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## TCAS resolution advisory injury, Boeing 737, April 18, 1997

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**Micro-summary:** This Boeing 737 was vectored into close proximity to a Beech 99, resulting in a TCAS advisory and serious injury to a flight attendant.

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**Event Date:** 1997-04-18 at 1824 PDT

**Investigative Body:** National Transportation Safety Board (NTSB), USA

**Investigative Body's Web Site:** <http://www.nts.gov/>

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1. Accident reports can be and sometimes are revised. Be sure to consult the investigative agency for the latest version before basing anything significant on content (e.g., thesis, research, etc).
  2. Readers are advised that each report is a glimpse of events at specific points in time. While broad themes permeate the causal events leading up to crashes, and we can learn from those, the specific regulatory and technological environments can and do change. ***Your company's flight operations manual is the final authority as to the safe operation of your aircraft!***
  3. Reports may or may not represent reality. Many many non-scientific factors go into an investigation, including the magnitude of the event, the experience of the investigator, the political climate, relationship with the regulatory authority, technological and recovery capabilities, etc. It is recommended that the reader review all reports analytically. Even a "bad" report can be a very useful launching point for learning.
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		NTSB ID: LAX97FA164		Aircraft Registration Number: N313AW	
		Occurrence Date: 04/18/1997		Most Critical Injury: Serious	
		Occurrence Type: Accident		Investigated By: NTSB	
Location/Time					
Nearest City/Place LAS VEGAS		State NV	Zip Code 89111	Local Time 1824	Time Zone PDT
Airport Proximity: Off Airport/Airstrip		Distance From Landing Facility:		Direction From Airport:	
Aircraft Information Summary					
Aircraft Manufacturer Boeing		Model/Series 737-3S3		Type of Aircraft Airplane	
Sightseeing Flight: No			Air Medical Transport Flight: No		
Narrative					
Brief narrative statement of facts, conditions and circumstances pertinent to the accident/incident:					
HISTORY OF FLIGHT					
<p>On April 18, 1997, at 1824 hours Pacific daylight time, America West Flight 66, a Boeing 737-3S3, N313AW, was maneuvered by the flight crew to avoid a near collision with another aircraft while approximately 25 miles south of McCarran International Airport, Las Vegas, Nevada, during descent for landing on the CRESO THREE arrival route. One flight attendant was seriously injured. The aircraft was not damaged, and the 2 cockpit crew, 2 cabin crew, and 120 passengers were not injured. The scheduled domestic passenger flight was operated under 14 CFR Part 121 by America West Airlines, Inc., and departed Orange County Airport, Santa Ana, California, at 1743 on a nonstop flight to Las Vegas. The flight was operating on an instrument flight rules flight plan and visual meteorological conditions prevailed. The second aircraft was a Beech 99, operated by Ameriflight, Inc., of Burbank, California, under 14 CFR Part 135 and with the call sign Amflight 1898, as a nonscheduled domestic cargo flight from Las Vegas to Ontario, California. Amflight 1898 was operating on a company VFR flight plan.</p>					
<p>The location of the accident is approximately 5 miles outside of the Las Vegas Class B airspace southern boundary. The CRESO THREE Standard Terminal Arrival Route (STAR) graphic states that turbojet aircraft on the arrival should expect to cross WHIGG intersection, 43 miles south, at 12,000 feet. The minimum en route altitude from WHIGG intersection to the next fix on the STAR, CRESO intersection, is 10,000 feet.</p>					
<p>According to communication transcripts and radar data, Amflight 1898 was a VFR departure outbound from Las Vegas on a southwesterly course (which was approximately the reciprocal of the CRESO THREE arrival course), and was receiving traffic advisories from Las Vegas TRACON while in the Class B airspace. According to the pilot, he had requested radar traffic advisory services for the entire flight to Ontario from McCarran Clearance Delivery prior to takeoff. According to the pilot and the transcript, at the limit of the Class B airspace, the controller terminated radar services at 1826:08. At that point, Amflight 1898 was level at 7,000 feet and then resumed climbing to its intended en route cruise altitude of 10,500 feet. Forty seconds later (1826:48), the America West flight (call sign "Cactus 66") checked in with the controller on the CRESO THREE arrival near WHIGG intersection at 12,000 feet. Cactus 66 was cleared to descend to 10,000 feet and was issued a [left 13 degree] vector heading of 020 degrees. Fifty seconds later (1827:38), the controller pointed out the traffic to Cactus 66 as "twelve o'clock and three miles opposite direction altitude indicates nine-thousand, three-hundred" then, at 1827:56, told the flight they could "climb as you wish." At 1827:59, Cactus 66 replied "OK, we're gonna have to do that." At 1828:20, the controller told Cactus 66 that traffic was no longer a factor and instructed the flight to descend to 8,000. Cactus 66 acknowledged the descent and added "that was close."</p>					
<p>During the course of the investigation, the Safety Board learned that earlier in the same flight Cactus 66 had been involved in a loss of separation (ATC) incident over metropolitan Los Angeles.</p>					
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## FACTUAL REPORT

