



# National Transportation Safety Board Aviation Accident Final Report

---

<b>Location:</b>	LIVERMORE, CA	<b>Accident Number:</b>	SEA94FA121
<b>Date &amp; Time:</b>	05/19/1994, 1754 PDT	<b>Registration:</b>	N601MK
<b>Aircraft:</b>	AERO COMMANDER 500A	<b>Aircraft Damage:</b>	Destroyed
<b>Defining Event:</b>		<b>Injuries:</b>	4 Fatal

**Flight Conducted Under:** Part 91: General Aviation - Personal

---

## Analysis

THE AIRCRAFT HAD NOT FLOWN FOR 2 YEARS. BEFORE FLIGHT, A MECHANIC SAW EVIDENCE OF FUEL LEAKING AT DRAIN HOLES IN THE LEFT WING ROOT, JUST AFT OF THE MAIN CABIN DOOR. HE BROUGHT THIS TO THE ATTENTION OF THE PILOT-RATED PASSENGER, WHO SHORTLY THEREAFTER, DEPARTED IN THE AIRCRAFT WITH THE PILOT (PIC), THE AIRCRAFT OWNER & A PASSENGER/MECHANIC. ABOUT 14 MINUTES AFTER TAKEOFF, RADAR DATA SHOWED THE AIRCRAFT TRANSITIONING FROM A CLIMB TO A DESCENT, WHILE IN A 180 DEGREE TURN. ALSO, WITNESSES SAW SMOKE/FLAMES TRAILING FROM THE AIRCRAFT. SUBSEQUENTLY, THE AIRCRAFT IMPACTED TREES & POWER LINES, THEN IT CRASHED IN A SMALL FLAT FIELD IN HILLY TERRAIN. POST-CRASH EXAMINATION REVEALED MELTED ALUMINUM SPATTERS ON THE LEADING EDGE & UNDERSIDE OF THE LEFT HORIZONTAL STABILIZER. ALSO, 'FOCALIZED' FIRE DAMAGE WAS NOTED ON THE CABIN BEHIND THE DRAIN HOLES IN THE LEFT WING ROOT. TETRAHYDROCANNABINOL CARBOXYLIC ACID (MARIJUANA) WAS DETECTED IN THE PILOT-RATED PASSENGER'S BLOOD (0.004 UG/ML) & URINE (0.010 UG/ML).

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: A FUEL SYSTEM LEAK, INADEQUATE PREFLIGHT BY THE PILOT (PIC), AND BY THE NON-FLYING PILOT/PASSENGER INTENTIONALLY ALLOWING OPERATION OF THE AIRCRAFT WITH A KNOWN DEFICIENCY (FUEL LEAK). A FACTOR RELATED TO THE ACCIDENT WAS: THE LACK OF SUITABLE TERRAIN FOR A FORCED LANDING.

## Findings

---

Occurrence #1: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION

Phase of Operation: STANDING - ENGINE(S) NOT OPERATING

### Findings

1. (C) FUEL SYSTEM - LEAK

-----

Occurrence #2: FIRE

Phase of Operation: CRUISE

### Findings

2. (C) AIRCRAFT PREFLIGHT - INADEQUATE - PILOT IN COMMAND

3. (C) OPERATION WITH KNOWN DEFICIENCIES IN EQUIPMENT - INTENTIONAL - PILOT PASSENGER

4. IMPAIRMENT(DRUGS) - PILOT PASSENGER

-----

Occurrence #3: FORCED LANDING

Phase of Operation: EMERGENCY DESCENT/LANDING

-----

Occurrence #4: IN FLIGHT COLLISION WITH OBJECT

Phase of Operation: LANDING

### Findings

5. (F) TERRAIN CONDITION - NONE SUITABLE

6. OBJECT - TREE(S)

7. OBJECT - WIRE, TRANSMISSION

## Factual Information

### HISTORY OF FLIGHT

On May 19, 1994, at 1754 hours Pacific daylight time (PDT), an Aero Commander 500A, N601MK, registered to Michele M. Mellor, and being flown by Thomas O. Lake, a commercial pilot, was destroyed during a collision with trees, power lines and terrain, six nautical miles southeast of Livermore, California. The pilot, a pilot-rated passenger occupying the front right seat, the aircraft owner, and a fourth passenger (mechanic) were fatally injured. Visual meteorological conditions existed at the time and no flight plan had been filed. The flight, which was personal in nature, was to have been conducted in accordance with 14CFR91, and originated from the Hayward Airport, Hayward, California, at 1736 hours.

