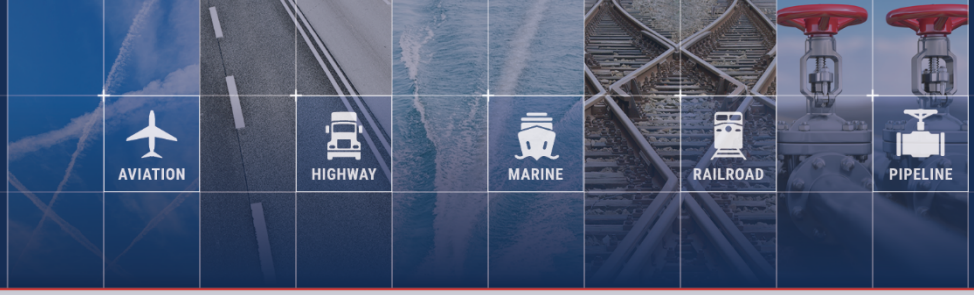

Aviation Investigation Final Report

Location:	VAN NUYS, California	**Accident Number:**	LAX00LA035
Date & Time:	November 12, 1999, 17:38 Local	**Registration:**	N1195L
Aircraft:	American General Aircraft AG5B	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	3 None
Flight Conducted Under:	Part 135: Air taxi & commuter - Non-scheduled - Sightseeing		

Analysis

The outboard 1/3 of the aircraft's left wing was deformed upward about 5 degrees with respect to the inboard section during an encounter with wake turbulence while on downwind leg for landing. The upper wing skins of both wings exhibited compression buckling, and the mass balance weights on both ailerons were separated and fell from the aircraft. The pilot reported that the flight was unremarkable until, while downwind for landing, there was an instantaneous jolt of sudden severe turbulence that ended before he could take any action. Data obtained from the airport noise abatement office showed that 2 minutes 23 seconds prior to the encounter, a heavy transport aircraft passed over the location on an ILS approach to another airport 6 miles away; the transport airplane was about 500 feet higher than the accident airplane as it crossed the location. The air traffic control tower at the airport where the accident occurred made a wake turbulence cautionary broadcast to all aircraft 30 seconds prior to when the accident aircraft first contacted the tower for landing. The cautionary broadcast was not repeated.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's encounter with unknown and unanticipated wake turbulence from a heavy transport aircraft, which was landing at another airport. A factor in the accident was the tower controller's failure to repeat a previously broadcast wake turbulence cautionary advisory when the aircraft later checked in on tower frequency.

Findings

Occurrence #1: VORTEX TURBULENCE ENCOUNTERED
Phase of Operation: APPROACH - VFR PATTERN - DOWNWIND

Findings
1. (C) WEATHER CONDITION - OTHER
2. WAKE TURBULENCE - ENCOUNTERED
3. (F) SAFETY ADVISORY - NOT ISSUED - ATC PERSONNEL(LCL/GND/CLNC)

Factual Information

On November 12, 1999, at 1738 hours Pacific standard time, an American General AG5B, N1195L, was substantially damaged by an encounter with in-flight turbulence while on downwind leg for landing at the Van Nuys, California, municipal airport. The airline transport pilot and two passengers were not injured. Visual meteorological conditions prevailed for the local area sightseeing flight, which was operated by D&S Aviation under the provisions of 14 CFR Part 135. The flight departed from Van Nuys about 1645, and no flight plan was filed.

The pilot reported that the flight was an evening scenic flight of the Los Angeles area. It was dark when the flight returned to land and entered on left downwind for landing on runway 16L (northbound). The downwind leg was flown east of the 405 (San Diego) freeway and west of Sepulveda Boulevard at 1800 feet msl, and approximately 115 knots IAS with flaps up. As they were abeam the control tower on downwind (midfield), there was an instantaneous jolt of sudden severe turbulence that ended before he could take any action. His left hand was on the flight controls and his right hand was on the throttle. The pilot said the flight control in his left hand felt "like the handle of a sledge hammer when you strike a steel pipe."

The passenger, who was not a pilot, reported that they took off about 1645 and flew for about an hour. As they were returning to land and were halfway down the airport on the right side to land (the passenger's description), they flew through one hard bump. It was "so fast, like an air pocket." It felt like they dropped 10 feet and stopped; then the turbulence was gone and the landing routine. He felt that the speed was normal, there was no shrieking or wind noise, and the pilot made no control input before or after the turbulence.

The pilot estimated the operating weight of the aircraft was 2,121 pounds. The certificated maneuvering speed (Va) is 113 knots IAS at 2,400 pounds.