AVIATION

NTSB ID: LAX97FA164

Occurrence Date: 04/18/1997

Occurrence Type: Accident

## Narrative (Continued)

The incident occurred after departure from Orange County Airport while the flight was under control of the Los Angeles Air Route Traffic Control Center (ARTCC). TCAS was used by the flight crew to avoid a near collision situation without aggressive evasive maneuvering. The fact that another incident had occurred was indirectly alluded to during a review of the cockpit voice recorder (CVR) conversations between the flight crew while on the ground at Las Vegas. At the direction of the Safety Board, the Los Angeles Air Route Traffic Control Center (ARTCC) provided radar data and recorded voice tapes which confirmed the incident. After a review of this data, the decision was made to interview those controllers who were in direct communication with the flight crew at the time of the incident. Those interviews were conducted on May 18, 1997, at Palmdale, California.

## Flight Crew Interviews

The America West pilots were interviewed separately on the same day. For the Santa Ana to Las Vegas leg, the Captain was the non-flying pilot and the First Officer (FO) was the flying pilot.

Both pilots said that, as they were descending through about 11,000 feet, a traffic advisory (TA) on the TCAS announced "traffic" either immediately before or after the call from Las Vegas Approach Control advising traffic at 12 o'clock, 3 miles, 9,300 feet. Both pilots said they looked outside in accordance with their training to attempt to acquire the traffic visually. Soon there was a "monitor vertical speed" resolution advisory (RA). Then came the call from approach control authorizing them to "climb as you wish," and the Captain replied "we're gonna have to do that" and gave a "thumbs up" to the First Officer. The First Officer initiated the transition from descent to climbing flight using the autopilot mode control. The Captain recalled no further RA's, however, the First Officer recalled a "climb, climb" RA at the same time they both simultaneously saw the traffic. Both pilots related that they believed a collision had been imminent and that the abrupt pull up was appropriate and necessary. Both stressed the rapidness with which the sequence of events progressed.

The Captain added that prior to WHIGG intersection they had completed the in-range call to the company, made their final cabin announcement, and performed the descent checklist. He recalled that the last time he looked at the TCAS he thinks the traffic was about 300 feet lower. He and FO looked for the traffic, and both saw the other aircraft at the same instant. The captain reached for the controls but didn't use them. The FO handled the evasive maneuver. He doesn't remember the RA, only "traffic - traffic," and he doesn't remember any colors displayed on the VSI. It "all happened together" and "very fast."

Asked if he felt that the First Officer responded correctly and appropriately to the TA and RA, the Captain replied that "I don't see how he could have done anything different given the timeline to respond." According to the Captain, the response was in accordance with their training. When he saw the other aircraft he perceived the collision as imminent and characterized the First Officers flight control inputs as "adequate to miss the other aircraft."

