

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



**SPECIALIST'S FACTUAL REPORT OF INVESTIGATION**

**DCA00MA030**

by

**Albert G. Reitan  
Transportation Safety Specialist**

**Warning**

The reader of this report is cautioned that the transcription of a CVR tape is not a precise science but is the best product possible from an NTSB group investigative effort. The transcript, or parts thereof, if taken out of context, could be misleading. The attached CVR transcript should be viewed as an accident investigation tool to be used in conjunction with other evidence gathered during the investigation. Conclusions or interpretations should not be made using the transcript as the sole source of information.

**NATIONAL TRANSPORTATION SAFETY BOARD**  
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April 20, 2000

## **Cockpit Voice Recorder - 12**

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

#### **A. ACCIDENT**

Location: Burbank-Glendale-Pasadena Airport, California  
Date: March 5, 2000  
Time: 1811 Pacific standard time (PST)  
Aircraft: Southwest Airlines flight 1455, B-737-300, N668SW  
NTSB Number: DCA00MA030

#### **B. GROUP**

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

Member: Joseph F. Manno  
Air Safety Investigator  
Federal Aviation Administration

Member: Captain Glenn C. Spakes  
Deputy Assistant Chief Pilot  
Boeing

Member: Captain Hugh Knighton  
Flight Instructor  
Southwest Airlines

Member: Captain Craig Henrichsen  
Southwest Airlines Pilot's Association  
Southwest Airlines

## **C. SUMMARY**

On Sunday, March 5, 2000 at 1811PST, a Southwest Airlines Boeing 737-300, N668SW, operating as flight 1455 from Las Vegas, Nevada, overran the departure end of runway 08 while landing at the Burbank-Glendale-Pasadena Airport, Burbank California. The Fairchild model A-100A cockpit voice recorder (CVR), s/n 52619, was brought to the audio laboratory of the National Transportation Safety Board on March 6, 2000. The Cockpit Voice Recorder committee convened on March 7, 2000. A transcript was prepared of the entire 31 minute, 33 second recording and is attached to this report.

## **D. DETAILS OF INVESTIGATION**

The exterior of the CVR showed no evidence of structural damage. The interior of the recorder and the tape sustained no apparent heat or impact damage. A Dukane underwater locator beacon (ULB) was installed and when tested in the laboratory, was found to operate satisfactorily.

The recording consisted of four channels of good quality audio information. One channel contained the cockpit area microphone audio information. Two other channels contained the Captain and First Officer audio panel information. The fourth contained public address system information. Timing on the tape was correlated using flight data recorder microphone keying and timed events from the FAA ATC transcript.

The recording started at 1743:16 PST, and continued uninterrupted until 1814:49 PDT when electrical power was removed from the CVR. The transcript contained the preparation for approach, the descent, and landing. The recording ended shortly after the aircraft departed the end of the runway and came to a stop.

As part of the Safety Board's accident investigation process, the pilots were invited to review the CVR recording and transcript and suggest corrections or additions. On March 27, 2000, they reviewed the transcript and agreed with its content as prepared by the CVR Group.

[original document signed]

Albert G. Reitan  
Transportation Safety Specialist (CVR)

Attachment:

**Transcript of a Fairchild A-100A cockpit voice recorder (CVR), s/n 52619, installed on a B-737-300, N668SW, which was involved in runway overrun at the Burbank-Glendale-Pasadena Airport, California, on March 5, 2000.**

