## Turbulence injury, Boeing 747-422, May 1, 2002

Micro-summary: This Boeing 747-422 experienced clear air turbulence in cruise, seriously injuring a flight attendant.

## Event Date: 2002-05-01 at 0629 UTC

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

Investigative Body's Web Site: http://www.ntsb.gov/

## Cautions:

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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FACTURE REPORT         Occurrence Date: 05/01/2002         Most Critical Injury: Serious           Occurrence Type: Accident         Investigated By: NTSB           Location/Time         Nessest City/Place         State         PO         Dicela Time         Investigated By: NTSB           Airon Fromking: Off Airport/Airstrip         Distance From Landing Facility:         Direction From Airport           Airon Monitorier         Model/Series         Type of Aircordt           Airon Monitorier         Model/Series         Type of Aircordt           Booing         747-422         Direction From Airport           Sightseeing Flight: No         Air Medical Transport Flight: No         Aironal Monitorier           Narrallv         Booing         Air Medical Transport Flight: No         Narrall           Narralve         Model/Series         Type of Aircordt         Airplane           Booing         Air Medical Transport Flight: No         Narralve         Narralve           Booing         Air Medical Transport Flight: No         Narralve         Narralve           Booing         Air Medical Transport Flight: No         Narralve         Narralve           Booing         Sight seeing Flight: No         Air Medical Transport Corroried data to the airplane's condocrificit Kanageneses abord, 5 seceived minor injuries and 15 were not injured. <t< th=""><th>National Transportation Safety Board</th><th colspan="8">RANSO Institution Strety Board NTSB ID: LAX02LA146 Aircraft Registration Number: N182UA</th></t<>	National Transportation Safety Board	RANSO Institution Strety Board NTSB ID: LAX02LA146 Aircraft Registration Number: N182UA								
Location/Time           Nearest City/Place         State         Zp Code         Local Time         Time Zone           Pacific Ocean         PO         Local Time         Direction From Airport           Airpot Poximity: Of Airport/Airstrip         Distance From Landing Facility:         Direction From Airport           Aircraft Manufacturer         Model/Series         Type of Aircraft           Boeing         747-422         Airplane           Sightseeing Flight: No         Air Medical Transport Flight: No         Airplane           Narrative         Bef analysis and orannatances perform to the acceleratione         On May 1, 2002, at 0629 coordinated universal time (UTC), a Boeing 747-422, NI820A, encountered clear air turbulence while climbing through approximately 31,000 feet and while in international airspace over the Pacific ocean about 700 miles north of NeW Zealand. According to the airplane's oncording and 24,4684 degress south latitude when the encounter occurred. The airline transport certificated pilot and remaining 3 flight crewmebers were not injured. Of the 17 flight as flight 868, a regularity achedular international passenger flight. The flight degreted from Synthy, Australia at 033 UTC and was develored forse from Pancing, Culifornia, Pollowing the encounter with turbulence, the flight crew altered course and landed at Auckland, Mew Zealand at 154 UTC Parati 121.           as flight 863, a regularity achedular prevailed and the flight was operating on an instrument flight plan.         Pacific ocean and pacific ocean and pace devilend for San Francicoc, Culifornia, Pollowing the encounter with turbulencer		Occurrenc	e Date: 05/01	/2002	Most Critical Injury: Serious					
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Pacific Ocean         PO         Decay         UTC           Airport Proximity: Off Airport/Airstrip         Distance From Landing Facility:         Direction From Airport.           Aircraft Information Summary         Mode/Series         Type of Aircraft           Aircraft Manufacturer         Mode/Series         Type of Aircraft           Boeing         Air Medical Transport Flight: No         Airplane           Sightseeing Flight: No         Air Medical Transport Flight: No         Mode/Series           Narrative         Berley and the airplane and the scotter forder         Mode/Series           On May 1, 2002, at 0629 coordinated universal time (UTC), a Boeing 747-422, NI82UA, encountered clear air turbulence while climbing through approximately 31,000 feet and while in International airspace over the Pacific ocean about 700 reles north of New Zealand. According to the airplane's onbard Flight Management Computer (SMC) recorded data, the aircraft was at location 174,0027 degrees east longitude and 24.4864 degrees outh lairtine and 264 were not injured. Of the 17 flight degrees outh lairtine and to flight degrees of 140 CPR Part 121, as flight 862, a regularly scheduled international passenger flight. The flight departed from Syndrey, Australia at 0353 UTC and was destined for San Francisco, California. Following the encounter with turbulence, the flight crew altered course and landed at Auckland, New Zealand at 1055 UTC. Visual meteorological conditions prevailed and the flight departed from San Francisco, California. Following the encounter with a smooth flight crew altered outpassenger flight. The flight departed from forecasted turbulence, the flight new as advised bat										