The First Officer's recollection of the sequence of events were similar to the Captain's. In accordance with their training, they looked for traffic but had no contact. He recalled that they received a "monitor vertical speed" RA and ATC gave them the OK to climb if required. He elaborated, however, that when the captain motioned (thumbs up) to climb, he moved the vertical speed control on the autopilot mode control panel to stop the descent and start a climb. The autopilot did not respond because he had neglected to press the "level change button." The Captain saw this and armed level change. There was a "climb-climb" RA about the same time they both saw the other aircraft.

Asked if he had any difficulty interpreting the TCAS display, the First Officer responded that he didn't recall what the TCAS showed at the time. He didn't recall if the traffic was displayed at 4, 5, or 6 miles. The time period from TA to "monitor vertical speed" to RA happened so fast he lost his time perception. He didn't have any comment on difficulty interpreting the TCAS because

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## Narrative (Continued)

everything happened so quickly.

Asked if he would do anything different next time the First Officer said that he had replayed the accident in his mind hundreds of times and "wouldn't do anything different." His decision to use the autopilot instead of reverting to manual control through the RA climb is consistent with company policy on use of available technology. Asked to describe his control input, he said it was "hard and fast," but was only "adequate for the threat."

In a telephone interview on April 21, 1997, the pilot of Amflight 1898 reported that as he was climbing through about 9,500 feet, he saw the America West Boeing at 10 o'clock and a little higher, very close. It was partially obscured from his vision by the window post, and by the time he saw it there was essentially no time for any evasive action (he thinks he may have instinctively leveled off somewhat). He "pushed over" but by that time the Boeing had passed over him about 200 feet above. He had a deadheading pilot in the right seat who did not see the Boeing at all.

## Flight Attendant Interviews

The injured flight attendant was in the aft galley stowing food service items. She sustained a simple fracture of one ankle, a compound fracture of the other ankle, and a fracture of the shoulder blade.

The flight attendants were interviewed by the Safety Board's Survival Factors Division. According to the flight attendants, the Captain told the other crew members that "we had two near misses, one out of Orange County, and one into Las Vegas." He did not comment further on the near misses to the flight attendants. They stated that about 10 minutes into the flight they dropped sharply as they were preparing a beverage service. About 30 minutes later, the aircraft "dropped again violently" as the flight attendants were preparing the cabin for landing (this occurred while the gradual descent bell rang). The aircraft dropped for an estimated 1 second, which lifted the flight attendant who was injured about 24 to 30 inches off the floor before the aircraft began to recover. The flight attendant was thrown to the floor violently and was thereafter in great pain and stated she could not move her legs. According to another flight attendant, she landed on her back. The other flight attendant and a passenger, who is a paramedic, assisted the injured flight attendant. The Captain was notified, the cabin secured, and upon arrival at Las Vegas, the Captain had the passengers remain seated to allow the emergency medical technicians to board more quickly. All of the flight attendants stated the onset of the incident was without warning.

## Air Traffic Control

An Air Traffic Control Group was formed as part of this investigation. The Group Chairman's Factual Report is attached. Interviews with the controllers were held on May 21, 1997, at Las Vegas TRACON.

The controller who was handling Cactus 66 and Amflight 1898 at the time of the accident stated in her interview that she was working four combined sectors at the time. She did not have anyone working the handoff position and she was doing her own coordination. The supervisor was plugged into the overhead and was watching the operations some of the time. The traffic load was heavy, but it was nothing out of the ordinary and the complexity was normal.

The controller stated that Amflight 1898 departed runway 19L and was auto-acquired after becoming airborne. Amflight 1898 was terminated about 20 miles south of Las Vegas because she was too busy to continue working VFR traffic. She did not monitor the flight further until it became a factor for Cactus 66. When she observed traffic for Cactus 66 she did not know exactly who it was at the time. She said that it is not unusual to lose targets to the south and southeast because of the distance from the antenna.