One of the aileron mass balance weights was located on November 16, 1999, in the bedroom of an unoccupied apartment where it had penetrated the roof and ceiling. The apartment is located beneath the downwind leg flight path on the east side of the airport approximately midfield. According to a Van Nuys Flight Standards District Office inspector, the location was 50 yards north of Sherman Way (an east-west street which bisects the airport), and 150 yards west of Sepulveda Boulevard (a north-south street which is approximately under the downwind leg).

The Burbank-Glendale-Pasadena (Burbank) airport, at Burbank, California, is located 6 miles east of the Van Nuys airport, and the instrument landing system (ILS) final approach course to runway 8 passes over the midfield of Van Nuys airport at glide slope altitude of 2,752 feet (msl). Data obtained from the Van Nuys and Burbank airport noise abatement offices showed that a heavy Federal Express Airbus A-300-B4-600, Flight 2216, passed overhead the Van Nuys

airport at 1735:54, at 2,675 feet, and passed over the Grumman's downwind flight path location east of the 405 freeway at 1736:33, at 2297 feet (msl). The same data shows an aircraft on a VFR transponder code flying northbound and crossing under the Airbus' flight path at 1738:56, at 1,800 feet msl. The intersection of the two flight paths is approximately the location where the aileron mass balance was later located.

A recording of Van Nuys Air Traffic Control Tower communications on the frequency used to control traffic on the east side of the airport revealed that the tower broadcast a wake turbulence cautionary advisory to all aircraft. The accident aircraft made initial contact with the tower approximately 30 seconds later. The wake turbulence advisory was not repeated.

The Safety Board investigator examined the aircraft on November 16, 1999. Each wing is assembled in three sections, which are spliced together. The tip section of the left wing, outboard of the second splice, was deformed upward about 5 degrees with respect to the inboard section of the wing. The upper wing skin exhibited compression buckling. In comparing the two damage areas, the buckling was substantial on the outboard wing section and modest on the upper wing skin inboard of the tip splice. The right wing exhibited modest compression buckling over its entire span but was not visibly deformed. There was no visible damage to the fuselage, empennage, or landing gear. The mass balance weights on both ailerons were absent. The steel tubes supporting the mass balances separated immediately forward of the weld attachment to the aileron torque tube in the vicinity of the heat affected region of the weld. Both failures exhibited a shear lip on the top portion and downward bending on the bottom portion. There was no damage to control stops or evidence of over-travel.

Pilot Information

Certificate:	Airline transport; Flight instructor	**Age:**	47,Male
Airplane Rating(s):	Single-engine land; Single-engine sea; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Instrument airplane	**Toxicology Performed:**	No
Medical Certification:	Class 2 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	December 18, 1998
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	6068 hours (Total, all aircraft), 200 hours (Total, this make and model), 5750 hours (Pilot In Command, all aircraft), 30 hours (Last 90 days, all aircraft), 15 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	American General Aircraft	**Registration:**	N1195L
Model/Series:	AG5B AG5B	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	10095
Landing Gear Type:	Tricycle	**Seats:**	4
Date/Type of Last Inspection:	December 17, 1998 Annual	**Certified Max Gross Wt.:**	2400 lbs
Time Since Last Inspection:	54 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	1022 Hrs	**Engine Manufacturer:**	Lycoming
ELT:	Installed, not activated	**Engine Model/Series:**	O-360-A4K
Registered Owner:	DAVID P. LUNT	**Rated Power:**	180 Horsepower
Operator:	D&S AVIATION	**Operating Certificate(s) Held:**	On-demand air taxi (135)
Operator Does Business As:		**Operator Designator Code:**	DS6A

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Night/bright
Observation Facility, Elevation:	VNY ,799 ft msl	**Distance from Accident Site:**	1 Nautical Miles
Observation Time:	17:51 Local	**Direction from Accident Site:**	270°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	3 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	0°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	22°C / 8°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	(VNY)	**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	VFR
Departure Time:	16:45 Local	**Type of Airspace:**	Class D

Airport Information

Airport:	VAN NUYS VNY	**Runway Surface Type:**	Asphalt
Airport Elevation:	799 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	16L	**IFR Approach:**	None
Runway Length/Width:	4000 ft / 75 ft	**VFR Approach/Landing:**	Full stop;Traffic pattern

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	2 None	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	3 None	**Latitude, Longitude:**	34.190643,-118.490951(est)

Administrative Information

Investigator In Charge (IIC):	Parker, Richard
Additional Participating Persons:	BRIAN ASHTON; VAN NUYS , CA
Original Publish Date:	August 16, 2001
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=47791