Airport Proximity: Off Airport/Airstrip         Distance From Landing Facility:         Direction From Airport:           Aircraft Information Summary         Aircraft Manufacturer         Model/Series         Type of Aircraft           Boeing         747-422         Airplane         Airplane           Sightseeing Flight: No         Air Medical Transport Flight: No         Airplane           Sightseeing Flight: No         Air Medical Transport Flight: No         Narrative           Brief armative subment of facts, conditions and dromstances perimet to the accdem/modert         On May 1, 2002, at 0629 coordinated universal time (UTC), a Boeing 747-422, N182UA, encountered clear air turbulence while climbing through approximately 31,000 feet and while in international asirspace over the Pacific ocean about 700 miles north of New Zealand. According to the airplane's onboard Flight Management Computer (PMC) recorded data, the aircraft was at location 174.0027 degreese acal longitude and 24.4684 degrees outh laituide when the encounter occurred. The airplane's onboard critificated pilot and remaining 3 flight crewmembers were not injured. Of the 269 passengers aboard, 5 received minor injuries and 264 were not injured. The dirplane was not damaged. The flight was operated by United Airlines, Incorporated, under 14 CFR Part 121, as flight 662, a regularly scheduled international passenger flight. The flight departed from Sydney, Australia at 0353 UTC and was destined for San Francisco. California. Following the encounter with turbulence, the flight orew altered course and landed at Luckland, New Zealand at 1056 UTC. Visual meteorological conditions prevailed and the flight was operated by on toted thathe cloud tops were gradually rising. Radar showed v	Nearest City/Place	State	Zip	Code	Local Time	Time Zone				
Aircraft Manufacturer       Model/Series       Type of Aircraft         Boeing       747-422       Airplane         Sightseeing Flight: No       Air Medical Transport Flight: No       Narrative         Boeing       747-422       Airplane         Sightseeing Flight: No       Air Medical Transport Flight: No       Narrative         Build anarotive statement of facts, conditions and discussion periods to the acidemtificate:       Narrative         Boel anarotive statement of facts, conditions and discussion periods to the acidemtificate:       Narrative statement of facts, conditions and discussion periods to the acidemtificate:         Boel anarotive statement of facts, conditions and discussion periods to the acidemtificate:       Narrative statement of facts, conditions and discussion periods to the acidemtificate:         Sightsee as a transport of the state of the acidemtificate:       Narrative statement of facts, conditions and discussion periods to the acidemtificate:         Intransport certificated pilot and remaining of flight creavementers were not injured. Of the airplane intransport acide and the airplane intransport and the acide at a discussion of the airplane was not damaged. The flight was operated by United Airlines, Incorporated, under 14 CFR Part 121, as flight B62, aregularly scheduled international passenger flight. The flight departed from Sydney, Australia at 0353 UTC and was destined for San Francisco, California. Following the encounter with turbulence, the flight crew altered course and landed at Auckland, New Zealand at 1056 UTC. Visual meteorological conditions prevailed and the flight was operating o	Pacific Ocean	PO			0629	UTC				
Aircraft Manufacturer         ModeWSeries         Type of Aircraft           Boeing         747-422         Airplane           Sightseeing Flight: No         Air Medical Transport Flight: No         Narrative           Build market automative statement of text, conditions and circumstances performent to the accident/incident:         On         Narrative           Build market automative statement of text, conditions and circumstances performent to the accident/incident:         On         Mage 1, 2002, at 0629 coordinated universal time (UTC), a Boeing 747-422, N182UA, encountered clear air turbulence while climbing through approximately 31,000 feet and while in international airrespace over the Pacific occean about 700 miles anoth of New Zealand. According to the airplane's onboard Flight Management Computer (FMC) recorded data, the aircraft was at location 174.0027           degrees east longitude and 24,4684 degrees south latitude when the encounter occurred. The airline transport certificated pilot and remaining 3 flight crewmathers were not injured. If the 17 flight attendant crewmembers, 1 was seriously injured, 1 received minor injuries, and 15 were not injured. Of the 269 passengers aboard, 5 received minor injuries and 264 were not injured. The airplane was not damaged. The flight was operated by United Airlines, Incorporated, under 14 CFR Part 221, NB 5007C. Visual meteorological conditions prevailed and the flight was operating on an instrument flight plan.           