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## Narrative (Continued)

As it pertained to duties and responsibilities, the controller acknowledged that it was her duty to issue traffic information to the flight crew of Cactus 66. When she saw what was occurring, she believed it was "pretty much" a first priority for her to issue traffic advisories. She stated that at that time she issued the traffic advisory, she thought that she was giving the flight crew of Cactus 66 plenty of time to respond. She thought they would either stop descent, start a climb, or respond to a TCAS RA. She expected them to see their traffic on TCAS. She then went back to the pilot and told him he could climb if necessary. She did this so they would know there was no traffic above them. She reported that in her mind, when Cactus 66 advised they were "going to have to do that," it appeared that they were taking action.

The controller said that after issuing traffic she did not provide any further information. She thought that the crew could see the situation developing better than she could because it was a TCAS equipped aircraft. In her view, a safety alert is required when, in her judgment, another aircraft is too close of terrain, obstacles, or traffic. In the case of the accident, it was not pertinent because the crew said that they were going to take action, and that is why she did not believe a safety alert was necessary. When asked if it ever escalated to a point in which a safety alert should have been issued, she said that she expected the crew to respond to an RA, and why he did not respond she did not know because they advised that they were going to climb. When asked on previous occasions had she ever had a crew advise that they were maneuvering to an RA, she said that crews had told her both before and after maneuvering, and that there were several other variations of which she was aware. She did not know at the time, but learned later, that the crew received an RA. When asked if a conflict alert was generated, she said that she believed so, but she was not sure.

The controller further stated that after the event, the supervisor told her that he had seen it just about the same time that she had. Both of them were stunned that Cactus 66 did not appear to take any action and could not understand why a climb out of 10,000 feet had not occurred. She did not advise the crew of Cactus 66 that the traffic was climbing as in her view, it was essentially verified by them. She acknowledged that if an aircraft's intention is known, it should be issued with other traffic information. She said that she perceived that the crew saw their traffic based on the fact that they acknowledged her transmission to climb. Her experience with TCAS is that the crew can see well beyond a pending traffic situation that might be developing. She said that when she issued traffic to the crew of Cactus 66 she estimated that there was 1,800 vertical separation between the targets. She went on to say that based on her understanding of TCAS, this system will provide an appropriate alert well before 3 to 4 miles and 1,000 feet of vertical separation. Her knowledge of TCAS had been gained through briefings, videos, and on-the-boards experience. She believed that once Cactus 66 acknowledged that they could climb, it negated the need for any further safety alerts or advisories.

In his interview, the supervisor on duty said he was watching three sectors from the coordinator's position. He believed that the controller's traffic was normal, but that it was a moderate workload. He said that for the first 5 minutes, he monitored the position closely because there was a lot of opposite direction traffic. When that was reduced, he started looking at other things. He said that he heard traffic being issued to Cactus 66 and then something brought his attention to the radar scope. He saw on the radar scope a VFR target that was southwest bound and Cactus 66 on an opposite course. At that point, he believed that the traffic call was an appropriate response. He said that after the controller advised the crew to climb as they wished he thought that they would be executing a TCAS maneuver. There was no acknowledgment of seeing their traffic until they advised, "we're going to have to do that." When asked if the encounter ever reached the point in which a safety alert should have been issued, he said that it could have been issued initially, but that he had not seen the radar sweeps before the fact and would have needed to observe what each respective aircraft was doing before the encounter. He thought that by the time a safety advisory had been issued it would have been too late.

PERSONNEL INFORMATION

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## Narrative (Continued)

At the time of the accident the Captain had been employed at America West Airlines for 9 years, and had been a Captain on the Boeing 737 for the previous 2 years. He had accumulated approximately 5,000 hours in the 737-type aircraft. He related that, in the 24 hours prior to the accident, he had a restful night's sleep, and had reported to work rested and fit about mid-day on the day of the accident. He had completed a round trip from Santa Ana John Wayne Airport to Sacramento (California) and was on his third flight of the day when the accident occurred.