After departing the Hayward airport the aircraft proceeded generally south then eastbound toward Lake Del Valle. No further radio communications from the aircraft were received subsequent to its departure. However, a mode "C" 1200 transponder code was received by the Oakland Air Route Traffic Control Center. The radar data indicated that the aircraft was tracking east southeast bound when, at 1750 hours, a left 180 degree turn was executed and a transition from a climb to a descent was observed. The radius of the turn was approximately 3500 feet. The aircraft continued west northwest until 1753 when a right turn of approximately 55 degrees was executed. The last recorded radar target showed the aircraft at an elevation of 1500 feet above mean sea level (MSL) and approximately 1000 feet southeast of the crash site at 1753:57 (refer to CHART I and ATTACHMENT RD-I). Special Agent Patrick Ross, from the FBI's San Francisco office, interviewed Mr. Richard N. Garcia, a witness who observed the aircraft. Agent Ross's transcription of the interview revealed the following:

Mr. Garcia was in the vicinity of Lake Del Valle approximately 1800 on the evening of the accident. He reported observing an aircraft flying over the ridge at low altitude and observed black smoke coming from the tail section. This aircraft passed directly overhead at a height of approximately 75 feet. Mr. Garcia reported that at that time he observed orange flames and thick black smoke coming from the area of the left door on the aircraft. Mr. Garcia then observed the aircraft impact trees and burst into a fireball.

Mr. Joel Eckels, who was located near the southeast end of Lake Del Valle, reported observing the aircraft. He stated that he observed "identical appearing wisps of white smoke coming from both motors" and that "the white trailing behind each motor increased throughout the period (he) could see the plane" (refer to attached statement of Mr. Eckels).

Mr. Randy Holliday, who was fishing at Lake Del Valle, also reported observing the aircraft. He stated that he observed the aircraft and that "there was light colored smoke coming out from behind the plane and it was dropping fast" (refer to attached statement of Mr. Holliday).

### PERSONNEL INFORMATION

Thomas O. Lake possessed a commercial pilot certificate and was reported to be highly experienced in the Aero Commander series aircraft. No pilot log could be located, however, Mr. Lake reported a total of 23,700 hours of flight experience at the time of his most recent medical examination (12/06/93).

Deryck J. Smyth possessed a private pilot certificate with only a single engine land rating. No pilot log could be located, however, Mr. Smyth reported a total of 610 hours of flight experience

at the time of his most recent medical examination (05/02/94).

#### AIRCRAFT INFORMATION

The previous owner of the aircraft, Mr. Morris Kernick, stated that N601MK had "not flown since late 1991/early 1992" and that "when the aircraft was sold (to Ms. Mellor in mid 1993), he gave the new owners all the records." He also stated that "the new owners took the aircraft without his knowledge and that he was not finished with the maintenance on the aircraft." (refer to 06- 08094 RECORD OF VISIT of FAA Inspector T. Tesseny)

Mr. Dennis Polito reported that he remembered "the aircraft sitting outside Mr. Kernick's hangar as far back as June" and that on the day of the accident the aircraft was taxied up to his hangar on the Hayward airport. He indicated that he was unable to fly the aircraft due to time restraints and that Mr. Lake arrived, pre-flighted the aircraft and all four occupants departed. (refer to 05-23-94 RECORD OF VISIT of FAA Inspector T. Tesseny)

Mr. James McBride, a mechanic employed by Flightcraft at the Hayward airport, reported inspecting the aircraft after it was taxied up to the Flightcraft line at approximately 1400 hours. He stated that the aircraft "was in poor shape and in fact mentioned it to the people, a man and a woman, who he assumed were the owners." He stated that he "noticed a fuel leak coming from the left inboard wing root, just aft of the main cabin door." (refer to 06-09-94 RECORD OF VISIT of FAA Inspector T. Tesseny) Additionally, Special Agent Ross attended the interview of Mr. McBride by Mr. Tesseny and reported that Mr. McBride "noted that there was fuel leaking out of the drain holes in the left wing between the engine and fuselage."

