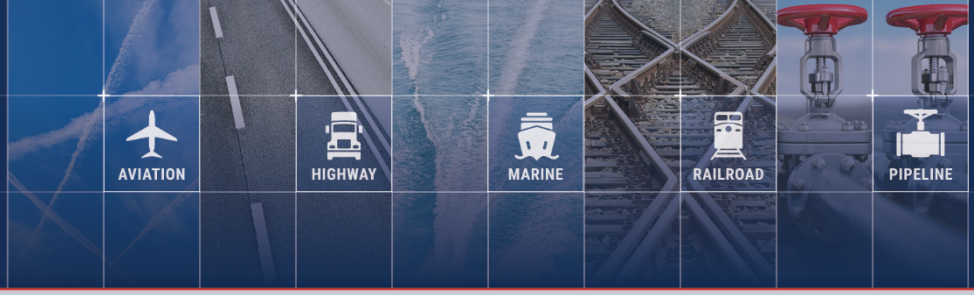

Aviation Investigation Final Report

Location:	SAUGUS, California	**Accident Number:**	LAX98FA296
Date & Time:	September 20, 1998, 18:25 Local	**Registration:**	N711CG
Aircraft:	Cessna 310K	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	2 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The instrument rated private pilot and two passengers were returning from the Reno Air Races where they had participated as pylon spotters. The destination airport was overcast with low stratus clouds. The pilot checked three mountain passes for a visual route into the coastal basin without success and diverted to an airport on the desert side of the coastal mountains for additional fuel and to file an IFR flight plan into the basin. One passenger chose to disembark and the pilot and remaining passenger departed. Recorded radar data and air-to-ground communications tapes between the airplane and the ATC facilities that worked the flight were obtained and disclosed that the pilot responded to heading and altitude instructions. While on vectors to intercept the destination ILS, the controller took the aircraft through the final approach twice for spacing with a preceding airplane. The mode C report displayed a 6,000-foot altitude as the controller issued an instruction to reduce to final approach speed and then turn right to a new heading. The secondary beacon target began the right turn and radar contact was lost with the airplane. The last recorded mode C report displayed 6,100 feet mean sea level. Witnesses near the impact site heard an airplane in the low overcast estimated to be 800 to 1,000 feet above ground level. The airplane sound was changing as though it was orbiting or turning. The witnesses then saw the airplane descending out of the clouds in a nose down attitude. The airplane appeared to start a pullout when a noise was heard and the airplane tail appeared to break apart. Fragmented components of the tail assembly were recovered from various locations and distances from the wreckage site. Reconstruction of the wreckage found no abnormal conditions in either the aircraft structure or flight instruments.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

the pilot's in-flight loss of control which led to a subsequent structural airframe failure as the pilot exceeded the design stress limits of the airplane during an attempted recovery.

Findings

Occurrence #1: IN FLIGHT ENCOUNTER WITH WEATHER
Phase of Operation: MANEUVERING

Findings
1. WEATHER CONDITION - CLOUDS
2. LIGHT CONDITION - DAYLIGHT
3. SPATIAL DISORIENTATION - PILOT IN COMMAND

Occurrence #2: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: MANEUVERING

Findings
4. (C) AIRCRAFT CONTROL - NOT MAINTAINED - PILOT IN COMMAND

Occurrence #3: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION
Phase of Operation: DESCENT - UNCONTROLLED

Findings
5. EMPENNAGE - OVERLOAD
6. (C) DESIGN STRESS LIMITS OF AIRCRAFT - EXCEEDED - PILOT IN COMMAND

Factual Information

HISTORY OF FLIGHT

On September 20, 1998, at 1825 hours Pacific daylight time, a Cessna 310K, N711CG, was destroyed during an in-flight separation of the empennage and the subsequent collision with terrain at Saugus, California. The private pilot/owner and one passenger, the sole occupants, were fatally injured. The aircraft was operating under the provisions of 14 CFR Part 91. Instrument meteorological conditions prevailed for the route of flight and an instrument flight plan was filed. The flight originated at Lancaster, California, at 1803, and was destined for Van Nuys, California.

At 1100, the pilot obtained a preflight weather briefing from the Reno Flight Service Station prior to departing from Reno, Nevada. The pilot and two passengers were returning from the Reno Air Races where they had participated as pylon spotters. According to the pilot's wife, who was a passenger for the first leg of the trip from Reno to Lancaster, they were unable to land VFR at their destination of Van Nuys due to weather. They attempted to fly visual through three different passes to get below the cloud cover into the Los Angeles basin. Unable to do so, they landed at Lancaster, California, at 1450, purchased 40 gallons of fuel, and filed an instrument flight plan for Van Nuys. The pilot's wife said she was uncomfortable with instrument flight and decided to wait at Lancaster for the pilot to return by automobile to pick her up after landing at Van Nuys.