## LEGEND

<b>HOT</b>	Crewmember hot microphone voice or sound source
<b>RDO</b>	Radio transmission from accident aircraft
<b>CAM</b>	Cockpit area microphone voice or sound source
<b>CTR</b>	Radio transmission from Los Angeles center controller
<b>JAPR</b>	Radio transmission from Joshua approach controller
<b>SOCL</b>	Radio transmission from SOCAL approach controller
<b>TWR</b>	Radio transmission from the Burbank tower controller
<b>ATIS</b>	Radio transmission from Skywest Flight control
<b>PA</b>	Voice or sound source heard over aircraft public address system
<b>GPWS</b>	Voice or sound source heard from aircraft GPWS system
<b>-1</b>	Voice identified as Pilot-in-Command (PIC)
<b>-2</b>	Voice identified as Co-Pilot (SIC)
<b>-3</b>	Voice identified as female flight attendant
<b>-?</b>	Voice unidentified
<b>•</b>	Unintelligible word
<b>@</b>	Non-pertinent word
<b>#</b>	Expletive
<b>---</b>	Break in continuity
<b>( )</b>	Questionable insertion
<b>[ ]</b>	Editorial insertion
<b>...</b>	Pause

Note 1: Times are expressed in Pacific standard time (PST).

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

## 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.

## INTRA-COCKPIT COMMUNICATION

## AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
1743:16			
	<b>START of RECORDING</b>		
	<b>START of TRANSCRIPT</b>		
1743:19			
<b>HOT-1</b>	I think, I think, they owe us more money wage wise but I, well there's another a lots a ways it's a lot more pleasant goin' to work here than, almost any other place I know of.		
1743:33			
<b>HOT-2</b>	the uh, my commander flies uh, is an F/O on the seven four for Northwest. I guess they show the tapes play the tapes of the United, out of uh, San Fran....		
1743:46			
<b>HOT-1</b>	aaah, that forty seven?		
1743:47			
<b>HOT-2</b>	I guess those tapes were just....		
1743:49			
<b>HOT-1</b>	ah man, that had to be really scary.		
1743:52			
<b>HOT-2</b>	I guess they had a, had a.... I think a check airman.... you know they've two crew members and then they had a, a third guy, all sittin' up there and....		
1744:05			
<b>HOT-1</b>	I heard it was these two guys that saved 'em.... and I heard the captain kinda froze and the F/O wasn't, doing everything wrong.		

## INTRA-COCKPIT COMMUNICATION

## AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
1744:10 HOT-2	the captain.... the F/O had no idea what was goin' on. the captain was, froze. one of the guys in the back was yellin', you know, pull up, pull up, which, I guess considering you know the different *, but uh, then there was finally one of them yelled, well you lost your, your engine, you lost your engine. and I, and finally, finally the captain came on and kicked the rudder. someone was yellin' rudder, rudder, rudder and finally the captain came on, really late.		
1744:41 HOT-1	aah.		
1744:42 HOT-2	put rudder in and took over. but yeah, she'd, she was....		
1744:47 HOT-1	aah. well I think United learned a lesson though I think they're, they're beginning to say all right, instead of just, sending these guys back every three months to do, couple in the simulator, they're gonna give 'em a little more training. keep 'em a little more current. maybe even fly and land the airplane once in a while. who knows.		
1745:09 HOT-2	[sound of chuckle]		
1745:10 HOT-1	well, well I don't know. that's just my own speculation.		
1745:14 APR	Southwest fourteen fifty five, descend and maintain flight level two zero zero.		
1745:15 RDO-2	flight level two zero zero, fourteen fifty five.		



## INTRA-COCKPIT COMMUNICATION

## AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
1745:18 HOT-1	twenty thousand.		
1745:19 HOT-2	where's this need to go? this way?		
1745:48 HOT-1	JD, what's your number?		
1745:50 HOT-2	three nine, five eight three.		
1745:57 HOT-1	so *, so how long have you been here then?		
1745:59 HOT-2	uuh, almost three and a half.		
1746:01 HOT-1	* good for you.... good for you.		
1746:26 HOT-2	how about yourself Harold? where'd you get, in the late, late eighties?		
1746:28 HOT-1	yeah, yeah I, I got here in the last class of eighty eight. July of eighty eight. it's kinda scary 'cause, we've, we've been here about, we've been here about three days and, we're in class and the, the vice president of flight operations at that time who's kind of a new guy. he didn't last that long. he he's a professor from Texas Tech or something. he walks in and he goes, well he says, to be honest, we really don't want you here right now because they just returned three airplanes back to Continental....		
1747:01 HOT-2	really.		