At the time of the accident, the First Officer had been employed at America West Airlines for 10 months with about 7.5 months "on line" as a Boeing 737 First Officer. He had approximately 400 hours in the Boeing 737 and about 7,200 hours total flying time. Prior to joining America West, he was a regional airline captain for 2 years. He has been paired with the Captain for the past month and reported a harmonious working relationship. His 24-hour history was similar to the Captain's.

Both pilots said their training on TCAS at America West was very good, but both also commented that they were surprised by the rapid progression of events in this real-world TCAS event compared with what they had been trained for in the simulator.

The Captain said that they are exposed to traffic alerts and RA's during every 6-month simulator training session and they have to respond correctly. The scenarios are different and the pilot doesn't know what is coming. Asked if he had ever had training to deal with this specific TCAS scenario, he replied that he didn't think there was a training scenario which addresses this situation. He couldn't recall a training scenario of this "proportion" primarily due to the speed of the events. Asked if he felt that his training had adequately prepared him for this NMAC, he responded that the events were "compressed" more than what he has seen in the simulator and he didn't think that there is training to prepare for this type of event.

The First Officer said that during his simulator training he had "probably" two or three typical TCAS scenarios. He felt that his TCAS training did prepare him for this NMAC scenario, but that the real world TCAS event surprised him with its rapidity in comparison to simulator scenarios. He didn't have an opinion on whether simulator training for TCAS was in good fidelity with the actual event.

## AIRCRAFT INFORMATION

The America West Airlines Boeing 737-300 fleet is standardized with the Rockwell Collins Model number 622-8971-120 TCAS II system. The accident aircraft carried serial number 441 and the software revision number was 120 (V6.04A). The aircraft was manufactured in 1987 without TCAS, and the Rockwell Collins system was installed by the operator.

This model TCAS does not have an "above/below" switch. Traffic is displayed on the vertical speed indicators of the Captain and First Officer using a fixed vertical display 2,700 feet above and below the aircraft. The horizontal scale of the VSI display is 6.5 nautical miles to the top display edge (ahead of the aircraft), 4 miles to the left and right edges, and 2.5 miles to the bottom (rear of the aircraft). There is a 2-mile range ring around the aircraft symbol.

Traffic outside the above range and altitude parameters is not displayed to the flight crew unless criteria for a traffic alert (TA) or resolution advisory (RA) are met. If TA criteria are satisfied by an intruder aircraft outside the display limits, "traffic" is aurally annunciated and an amber traffic half-symbol appears at the display's 12 o'clock position to tell the flight crew that the traffic is beyond the range of their display. If RA criteria is satisfied by an intruder aircraft outside the display limits, the appropriate RA is annunciated and a red traffic half-symbol appears at the display's 12 o'clock position. Regardless of whether the intruder causing the RA is displayed or not, when the RA is announced, the preventive or corrective advisory will be displayed on the perimeter of the VSI as colored segments.

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## Narrative (Continued)

## FLIGHT RECORDERS

The aircraft's 11-channel flight data recorder and cockpit voice recorder were removed from the aircraft at Las Vegas and were sent to the NTSB laboratory for readout. The graphical output of the FDR is attached. A Cockpit Voice Recorder (CVR) Group was formed to read out the CVR, however, it was determined that the CVR had been permitted to continue to operate while the aircraft was on the ground in Las Vegas and data from the time of the accident had been overwritten. All that remained on the CVR was some conversation between the crew while on the ground in Las Vegas. A copy of the CVR Group Chairman's Factual Report is attached.

## TESTS AND RESEARCH

National Track Analysis Program (NTAP) radar data and recorded voice communications from the Los Angeles Center, Continuous Data Recording (CDR) radar data, and recorded voice communications from the Las Vegas TRACON were provided to the Safety Board. This information was developed into radar track plots (attached) by engineers in the Safety Board's Vehicle Performance Division.