According to the Captain, the airplane was flying over a flat broken cloud layer with a smooth ride. He said, "Passing 25 degrees south at FL310 we noticed that the cloud loops and I axpected at fuel hight bumps althopered we would soon be just above or in the cloud tops a	Airport Proximity: Off Airport/Airstrip	Distan	nce From La	t:						
Boeing         747-422         Airplane           Sightseeing Flight: No         Air Medical Transport Flight: No           Narrative         Sightseeing Flight: All Airplane         Airplane           Boeing art turbulence while climbing through approximately 31,000 feet and while in international airpgace over the Pacific ocean about 700 miles north of New Zealand. According to the airplane's onboard Flight Management Computer (FMC) recorded data, the aircraft was at location 174.0027 degrees east longitude and 24.4664 degrees south latitude when the encounter occurred. The airline transport certificated pilot and remaining 3 flight crewmembers were not injured. Of the 17 flight attendant crewmembers, 1 was seriously injured, 1 received minor injuries and 264 were not injured. The airplane was not damaged. The flight was operated by United Airlines, Incorporated, under 14 CFR Part 121, as flight 862, a regularly scheduled international passenger flight. The flight departed from Sydney, Australia at 0353 UTC and was destined for San Francisco, California. Following the encounter with turbulence, the flight crew altered course and landed at Auckland, New Zealand at 1056 UTC. Visual meteorological conditions prevailed and the flight was operating on an instrument ride. Re said, "Passing 25 degrees south at FL310 we noticed that the cloud tops were gradually rising. Radar showed very litle - a few green returns off to the right. We were in an area of no forecasted turbulence or cumulonimbus cloud blouds looked benign. After entering the top of the cloud layerwe encountered 10 - 15 seconds of sharp severe turbulence with momentary over speed warning and stick shaker."           The captain said that he called the Purser and he was advised of flight attendant and passenger injuries. He contacted diapatch and was advised that he should divert t	Aircraft Information Summary									
Sightseing Flight No         Air Medical Transport Flight: No           Narrative         Definantisty statement of facts, conditors and circumstances portioned to the accident/incident           On May 1, 2002, at 0629 coordinated universal time (UTC), a Boeing 747-422, N182UA, encountered clear air turbulence while climbing through approximately 31,000 feet and while in international airspace over the Pacific ocean about 700 miles north of New Zealand. According to the airplane's onboard Flight Management Computer (FMC) recorded data, the aircraft was at location 174.0027 degrees east longitude and 24.4684 degrees south latitude when the encounter occurred. The airline transport certificated pilot and remaining 3 flight crewmembers were not injured. Of the 17 flight attendant crewmembers, I was seriously injured, I received minor injuries, and 15 were not injured. Of the 269 passengers aboard, 5 received minor injuries and 264 were not injured. The airplane was not damaged. The flight was operated by United Airlines, Incorporated, under 14 CFR Part 121, as flight 662, a regularly scheduled international passenger flight. The flight departed from Sydney, Australia at 0353 UTC and was destined for San Francisco, California. Following the encounter with turbulence, the flight crew altered course and landed at Auckland, New Zealand at 1056 UTC. Visual meteorological conditions prevailed and the flight was operating on an instrument ride. He said, "Passing 25 degrees south at FL310 we noticed that the cloud tops were gradually rising. Radar showed very little - a few green returns off to the right. We were in an area of no forecasted turbulence or cumulonimbus cloud buildugs. I turned on the seatbelt sign and made a passenger announcement, as it appeared we would soon be just above or in the cloud tops and I expected a few light bumps although the clouds looked benign. After entering the top of the cloud layert. we encount	Aircraft Manufacturer			Model/Series	6			Type of Aircraft		