## INTRA-COCKPIT COMMUNICATION

## AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
1747:02 HOT-1	... that they had been you know leasing from Continental and all of a sudden Continental wanted 'em back. and uh, and we go oh my God he's gonna he's gonna let us go you know and you know some of us including myself had left uh, a decent job, and I go #. but he said all right but we're gonna keep you. but uh, you know they've, we're a little bit over staffed that year and they only hired like about thirty five the next year. I mean there was no movement at all and I went, oh, my God. this is gonna be, this is gonna be the longest twenty years of my life. but, within a year or two after that it started gettin' better.		
1747:42 HOT-2	#, even in eighty eight it, it still wasn't that big an airline was it? ***.		
1747:46 HOT-1	I got hired and I was approximately uh, uh, there were under eight hundred people here, pilots here.		
1748:02 HOT-2	man. yeah, gutsy move.		
1748:06 HOT-1	aah, it took about five years to upgrade, and uh, but but you know we thought, you know, specially since there's no growth the first couple of years we thought, well it's gonna be like fifteen years. but it, it worked out.		
1748:25 HOT-2	and this # *....		
1748:56 HOT-2	well, I'm gonna see and find the weather.		
1748:59 HOT-1	all right.		

## INTRA-COCKPIT COMMUNICATION

## AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
1749:00 HOT-2	I don't know if you can ....	1749:25 CTR	Southwest fourteen fifty five, cross one zero miles east of Palmdale at one four thousand. altimeter two niner five seven.
		1749:33 RDO-1	cross one zero miles east of Palmdale one four thousand, Southwest fourteen fifty five.
		1749:46 ATIS-2	[sound similar to ATIS transmission that is unreadable on the CVR recording]
1750:28 HOT-2	I'm sure glad I'm just watching this leg.	1750:30 CTR	Southwest fourteen fifty five, contact Joshua approach, one two four point five five.
		1750:36 RDO-2	two four five five, Southwest fourteen fifty five, good day.
		1750:40 CTR	good day.
1750:41 HOT-1	we're gonna cross ten east of Palmdale at fourteen.	1750:47 RDO-2	Joshua, ** fourteen fifty five, flight level two zero zero, ten east of uh, Palmdale, one four.

## INTRA-COCKPIT COMMUNICATION

## AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
		1750:53 JAPR	Southwest fourteen fifty five, Josh approach, cross Palmdale at or below one three thousand, cross JANNY at and maintain eight thousand. Palmdale altimeter two niner five six.
		1751:03 RDO-2	okay, Palmdale at or below one three, JANNY at eight thousand, * fourteen fifty five.
1751:08 HOT-2	and that's in the box.		
1751:09 HOT-1	* thanks.		
1751:14 HOT-1	**.		
1751:15 HOT-2	I'm sorry.		
1751:16 HOT-1	(that's all right), I'm gonna uh, take that out then all right? * we delete that?		
1751:21 HOT-2	oh, that one yeah. I'm sorry, I didn't realize it....		
1751:28 HOT-1	uuuh, we * land two six, three three, huh?		
1751:31 HOT-2	yeah.		
1751:33 HOT-1	great.		

## INTRA-COCKPIT COMMUNICATION

## AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
1751:34 HOT-2	good day to watch.		
1751:46 HOT-2	it's all visuals.... is it?		
1751:59 HOT-1	yep.... yeah, I'm trying to remember if I've.... I can't remember the last time I landed on two six.		
1752:10 HOT-2	yeah [sound of chuckle]		
1752:12 HOT-1	I've landed on three three, it's....		
		1752:16 JAPR	attention all aircraft, information X-ray now current at Foxdale.
1752:22 HOT-2	are we even allowed to land on two six?		
1752:39 HOT-1	I don't see why not. we can land on eight.		
		1753:04 JAPR	Southwest fourteen fifty five, start your descent now please for uh, uh traffic that's gonna be crossing your path here in about twenty miles and reduce now to two hundred and fifty knots for sequence.
		1753:14 RDO-2	all right, slow to two fifty and start our descent at this time, * fourteen fifty five.
1753:33 HOT-2	* it must be it says arrivals on runway two six may be given, by the tower.		