According to fueling records maintained by Steve Picatti at the Hayward airport, the aircraft was fueled with 75 gallons of 100 octane low lead aviation fuel on the afternoon of May 19th. The burned remains of two engine logs were recovered within the wreckage. The latest evidence of maintenance within each of the logs was an annual signed off on January 4, 1991. No other log entries were noted on the remaining blank pages following the 1991 annuals.

The aircraft was equipped with a fuel system comprised of five interconnected synthetic rubber bladder type cells having a total capacity of 156 gallons, and with a single, over-wing refueling point atop the inboard right wing just aft of the leading edge. Two bladders were located in each wing. The bladders were oriented fore and aft and were situated in the wing root area between the fuselage and respective engine. The fifth bladder lay within the upper fuselage and served as a bridge between the left and right wing bladders.

#### WRECKAGE AND IMPACT INFORMATION

The aircraft crashed in a small, flat field along the north edge of Mines Road. The terrain around the accident was characterized by rapidly changing elevations. The latitude and longitude of the ground impact site was 37 degrees 36.8 minutes North and 121 degrees 41.4 minutes west respectively and the elevation of the ground impact site was approximately 800 feet MSL (refer to CHART I).

The first evidence of impact was with eucalyptus trees located along the south edge of Mines Road. The tree impacts were approximately 70 feet above ground. Additionally, a power line approximately 40 feet above ground, and running parallel to the north edge of Mines Road was impacted. The aircraft impacted the ground slightly north of the power line impact and the distance from the first evidence of ground impact to the final resting place of the fuselage was 225 feet. The magnetic bearing from the tree and power line impacts, through the initial

ground impact and on to the aircraft's final resting place was 340 degrees (refer to photographs 01 and 02).

Several fragments including wing leading edge and right stabilizer/elevator were observed along the wreckage distribution track and displayed semi-circular impact impressions similar in diameter to that of the impacted tree trunks.

The right wingtip was observed near the initial ground impact site and displayed evidence of electrical arcing and two impact depressions. The depressions were consistent with a braided wire impact and showed copper transfer. The power lines consisted of braided, copper wires (refer to photograph 03).

The right wing (outboard of the right engine nacelle), including sections of flap and aileron, was observed lying on the ground near the initial ground impact site and in an area where an extensive grass fire had occurred (refer to photograph 04). Both engines were ejected from their nacelles, and the right nacelle including the main landing gear was observed lying along the wreckage distribution track short of the aircraft's final resting place (refer to photographs 05 through 07).

The remainder of the aircraft was observed at the final resting place. A post crash fire had consumed the fuselage. The left wing was observed to have broken free of the fuselage and impaled itself on the left horizontal stabilizer. The left main landing gear was retracted (refer to photograph 08).

#### MEDICAL AND PATHOLOGICAL INFORMATION

Post mortem examination of pilot Lake was conducted by Paul W. Herrmann, M.D., while the examination of pilot Smyth was conducted by Thomas W. Rogers, M.D. Both examinations were conducted on May 20, 1994, at the Alameda County Coroner's Bureau, 480 Fourth Street, Oakland, California, 94607.

Toxicological examination of samples from all four occupants was conducted by the FAA's Toxicology and Accident Research Laboratory. A negative finding was determined for all four occupants for Carbon Monoxide, Cyanide, and Volatiles. Nicotine metabolite was detected in both the blood and urine of pilot Lake. Marijuana was detected in both the blood (0.004 ug/ml) and urine (0.010 ug/ml) of pilot/passenger Smyth (refer to attached Toxicology reports).

#### FIRE

The aircraft wreckage was re-examined at the facilities of H.L.M. Air Services, on July 21, 1994. Reconstruction of the empennage revealed an area of melted aluminum spattering on the underside leading edge of the left horizontal stabilizer (refer to photographs 09 through 12). Spattering was also noted on the underside of the elevator area directly aft of the spattering on the stabilizer. However, the spattering was also noted to exist along the leading edge of the elevator surface consistent with the elevator being positioned in a nose up position at the time of the metal impact.