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<ul> <li>Bief narrative statement of facts, conditions and circumstances perfinent to the accident/incident:</li> <li>On May 1, 2002, at 0629 coordinated universal time (UTC), a Boeing 747-422, N182UA, encountered clear air turbulence while climbing through approximately 31,000 feet and while in international airspace over the Pacific ocean about 700 miles north of New Zealand. According to the airplane's onboard Flight Management Computer (FMC) recorded data, the aircraft was at location 174.0027 degrees east longitude and 24.4684 degrees south latitude when the encounter occurred. The airline transport certificated pilot and remaining 3 flight orewmembers were not injured. Of the 17 flight attendant crewmembers, l was seriously injured, l received minor injuries, and 15 were not injured. Of the 269 passengers aboard, 5 received minor injuries, and 15 were not injured. The airplane was not damaged. The flight was operated by United Airlines, Incorporated, under 14 CER Part 121, as flight 862, a regularly scheduled international passenger flight. The flight departed from Sydney, Australia at 0353 UTC and was destined for San Francisco, California. Following the encounter with turbulence, the flight crew altered course and landed at Auckland, New Zealand at 1056 UTC. Visual meteorological conditions prevailed and the flight was operating on an instrument flight plan.</li> <li>According to the Captain, the airplane was flying over a flat broken cloud layer with a smooth ride. He said, 'Passing 25 degrees south at FL310 we noticed that the cloud tops were gradually rising. Radar showed very little - a few green returns off to the right. We were in an area of no forecasted turbulence or cumulonimbus cloud blokdyes. I turned on the seatbelt sign and made a passenger announcement, as it appeared we would soon be just above or in the cloud tops and I awpected a few light bumps although the clouds looked benign. After entering the top of the cloud layerwe encountered 10 - 15 seconds of sharp severe turbulence with m</li></ul>	Sightseeing Flight: No		Ai	ir Medical Tr	ansport Flight: No	)				
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<pre>injuries. He contacted dispatch and was advised that he should divert to Auckland. After consulting with an onboard doctor and a company doctor in Chicago, the airplane diverted. According to one of the flight attendants, he was assigned the position number 4 at door 3 left outboard. He said, "About 3 to 3 1/2 hours into the flight, the seat belt sign was illuminated. As per my duties, I went to check seat belts. When I reached row 59 on the left side of the plane, the pilot announced that flight attendants should be seated. At that moment, I sat down immediately on the floor between seats 59b and 59d. I held on to the bar under seat 59b. Within seconds, the plane started to go through very, very, violent turbulence. It started to fish taleWhat I saw however was something totally different. Two flight attendants had started counting the merchandise in the duty free carts." He said he saw one of attendants counting the</pre>	<pre>onboard Flight Management Computer (FMC) recorded data, the aircraft was at location 174.0027 degrees east longitude and 24.4684 degrees south latitude when the encounter occurred. The airline transport certificated pilot and remaining 3 flight crewmembers were not injured. Of the 17 flight attendant crewmembers, 1 was seriously injured, 1 received minor injuries, and 15 were not injured. Of the 269 passengers aboard, 5 received minor injuries and 264 were not injured. The airplane was not damaged. The flight was operated by United Airlines, Incorporated, under 14 CFR Part 121, as flight 862, a regularly scheduled international passenger flight. The flight departed from Sydney, Australia at 0353 UTC and was destined for San Francisco, California. Following the encounter with turbulence, the flight crew altered course and landed at Auckland, New Zealand at 1056 UTC. Visual meteorological conditions prevailed and the flight was operating on an instrument flight plan. According to the Captain, the airplane was flying over a flat broken cloud layer with a smooth ride. He said, "Passing 25 degrees south at FL310 we noticed that the cloud tops were gradually rising. Radar showed very little - a few green returns off to the right. We were in an area of no forecasted turbulence or cumulonimbus cloud buildups. I turned on the seatbelt sign and made a passenger announcement, as it appeared we would soon be just above or in the cloud tops and I apparent of the cloud loys and I apparent of the clouds looked benign. After entering the top of the cloud layerwe encountered 10 - 15 seconds of sharp severe turbulence with momentary over speed warning</pre>									
other flight attendant near to the duty free cart was also injured. The duty free cart ended up upside down, and all the merchandise was strewn over the floor. The seriously injured flight	Auckland. After erted. 4 at door 3 left was illuminated. de of the plane, oment, I sat down seat 59b. Within t started to fish dants had started ants counting the r free cart. The cee cart ended up									