The radar data was also shared with representatives of Aeronautical Radio, Incorporated (ARINC), who developed traffic collision avoidance system (TCAS) simulations to determine what type of alerts should have been provided to the flight crew during the incident and accident sequence (attached). At the request of the Safety Board, a "TCAS Significant Event Analysis" was conducted.

The analysis constructed flight path profiles for both Cactus 66 and Amflight 1898. The ARINC analysis concluded that the crew of Cactus 66 should have received "up sense" resolution advisories which, if executed by the crew in accordance with TCAS system design parameters, should have caused the two aircraft to cross with approximately 700 feet vertical clearance. Actual separation between the two aircraft at the closest point of approach (CPA) was estimated to have been approximately 0.06 nautical miles horizontally and 200 feet vertically. The ARINC analysis report is attached.

## ADDITIONAL INFORMATION

After landing at Las Vegas, the flight crew continued on to their next destination at San Diego, California. A breath alcohol test was administered at 2245 hours.

Additional parties to the investigation were:

Mr. Mark Solper Airline Pilot's Association Washington, DC 20594

Mr. Charles R. Mote, Jr. National Air Traffic Controller's Association Washington, DC 20594

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<b>Landing Facility/Approach Information</b>					
Airport Name	Airport ID:	Airport Elevation	Runway Used	Runway Length	Runway Width
MC CARRAN INTERNATIONAL	LAS	Ft. MSL	0		
Runway Surface Type:					
Runway Surface Condition:					
Type Instrument Approach:					
VFR Approach/Landing:					
<b>Aircraft Information</b>					
Aircraft Manufacturer		Model/Series		Serial Number	
Boeing		737-3S3		23712	
Airworthiness Certificate(s): Transport					
Landing Gear Type: Retractable - Tricycle					
Homebuilt Aircraft? No	Number of Seats: 132	Certified Max Gross Wt.	135000 LBS	Number of Engines: 2	
Engine Type:	Engine Manufacturer:	Model/Series:	Rated Power:		
Turbo Fan	GE	CFM56-3B2	22000 LBS		
- Aircraft Inspection Information					
Type of Last Inspection		Date of Last Inspection	Time Since Last Inspection	Airframe Total Time	
Continuous Airworthiness		04/1997	5 Hours	34612 Hours	
- Emergency Locator Transmitter (ELT) Information					
ELT Installed? No	ELT Operated?	ELT Aided in Locating Accident Site?			
<b>Owner/Operator Information</b>					
Registered Aircraft Owner		Street Address			
		79 SOUTH MAIN ST.			
FIRST SECURITY BANK UTAH, NA		City	State	Zip Code	
		SALT LAKE CITY	UT	84111	
Operator of Aircraft		Street Address			
		4000 E. SKY HARBOR BLVD.			
AMERICA WEST AIRLINES		City	State	Zip Code	
		PHOENIX	AZ	85034	
Operator Does Business As:			Operator Designator Code: AWXA		
- Type of U.S. Certificate(s) Held:					
Air Carrier Operating Certificate(s): Flag Carrier/Domestic					
Operating Certificate:			Operator Certificate:		
Regulation Flight Conducted Under: Part 121: Air Carrier					
Type of Flight Operation Conducted: Scheduled; Domestic; Passenger Only					
FACTUAL REPORT - AVIATION					

 <p><b>National Transportation Safety Board</b> <b>FACTUAL REPORT</b> <b>AVIATION</b></p>	NTSB ID: LAX97FA164
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**First Pilot Information**

Name On File	City On File	State On File	Date of Birth On File	Age 49
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Sex: M	Seat Occupied: Left	Principal Profession: Civilian Pilot	Certificate Number: On File
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Certificate(s): Airline Transport; Flight Instructor