## INTRA-COCKPIT COMMUNICATION

## AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
1753:50 HOT-2	cool.		
1754:11 HOT-1	oh yeah well, there's eighteen that was quick uh, how 'bout, twenty nine sixty two **....		
1754:17 CAM	[single chime similar to crew call signal]		
1754:19 CAM	[sound of click similar to cockpit door operation]		
1754:21 HOT-1	two nine six two, it'll be uh, flaps, well, let's, let's plan on forty right now. thirty three an.... thirty three, forty three, fifty, one fifty. visual uh, whatever it is. three, we'll plan on three three at the moment. approach descent checklist when you get the chance.		
1754:44 HOT-2	hi.		
1754:46 CAM-3	care for anything?		
1754:47 HOT-1	uuuuh I, just need ice, please.		
1754:50 CAM-3	thanks.		
1754:51 HOT-2	cup of coffee, if you got any made.		
1754:52 CAM-3	yeah.		

## INTRA-COCKPIT COMMUNICATION

## AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
1754:53 HOT-2	you're sure 'cause don't, don't go....		
1754:54 CAM-3	okay, what do you want in it?		
1754:55 HOT-2	coffee.		
1754:58 CAM-3	black?		
1754:59 CAM	[sound similar to cockpit door operation]		
1755:14 CAM	[sound similar to cockpit door operation]		
1755:20 HOT-2	how's the weather back there?		
1755:22 CAM-3	good.		
1755:22 HOT-2	it's not too cold now?		
1755:24 CAM-3	is it cold now?		
1755:26 CAM	[unintelligible conversation between first officer and flight attendant]		
1755:38 HOT-2	thank you.		
1755:40 CAM	[sound similar to cockpit door operation]		

## INTRA-COCKPIT COMMUNICATION

## AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
1755:46 HOT-2	well, one more time.		
1755:59 HOT-2	check your orange bug Howard. if you're happy, I'm happy.		
1756:02 HOT-1	nooo, I'm not. okay, now I am, thank you.		
1756:05 HOT-2	other than that I can't....		
1756:07 HOT-1	all right, thanks.		
1756:10 HOT-2	we're ready. what might should I be on, Palmdale now *?		
1756:35 HOT-2	supposedly the company's looking at eight hundreds.		
1756:37 HOT-1	really?		
1756:38 HOT-2	I've even heard, I've, I've heard you know, that uh, the new hangar they're building at Dallas, maintenance hangar, will uh, hold an eight hundred.		
1756:48 HOT-1	aaah, wouldn't that be neat. eight hundreds, is that what, is that what um, American and Delta have, eight hundreds, the bigger airplane?		
1756:58 HOT-2	yes.		



## INTRA-COCKPIT COMMUNICATION

## AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
		1756:59 <b>JAPR</b>	Southwest fourteen fifty five, turn fifteen degrees right, short vectors for sequencing. expect direct to JANNY momentarily.
		1757:06 <b>RDO-2</b>	fifteen right for fourteen fifty five, no problem.
1757:13 <b>HOT-2</b>	yes, Delta flies eight hundreds, American flies eight hundreds.		
1757:18 <b>HOT-1</b>	I've been on 'em. I've jump seated a few times on 'em. the guys real.... it, it's looks a lot like our seven hundred. uuh, they got a few more gadgets for the uh, for the uh, air conditioning and stuff system. they've, they've got it divided into like three zones, or four zones....		
1757:32 <b>HOT-2</b>	oh really.		
1757:33 <b>HOT-1</b>	... so that's really a nice....		
1757:34 <b>HOT-2</b>	that is nice.		
1757:35 <b>HOT-1</b>	... uh, there's a couple other little things but, ** it carries a lot more people, and they said they're having a hard time, uh gettin' 'em down 'cause they're so heavy and stoppin' them too because they're just, just big heavy airplanes.		
1757:53 <b>HOT-2</b>	huh.		
1758:03 <b>HOT-2</b>	these really busy routes, Phoenix, Vegas, or whatever....		