An examination of the left cabin door assembly revealed sooting and fire damage along a vertical line on the forward half of the aft door assembly (refer to photo 13). Much of the rear window plexiglass was absent, however, a section was recovered which exhibited fire damage and extensive melting. This piece of plexiglass contained fragments of grass imbedded in its melted surface. This piece also mated with a fragment still retained in the door frame. The

piece in the doorframe exhibited a prominent hole in the plexiglass where the two pieces mate and no evidence of grass adhesion on its surface. The hole was very focalized and penetrated completely through the thick plexiglass pane (refer to photograph 14). The hole was located less than a foot below the left wing weep holes (refer to photograph 15).

#### ADDITIONAL INFORMATION

Both IO-470-M engines were examined at the facilities of Teledyne Continental Motors, PO BOX 90, Mobile, Alabama, 36601, on October 19, 1994. The engine inspection report stated that for each engine the "interior exhibited normal operating signatures and all components appeared operational."

On site examination of the wreckage was conducted on May 20, 1994, and the wreckage was released to Mr. Larry Laughlin of H.L.M. Air Services, Inc., on the evening of the same date. The engines were returned to Mr. Laughlin as were the remnants of two engine logs which sustained fire damage (refer to attached NTSB Form 6120.15).

#### Pilot Information

<b>Certificate:</b>	Flight Instructor; Commercial	<b>Age:</b>	51, Male
<b>Airplane Rating(s):</b>	Multi-engine Land; Single-engine Land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	Yes
<b>Instructor Rating(s):</b>	Airplane Multi-engine; Airplane Single-engine	<b>Toxicology Performed:</b>	Yes
<b>Medical Certification:</b>	Class 2 Valid Medical--w/ waivers/lim.	<b>Last FAA Medical Exam:</b>	12/06/1993
<b>Occupational Pilot:</b>		<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	23700 hours (Total, all aircraft)		

## Aircraft and Owner/Operator Information

Aircraft Make:	AERO COMMANDER	Registration:	N601MK
Model/Series:	500A 500A	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	500A-1073
Landing Gear Type:	Retractable - Tricycle	Seats:	7
Date/Type of Last Inspection:	Unknown	Certified Max Gross Wt.:	6250 lbs
Time Since Last Inspection:		Engines:	2 Reciprocating
Airframe Total Time:		Engine Manufacturer:	CONTINENTAL
ELT:	Installed, not activated	Engine Model/Series:	IO-470-M
Registered Owner:	MELLOR, MICHELLE, M.	Rated Power:	260 hp
Operator:	MELLOR, MICHELE, M.	Operating Certificate(s) Held:	None

## Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	LVK, 397 ft msl	Distance from Accident Site:	8 Nautical Miles
Observation Time:	1746 PDT	Direction from Accident Site:	110°
Lowest Cloud Condition:	Scattered / 3500 ft agl	Visibility	25 Miles
Lowest Ceiling:	Broken / 5000 ft agl	Visibility (RVR):	0 ft
Wind Speed/Gusts:	8 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	230°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30 inches Hg	Temperature/Dew Point:	
Precipitation and Obscuration:			
Departure Point:	HAYWARD, CA (HWD)	Type of Flight Plan Filed:	None
Destination:		Type of Clearance:	VFR
Departure Time:	1736 PDT	Type of Airspace:	Class G

## Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:	3 Fatal	Aircraft Fire:	In-Flight
Ground Injuries:	N/A	Aircraft Explosion:	On-Ground
Total Injuries:	4 Fatal	Latitude, Longitude:	

## Administrative Information

**Investigator In Charge (IIC):** STEVEN A MCCREARY, **Report Date:** 04/07/1995

**Additional Participating Persons:** THOMAS D TESSENY; OAKLAND, CA  
PATRICK L ROSS; SAN FRANCISCO, CA  
R.S. SCOTT BOYLE; ARVADA, CO

**Publish Date:**

**Investigation Docket:** NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at [pubinq@ntsb.gov](mailto:pubinq@ntsb.gov), or at 800-877-6799. Dockets released after this date are available at <http://dms.nts.gov/pubdms/>.

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).