National Transportation Safety Board	NTSB ID: LAX02LA146	
FACTUAL REPORT	Occurrence Date: 05/01/2002	
AVIATION ETYBON	Occurrence Type: Accident	
Norretive (Oretices)		

Narrative (Continued)

According to Digital Flight Data Recorder (DFDR) data, at 0628:58 a series of oscillating vertical and lateral accelerations began that lasted until 0630:38. The vertical accelerations (expressed in units of gravity or "g's", 1.0 is normal) ranged from a low of +0.31 to a high of +1.7. The lateral accelerations (a value of zero is normal) ranged from 0.119 left to 0.115 right. During the time frame of the encounter, the FMC reported winds went from 92 knots to 50, then back to 101. The indicated airspeed also varied from a pre-encounter average value of 315 knots to a peak of 344 before returning to the nominal 315 value.

The investigation reviewed the dispatch and flight release package provided to the flight crew. The weather forecast portion of the document noted that in the vicinity of 173 degrees east and 25 degrees south the upper air winds between 31,000 and 35,000 feet were forecast to be from 290 degrees at 102 to 113 knots. The document also noted the possibility of moderate or lesser turbulence from longitudes 164 degrees east to 172 degrees east along the planned flight track. Two SIGMETS were listed on the documents. The first, SIGMET AMMC MW01 (valid from April 30 at 2200 UTC to May 1 at 0400 UTC) forecast severe clear air turbulence between 25,000 and 35,000 feet, though the area concerned was some 900 nautical miles south and west of the accident location. The second one, SIGMET NTAA NR01 (valid on May 1 from 0200 to 0800 UTC) forecast isolated and embedded cumulo nimbus clouds with tops to 46,000 feet over a wide area well west and north of the planned flight track.

The National Weather Service Significant Weather Forecast Chart issued at 1700 UTC on April 30 and valid until 0600 UTC on May 1 showed a 120 knot jet stream and moderate or lesser clear air turbulence south of the accident location and an area of isolated cumulo nimbus clouds with tops to 40,000 feet to the north. No SIGMETS were in effect for turbulence.

National Transportation Safety Boar	d	NTSB ID: LAX02LA146										
FACTUAL REPORT	Γ	Occurrence Date: 05/01/2002										
AVIATION ETYBOP	F	Occurre	ence Type:	Accident								
Landing Facility/Approach Information												
Airport Name         Airport ID:         Airport Elevation         Runway Us									ay Length	n Rui	nway Width	
Ft. MSL NA												
Runway Surface Type:												
Runway Surface Condition:												
Type Instrument Approach: NONE												
VFR Approach/Landing: None												
Aircraft Information			_									
Aircraft Manufacturer Boeing			Model/ 747-4						Serial N 25279	Number '9		
Airworthiness Certificate(s): Transport												
Landing Gear Type: Retractable - Tricycle												
Homebuilt Aircraft? No Nur	nber of Seats: 3	91	Certifie	d Max Gross W	/t.		875000	LBS	Number	of Engine	es: 4	
Engine Type:Engine Manufacturer:Model/Series:Rated Power:Turbo FanPratt & WhitneyPW204056000 LBS												
- Aircraft Inspection Information												
Type of Last Inspection		D	ate of Las	t Inspection	Ti	ime Si	nce Last Inspe	ection	4	Airframe T		
Continuous Airworthiness								Ho	ours	4	8837 Hours	
- Emergency Locator Transmitter (ELT)	Information											
ELT Installed?	ELT Operate	d?			ELT A	Aided in	n Locating Ac	cident S	ite?			
Owner/Operator Information												
Registered Aircraft Owner			Street A	Address PO Box	66100							
United Airlines, Inc			City	01.						State	Zip Code	
Chicago IL 60666 Street Address										60666		
Operator of Aircraft Same as Reg'd Aircraft Owner												
Same as Reg'd Aircraft Owner     City     State     Zip Code												
Operator Does Business As: Operator Designator Code: UALA												
- 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; International; Passenger Only												
FACTUAL REPORT - AVIATION Page 2												