During the filing of the flight plan, the pilot stated that his preflight weather briefing indicated that Van Nuys weather was good. The controller stated "there is an airmet for terrain obscuration, conditions never have improved as much as originally forecasted."

Recorded radar data and air-to-ground communications tapes between the airplane and the Federal Aviation Administration (FAA) air traffic control facilities that worked the flight were obtained and reviewed. The data is appended to this report. Following departure from Lancaster, the aircraft climbed on course and leveled at 8,000 msl. Comparison of the radar data with the instructions issued by the controlling facilities disclosed that the pilot responded to heading and altitude instructions in an unremarkable manner. While on vectors to intercept the Van Nuys runway 16 right instrument landing system front course, the controller took the aircraft through the final approach twice for spacing with a preceding airplane. The mode C report displayed 6,000-foot altitude as the controller issued an instruction to reduce to final approach speed and then turn right to a heading of 120 degrees. The secondary beacon target began the right turn and radar contact was lost with the airplane. The loss occurred in the area of Saugus, at 1822:22, at 34 degrees 27 minutes 28 seconds north latitude by 118 degrees 30 minutes 46 seconds west longitude. The last recorded mode C report displayed 6,100 feet msl.

Residential area witnesses reported hearing an airplane in the low overcast estimated to be 800 to 1,000 feet agl. The airplane sound was changing as though it was orbiting or turning. Subsequently, the witnesses saw the airplane descending out of the overcast in a nose down attitude. The airplane appeared to start a pullout when a noise was heard and the airplane's tail appeared to break apart. Fragmented components of the tail assembly were recovered from various locations and distances from the wreckage site.

PERSONNEL INFORMATION

The private instrument rated pilot was certificated for single and multiengine land airplanes. The pilot's logbook was not recovered. At his last recorded third-class flight physical dated May 14, 1998, he reported 7,500 total flight hours.

The pilot was a member of the Civil Air Patrol (CAP), a U.S. Air Force Auxiliary organization, and CAP pilot flight evaluation information was obtained. According to a May 3, 1998 evaluation, the pilot reported a total flight time of 8,100 hours, with 300 instrument hours and 6 instrument hours in the past 6 months. The pilot's last biennial flight review was dated February 1997.

According to the FAA medical certification records, the pilot's third-class medical certificate was issued with a special restriction for diabetes and was valid for 12 months. According to the pilot's wife, he had a low-grade type II diabetes. She also stated that the day of the accident was casual and nonworking at the Reno Air Races.

AIRCRAFT INFORMATION

The last documented annual inspection of the aircraft occurred on December 2, 1997, as stated in airframe logbook No. 2. According to that logbook, the last compliance with FAR 91.172 (transponder) and 91.171 (static and altimeter) showed recertification occurred on March 7, 1991. Subsequently, 91.172 and 91.171 were changed to 91.411 and 91.413. The recertification for the systems are required every 24-calendar months for flight in controlled airspace under instrument flight rules.

As a result of trouble shooting an inoperative autopilot, an aircraft maintenance shop at Van Nuys airport reported to the pilot on August 25, 1998, that the gyro attitude indicator horizon instrument was inoperative. The instrument is vacuum operated with an electrical signal pickoff for autopilot steering information. It was suggested that the gyro be taken to an avionics shop. Records reviewed by Safety Board investigators disclosed that on September 2, 1998, the gyro was shipped back to the pilot's address by UPS after repairs. No further logbook information addressed the reinstallation of the gyro.

METEOROLOGICAL INFORMATION

According to witnesses in the residential area where the accident occurred, the base of the clouds was estimated to be 800 to 1,000 feet above ground level.

Satellite imagery showed that mostly clear skies were present along the estimated route until the airplane was in the vicinity of the ridge crests of the coastal range. Further, the satellite data indicated an area of overcast clouds from the coastal range westward to offshore southern California. Ground weather reports and upper air data showed that clouds mostly obscured the passes and the higher elevations of the coastal range. The National Weather Service area forecast indicated tops in the area were forecast to be between 4,500 and 5,500 feet msl.

At 1751, the Van Nuys weather reported: wind 130 degrees at 8 knots; visibility 10 miles; sky condition few clouds at 3,000 agl; overcast 4,900 agl; temperature 70 degrees Fahrenheit; dew point 54 degrees Fahrenheit; altimeter 29.82 inHg. The Van Nuys field elevation is 799 feet msl, and is located 14 nautical miles from the accident site.