Airplane Rating(s): Multi-engine Land; Multi-engine Sea; Single-engine Land; Single-engine Sea

Rotorcraft/Glider/LTA: Glider; Helicopter

Instrument Rating(s): Airplane

Instructor Rating(s): Airplane Multi-engine; Airplane Single-engine; Glider; Instrument Airplane

Type Rating/Endorsement for Accident/Incident Aircraft? Yes	Current Biennial Flight Review?
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Medical Cert.: Class 1	Medical Cert. Status: Valid Medical--w/ waivers/lim.	Date of Last Medical Exam: 02/1997
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- Flight Time Matrix	All A/C	This Make and Model	Airplane Single Engine	Airplane Multi-Engine	Night	Instrument		Rotorcraft	Glider	Lighter Than Air
						Actual	Simulated			
Total Time	14500	5600	4085	7700	2000	1800	260	850	260	
Pilot In Command(PIC)	8400	880	4000	4000	3000	1450		200	250	
Instructor	3425		1250	1850		250	100		125	
Last 90 Days	227	227		227						
Last 30 Days	84	84		84						
Last 24 Hours	7	7		7						

Seatbelt Used? Yes	Shoulder Harness Used? Yes	Toxicology Performed?	Second Pilot? Yes
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**Flight Plan/Itinerary**

Type of Flight Plan Filed: IFR

Departure Point SANTA ANA	State CA	Airport Identifier SNA	Departure Time 1743	Time Zone PDT
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Destination Same as Accident/Incident Location	State	Airport Identifier LAS	
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Type of Clearance: IFR

Type of Airspace: Class E

**Weather Information**

Source of Briefing: Company

Method of Briefing:

 <p><b>National Transportation Safety Board</b> <b>FACTUAL REPORT</b> <b>AVIATION</b></p>	NTSB ID: LAX97FA164	
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<b>Weather Information</b>					
WOF ID	Observation Time	Time Zone	WOF Elevation	WOF Distance From Accident Site	Direction From Accident Site
LAS	1756	PDT	2179 Ft. MSL	0 NM	0 Deg. Mag.
Sky/Lowest Cloud Condition: Clear			0 Ft. AGL	Condition of Light: Day	
Lowest Ceiling: None		0 Ft. AGL	Visibility: 10 SM	Altimeter: 29.00	"Hg
Temperature: 28 °C	Dew Point: -7 °C	Wind Direction: 220		Density Altitude: Ft.	
Wind Speed: 18	Gusts: 27	Weather Conditions at Accident Site: Visual Conditions			
Visibility (RVR): 0 Ft.	Visibility (RVV) 0 SM	Intensity of Precipitation: Unknown			
Restrictions to Visibility: None					
Type of Precipitation: None					

<b>Accident Information</b>		
Aircraft Damage: None	Aircraft Fire: None	Aircraft Explosion: None

Classification: U.S. Registered/U.S. Soil					
- Injury Summary Matrix	Fatal	Serious	Minor	None	TOTAL
First Pilot				1	1
Second Pilot				1	1
Student Pilot					
Flight Instructor					
Check Pilot					
Flight Engineer					
Cabin Attendants		1		2	3
Other Crew					
Passengers				120	120
- TOTAL ABOARD -		1		124	125
Other Ground	0	0	0		0
- GRAND TOTAL -	0	1	0	124	125

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Administrative Information

Investigator-In-Charge (IIC)  
RICHARD B. PARKER

Additional Persons Participating in This Accident/Incident Investigation:

FRANK MOORE  
WP-LAS-FSDO  
LAS VEGAS, NM 89119

EARL V REAVIE  
AMERICA WEST AIRLINES, INC.  
PHOENIX, AZ 85034

JOHN W HAZLET, JR.  
AMERIFLIGHT, INC.  
BURBANK, CA 91505

BETH LACY  
ASSOC. OF FLIGHT ATTENDANTS  
WASHINGTON, DC 20594