## INTRA-COCKPIT COMMUNICATION

## AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
		1758:05 JAPR	Southwest fourteen fifty five, cleared direct JANNY. cross JANNY at eight thousand.
		1758:09 RDO-2	direct JANNY eight thousand, * fourteen fifty five.
1758:15 HOT-2	well the really long ones, like to see 'em do it.		
1758:22 HOT-1	oh yeah, there I mean, obviously it'd be great for long ones.		
1758:31 HOT-2	all right, let me go find a door for us.		
1758:33 HOT-1	okay.		
		1758:51 RDO-2	Burbank, fourteen fifty five.
1759:04 HOT-2	he can't hear me.		
1759:05 HOT-1	okay. too low, I guess.... we'll just be a surprise.		
1759:20 HOT-1	out of ten.		
1759:21 HOT-2	out of ten. okay.		
1759:46 CAM	[sound similar to altitude alert signal]		

## INTRA-COCKPIT COMMUNICATION

## AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
1759:57 HOT-1	* one to go.		
1759:58 HOT-2	one to go, no change.		
		1802:25 JAPR	Southwest fourteen fifty five, contact SOCAL approach one two zero point four, so long.
		1802:29 RDO-2	twenty point four, * fourteen fifty five, good day.
		1802:41 RDO-2	SOCAL, * fourteen fifty five, eight thousand, Ocar.
		1802:52 SOCAL	Southwest fourteen fifty five, SOCAL approach, ATIS PAPA current at Burbank, I missed if you had that. altimeter's two niner six six, expect ILS eight.
		1803:00 RDO-2	all right uh, we don't have Papa. I'll get it, * fourteen fifty five we have Oscar.
		1803:04 SOCAL	Southwest fourteen fifty five, change to my frequency one three four point two.
		1803:08 RDO-2	see ya thirty four two, * fourteen fifty five.
1803:11 HOT-1	did he say for us to go to direct SILEX, or was that someone else?		
1803:14 HOT-2	no that was somebody else.		

## INTRA-COCKPIT COMMUNICATION

## AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
1803:15 HOT-1	okay.		
1803:16 HOT-2	but he said expect eight.		
1803:17 HOT-1	all right, good.		
		1803:26 RDO-2	SOCAL, Southwest fourteen fifty five up thirty four two.
		1803:29 SOCAL	Southwest fourteen fifty five thanks, loud and clear. turn left heading one niner zero, vector to final descend and maintain six thousand.
		1803:35 RDO-2	heading one nine zero, six thousand, Southwest fourteen fifty five.
1803:38 HOT-1	six thousand.		
1803:40 HOT-2	I'm off for just a second.		
1803:41 HOT-1	okay.		
1804:00 CAM	[brief interruption in audio similar to CVR tape splice]		
		1804:02 SOCAL	Southwest fourteen fifty five, maintain two thirty or greater 'til advised please.

## INTRA-COCKPIT COMMUNICATION

## AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
		1804:06 RDO-1	two hundred thirty knots or greater, Southwest fourteen fifty five.
1804:33 HOT-2	okay boss, let's see. change one is uh, two nine, six five on the altimeter.		
1804:41 HOT-1	yeah, I got it.		
1804:42 HOT-2	change two is uh, for flaps forty, thirty three and five would be one thirty eight.		
1804:48 HOT-1	all right.		
1804:49 HOT-2	it's down to six knots of wind.		
1804:51 HOT-1	okay, they're landing on eight now?		
1804:52 HOT-2	landing on eight.		
1804:53 HOT-1	all right, it'd be uh, flaps forty. thirty three and how many?		
1804:57 HOT-2	five is thirty eight.		
1804:58 HOT-1	okay, I got it, thanks. thirty three, thirty eight.		
1805:02 HOT-2	* forty six degrees * to your left at ten.		