National Transportation Safety Board NTSB ID: LAX02LA146														
FACTUAL	13/13 -	17		Occurren	ce Date: 05	02								
- 5.37	and the second second	-					-		$\neg$					
AVIATION Occurrence Type: Accident														
First Pilot Information	on					City					State		ate of Birth	Age
											-			
Sex: M Seat Occu	Sex: M Seat Occupied: Left Principal Profession: Occupational Pilot Certificate Number: On File													
Certificate(s):	Airline T	Franspor	t; Flight Ins	tructor; Con	nmercial; F	light Er	nginee	er						
Airplane Rating(s):	Airplane Rating(s): Multi-engine Land; Single-engine Land													
Rotorcraft/Glider/LTA:	None													
Instrument Rating(s):	Airplane	е												
Instructor Rating(s):	Airplane	e Multi-e	ngine; Airpl	ane Single-	engine									
Type Rating/Endorsem	ent for A	.ccident/Ir	ncident Aircra	aft? Yes			С	Current I	Biennial Fl	ight R	eview?			
Medical Cert.: Class 1		Medica	al Cert. Statu	s: Valid Me	dicalw/ w	aivers/l	im.		Date	of La	ist Medic	al Exa	am: 03/2002	
		•												
- Flight Time Matrix		All A/C	This Make and Model	Airplane Single Engine	Airplane Mult-Engine	Niç	ght	Actua	Instrument I Sin	nulated	Roto	craft	Glider	Lighter Than Air
Total Time											_			
Pilot In Command(PIC)						_					_			
Instructor														
Last 90 Days Last 30 Days											_			
Last 24 Hours														
Seatbelt Used? Yes		Shou	I Ider Harnes:	s Used? Yes			Toxico	ology P	erformed?	No		Sec	cond Pilot? Yes	3
Flight Plan/Itinerary	,													
Type of Flight Plan File														
Departure Point							State		Airport Ide	entifie	r D	epartu	ure Time	Time Zone
Sydney     YSSY     0353     UTC														
Destination State Airport Identifier														
San Francisco CA SFO														
Type of Clearance: IFR														
Type of Airspace: Unknown														
Weather Information	n													
Source of Briefing: Unknown														
Method of Briefing: Ur	nknown													
FACTUAL REPORT - AVIATION Page 3														

National Transportation Safety Board NTSB ID: LAX02LA146												
	ACTUAL REPOR		Occu	Occurrence Date: 05/01/2002								
	AVIATION FTYBOR			Occurrence Type: Accident								
Weather	Information											
WOF ID	Observation Time	Time Zone	WOF Ele	evation	WOF Di	stance From	Accio	dent Site		Direction Fro	m Accident Sit	te
				- 10					5			
NZAA 1100 UTC Ft. MSL NM Deg. Mag											. Mag.	
Sky/Lowest Cloud Condition: Scattered     2300 Ft. AGL     Condition of Light: Day												
Lowest Ceiling: Broken 3500 Ft. AGL Visibility: 20 SM Altimeter: 29.92										29.92	"Hg	
Temperatu	ire: 15 °C	Dew Point:	12	°C Wind	Direction:	230			De	nsity Altitude:		Ft.
Wind Spee	ed: 11	Gusts:		Weat	her Condt	ions at Accid	ent Si	ite: Visual C	Cond	itions		
Visibility (F	RVR): Ft.	Visibility (	RVV)	SM	Intensity	of Precipita	tion:					
Restriction	s to Visibility: No Obso	uration; No F	recipitatior	ו								
Type of Pro	ecipitation:											
Accident	Information											
Aircraft Da	mage: None		Aircraf	ft Fire: None	Э			Aircraft Exp	olosio	n None		
Classificati	on: U.S. Registered/U	.S. Soil	•				•					
- Injury Su	mmary Matrix	Fatal	Serious	Minor	None	TOTAL						
First Pi	lot				1	1						
Second	d Pilot				1	1						
Studen	t Pilot											
Flight li	nstructor											
Check	Pilot											
Flight E	Ingineer											
Cabin A	Attendants		1	1	15	17						
Other C	Crew				2	2						
Passer	ngers			5	264	269						
- TOTAL A	ABOARD -		1	6	283	290						
Other C	Other Ground											
- GRANE	- GRAND TOTAL - 1 6 283 290											
	FACTUAL REPORT - AVIATION Page 4											

National Transportation Safety Board FACTUAL REPORT	NTSB ID: LAX02LA146	
FACTUAL REPORT	Occurrence Date: 05/01/2002	
AVIATION	Occurrence Type: Accident	
Administrative Information		·
Investigator-In-Charge (IIC)		
RICHARD B. PARKER		
Additional Persons Participating in This Accident	Incident Investigation:	
Robert Hendley CMO Federal Aviation Administration San Francisco, CA		
Sall Flancisco, CA		

FACTUAL REPORT - AVIATION