At 1750, the Lancaster weather reported: wind 210 degrees at 23 knots gusting 29 knots; visibility 15 miles; sky condition few clouds at 3,500 feet agl; temperature 66 degrees Fahrenheit; dew point 48 degrees Fahrenheit; altimeter 29.77 inHg. The Lancaster field elevation is 2,347 feet msl, and is located 23 nautical miles from the accident site.

WRECKAGE AND IMPACT INFORMATION

The accident site was located within a Los Angeles Department of Water and Power (DWP) easement at 34 degrees 27.050 minutes north latitude by 118 degrees 30.619 minutes west longitude, below 1,000,000-volt power transmission lines. The aircraft severed two of the 653 ASR conductors and damaged five transmission towers. According to the DWP the electrical power went off line at 1825.

The fragmented horizontal stabilizers, elevators, rudder, and other airframe parts were found scattered across a residential neighborhood. Distribution of the components is documented in a wreckage diagram appended to this file. Most parts were found northeast of the impact site within about 1,300 feet. A postaccident fire consumed some sections of the cabin.

Following initial on-site documentation, the wreckage was recovered to a secure storage area where detailed reconstruction and component examinations.

All of the aircraft extremities were accounted for in the previously described wreckage distribution area. Examination of the airframe structure in the areas of the empennage component separations disclosed fractures with either 45-degree sheer lips or compression of the neighboring structural members.

The gyro horizon, directional gyro, and turn and bank indicators are operated by vacuum pressure provided by two wet type vacuum pumps, one on each engine. According to the

Cessna 310 Pilot Operating Handbook, either pump, individually or together, will provide adequate vacuum for operation of the system. No unusual external or internal signatures were observed. The cockpit area was extensively disrupted and fragmented, along with all instrument vacuum lines.

Gyro rotor scoring was observed on the heading indicator gyro rotor and the turn and bank indicator gyro rotor. No scoring was observed on the attitude indicator gyro rotor. The attitude indicator case and internal gyro rotor housing were not as crushed and distorted as those of the heading and turn and bank indicators.

MEDICAL AND PATHOLOGICAL INFORMATION

On September 21, 1998, the Los Angeles County Medical Examiner performed an autopsy on the pilot.

During the course of the autopsy, samples were obtained for toxicological analysis by the FAA Civil Aeromedical Institute in Oklahoma City, Oklahoma. The results were negative for volatiles and drugs.

ADDITIONAL INFORMATION

On July 27, 1999, the wreckage was released to the insurance company representing the pilot.

Pilot Information

Certificate:	Private	**Age:**	73,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 3 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	May 14, 1998
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	7500 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N711CG
Model/Series:	310K 310K	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	310K-0015
Landing Gear Type:	Retractable - Tricycle	**Seats:**	6
Date/Type of Last Inspection:	December 2, 1997 Annual	**Certified Max Gross Wt.:**	5200 lbs
Time Since Last Inspection:		**Engines:**	2 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	Continental
ELT:	Installed, not activated	**Engine Model/Series:**	IO-470-V
Registered Owner:	CHARLES C. GRAY	**Rated Power:**	260 Horsepower
Operator:		**Operating Certificate(s) Held:**	None
Operator Does Business As:		**Operator Designator Code:**	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	VNY ,799 ft msl	**Distance from Accident Site:**	14 Nautical Miles
Observation Time:	17:50 Local	**Direction from Accident Site:**	165°
Lowest Cloud Condition:	Unknown	**Visibility**	10 miles
Lowest Ceiling:	Overcast / 4900 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	7 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	130°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29 inches Hg	**Temperature/Dew Point:**	
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	LANCASTER , CA (WJF)	**Type of Flight Plan Filed:**	IFR
Destination:	VAN NUYS , CA (VNY)	**Type of Clearance:**	IFR
Departure Time:	18:03 Local	**Type of Airspace:**	Class E

Airport Information

Airport:		**Runway Surface Type:**	
Airport Elevation:		**Runway Surface Condition:**	
Runway Used:	0	**IFR Approach:**	ILS
Runway Length/Width:		**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	1 Fatal	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Fatal	**Latitude, Longitude:**	

Administrative Information

Investigator In Charge (IIC):	Petterson, George
Additional Participating Persons:	YASMIN M DURAN; VAN NUYS , CA MIKE GRIMES; MOBILE , AL HENRY SODERLUND; WICHITA , KS
Original Publish Date:	September 28, 2000
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=43966