## INTRA-COCKPIT COMMUNICATION

## AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
1805:05 HOT-1	okay, thanks. and he said he....	1805:08 SOCAL	Southwest fourteen fifty five, turn left heading one six zero.
		1805:11 RDO-2	left one six zero, * fourteen fifty five.
1805:13 HOT-1	heading one six zero. he said he wants two hundred thirty knots or greater, for a while.		
1805:44 HOT-2	[sound of person humming]	1805:54 SOCAL	Southwest fourteen fifty five, descend and maintain five thousand. if you'd like the visual approach you will be following company * right now at your one o'clock and twelve miles turning onto the final out of forty six hundred.
		1806:03 RDO-2	all right, down to five thousand. lookin' for company, * fourteen fifty five.
1806:09 HOT-2	do you want the visual if we find everybody?		
1806:11 HOT-1	yeah I think so. we, we'll wait just a second. I want to get through these clouds but I think the visual will be fine....		
1806:15 CAM	[sound similar to altitude alert signal]		
1806:16 HOT-1	...one to go.		

## INTRA-COCKPIT COMMUNICATION

## AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
1806:25 HOT-1	I'm off.		
1806:27 PA-1	flight attendants, please secure the cabin for arrival.		
1806:30 CAM	[sound of two chimes]		
1806:33 HOT-1	hang on.		
		1807:43 SOCAL	Southwest fourteen fifty five, descend and maintain three thousand. company's over Van Nuys now at three thousand.
		1807:48 RDO-2	all right, down t' three thousand, lookin' for company over Van Nuys at three thousand, * fourteen fifty five.
1807:56 HOT-2	there's Van Nuys.... excuse me.		
1808:15 HOT-1	*, I got company. I got company.		
		1808:18 RDO-2	Southwest fourteen fifty five, company in sight.
		1808:19 SOCAL	Southwest fourteen fifty five, cross Van Nuys at or above three thousand, cleared visual approach runway eight.
		1808:24 RDO-2	Van Nuys at or above three, cleared uh, visual eight * fourteen fifty five.

## INTRA-COCKPIT COMMUNICATION

## AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
1808:33 CAM	[sound of tone similar to altitude alert signal]		
1808:37 HOT-1	one to go.		
1808:39 HOT-2	one to go.		
1808:44 CAM	[sound similar to slow speed trim wheel movement]		
1809:28 HOT-1	flaps five.		
1809:31 CAM	[sound of clicks similar to flap handle movement]		
1809:37 HOT-2	yeah.		
		1809:38 SOCAL	Southwest fourteen fifty five, contact Burbank tower one one eight point seven, so long.
		1809:41 RDO-2	good day, * fourteen fifty five.
1809:43 HOT-1	gear down.		
1809:45 CAM	[sound similar to landing gear being extended]		
1809:48 CAM	[sound similar to auto-pilot disconnect signal]		



## INTRA-COCKPIT COMMUNICATION

## AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
1809:54 HOT-1	flaps fifteen.	1809:49 TWR	Southwest fourteen fifty five, Burbank tower.
1809:55 CAM	[sound of several clicks]	1809:50 RDO-2	Burbank tower, this is ° fourteen fifty five with you visual eight.
1810:00 HOT-2	I hit the APU. I hope that's okay.	1809:53 TWR	Southwest fourteen fifty five, wind uh....
1810:01 HOT-1	okay that's fine. of #, uuh. flaps uh, fifteen, twenty five.	1809:56 TWR	...two one zero at six, runway eight, cleared to land.
1810:07 CAM	[sound of clicks similar to flap handle movement]	1809:58 RDO-2	cleared to land runway eight, fourteen fifty five.
1810:14 HOT-1	these ##.		
1810:24 GPWS	sink rate....		
1810:25 HOT-1	aah.		

