and one five departure ma'am give me one more minute.
0918:46.6 CAM-1	okay.		
0918:50.3 CAM-1	yes sir.		

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
0919:11.5 CAM-1	okay.		
0919:21.0 CAM-1	yes...all set.		
0919:43.2 CAM-1	[phone number]		
0920:16.0 CAM-1	okay.		
0920:31.7 CAM-1	will do.		
0920:44.2 CAM-1	I appreciate that.		
0920:52.8 CAM-1	yeah it— it's— well it saved the day. I could say that.		
0921:07.5 CAM-1	yes sir. thank you.		
0921:26.6 CAM-1	okay I got to talk to uh—		
0921:32.1 CAM-2	alright.		
0921:35.2 INT-4	this is @ up front.		
0921:36.6 INT-1	hey guys it's @.		

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
0921:37.4 INT-4	hey.		
0921:37.7 INT-1	hey I just talked— talked to the chief pilot. and they want us to stay together as a crew so like once we get in to the uh um thing we— we need to kind of stay together. make no statements to the people to the uh ops people or if there's any reporters out there. make sure everybody keeps their certificates um don't talk to the media. no speculation and uh we're— we're trying to coordinate with ops to see how we're gonna get out of here— get the people off. it's still pouring down rain uh. so we'll just go from there. I— I'm sorry about this.		
0922:09.5 INT-4	that's alright.		
0922:10.2 INT-3	no hey it's not your fault. thank you so much.		
0922:11.6 INT-4	good thing is we're all safe.		
0922:13.2 INT-4	okay.		
0922:14.3 INT-3	you know you guys are awesome. we appreciate you. okay will do.		
0922:18.9 INT-1	thank you.		
0922:19.4 INT-3	thank you.		

Time and Source	Intra-Aircraft Communication	Time and Source	Over-the-Air Communication
0922:19.9 INT-4	thanks.		
0922:20.3 CAM-2	it's behind you.		
0922:21.5 CAM-1	so.		
0922:22.0 CAM-2	if you slide up I'll get it.		
0922:25.2 CAM	[sound similar to seat track movement]		
0922:27.8 CAM-2	alright.		
0922:36.0 END OF TRANSCRIPT END OF RECORDING			