## INTRA-COCKPIT COMMUNICATION

## AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
1810:26 GPWS	...sink rate, sink rate, sink rate....		
1810:29 HOT-1	flaps thirty, just put it down.		
1810:31 GPWS	...sink rate, sink rate, sink rate....		
1810:33 HOT-1	put it to forty. it won't go, I know that. it's all right. final descent checklist.		
1810:37 GPWS	...sink rate....		
		1810:38 RDO-2	* tower, this is fourteen fifty five. confirm cleared to land eight.
1810:40 GPWS	...sink rate, sink rate....		
1810:41 HOT-1	yeah, we are.		
1810:42 GPWS	...sink rate....		
1810:43 HOT-2	yeah, attendant call....		
1810:44 GPWS	...sink rate, whoop whoop, pull up....		
1810:42 HOT-2	cockpit uh, attendant notification?		
1810:46 GPWS	...whoop, whoop, pull up, whoop, whoop, pull up....		

## INTRA-COCKPIT COMMUNICATION

## AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
1810:46 HOT-1	complete.		
1810:47 GPWS	... whoop, whoop, pull up, whoop, whoop, pull up, whoop, whoop, pull up, whoop, whoop, pull up....		
1810:53 HOT-1	that's all right.		
1810:55 GPWS	...whoop, whoop, pull up, sink rate.		
1810:59 CAM	[sound similar to aircraft touching down on runway]		
1811:04 CAM	[sound similar to increase in engine RPM]		
1811:15 HOT-2	need any help?		
1811:18 HOT-1	# Howard. you ##.		
1811:20 CAM	[sound of numerous impacts starts]		
1811:28 CAM	[sound of numerous impacts stops]		
1811:28 HOT-1	my fault....		
1811:31 CAM	[sound similar to aircraft stall warning stick shaker starts and continues to end of recording]		

## INTRA-COCKPIT COMMUNICATION

## AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
1811:32 HOT-1	...my fault.		
1811:34 CAM	[sound similar to rustling and movement starts and continues]		
1811:37 PA-1	and folks remain seated, remain seated, we're all right.		
1811:41 CAM	[sound similar to change in aircraft power source]		
		1811:42 TWR	...response coming now.
1811:43 CAM-5	• out *****.		
1811:45 CAM	[sound similar to female voice yelling instructions starts and continues]		
1811:46 HOT-1	well, there goes my career.		
1811:58 HOT-1	you stupid ##.		
1812:04 CAM	[sound of several clicks and snaps]		
1812:10 CAM	[hissing sound]		
1812:38 CAM	[sound similar to fire warning bell sounds for one second]		
1812:43 CAM	[sound similar to fire warning bell sounds for one second]		

## INTRA-COCKPIT COMMUNICATION

## AIR-GROUND COMMUNICATION

TIME & SOURCE	CONTENT	TIME & SOURCE	CONTENT
1813:25 HOT-1	we're all right. yep, we're all right.		
1813:27 CAM-4	***.		
1813:28 HOT-1	yeah, that's all right, I'll get it in a minute, thanks.		
1813:30 CAM-4	***.		
		1813:55 RDO-1	and tower uh, Southwest fourteen fifty five, can you hear us?
		1814:01 TWR	S* fourteen fifty five, Burbank tower.
		1814:04 RDO-1	tower Southwest fourteen fifty five, can you hear us?
		1814:07 TWR	Southwest fourteen fifty five affirmative, I can hear you.
		1814:09 RDO-1	yeah, you better send the emergency equipment over uh, uh, we went through the, barrier.
		1814:15 TWR	affirmative, they should be over there already.
		1814:18 RDO-1	thank you.
		1814:19 TWR	they're comin' up Hollywood way sir. they'll be comin' up off your left wing.

## INTRA-COCKPIT COMMUNICATION

## AIR-GROUND COMMUNICATION

TIME &  
SOURCE

CONTENT

TIME &  
SOURCE

CONTENT

1814:40  
CAM [sound of sirens]

1814:49  
END of RECORDING  
END of TRANSCRIPT

1814:24  
RDO-1 roger.

1814:29  
TWR South\* fourteen fifty five \*\* thirteen they're uh, coming up  
now right off your left now Hollywood Way.

1814:35  
RDO-1 okay, thank you. we're evacuating the uh, aircraft at this time.

1814:38  
TWR roger.