Aviation Investigation Final Report

Location:	Cameron Park, California	**Accident Number:**	LAX04FA168
Date & Time:	March 21, 2004, 12:10 Local	**Registration:**	N6374V
Aircraft:	Alon A2	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	2 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The airplane collided with the ground while maneuvering for a forced landing following a partial loss of engine power during the takeoff initial climb. A pilot who had taken off immediately following the accident airplane heard the pilot say on the common traffic radio frequency: "seven four Victor starting a left turn to return to the airport." A ground witness saw the airplane flying slowly with the engine making a very low constant humming sound. Initially, the airplane's wings and nose were level with the horizon. Suddenly, the airplane turned left. The nose went "straight down" and the airplane rapidly descended while reversing course. The airplane collided with the ground in a nose down attitude and was destroyed. The engine had been operated about 54 hours since receiving a major overhaul. According to logbook records, the pilot had performed the last maintenance on the airplane about 3.1 operational hours prior to the accident flight. In part, the maintenance consisted of changing the oil and filter. During the post impact wreckage examination, both of the engine's magnetos were found with finger tight mounting bolts. Evidence was observed of the magnetos having worked back and forth on their mounts through their adjustment range. No other preimpact mechanical malfunctions or failures were identified. Fuel was found in the pump, lines, and carburetor, and a significant quantity spilled from the ruptured fuel tanks.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's failure to maintain an adequate airspeed while maneuvering for a forced landing, which resulted in a stall/spin. Also causal was the partial loss of engine power due to improperly secured magnetos.

Findings

Occurrence #1: LOSS OF ENGINE POWER(PARTIAL) - NONMECHANICAL
Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings
1. (C) IGNITION SYSTEM,MAGNETO - LOOSE PART/BOLT/NUT/CLAMP/ETC
2. (C) MAINTENANCE - IMPROPER - UNKNOWN

Occurrence #2: FORCED LANDING
Phase of Operation: DESCENT - EMERGENCY

Occurrence #3: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: MANEUVERING - TURN TO LANDING AREA (EMERGENCY)

Findings
3. (C) AIRSPEED - NOT MAINTAINED - PILOT IN COMMAND
4. (C) STALL/SPIN - ENCOUNTERED - PILOT IN COMMAND

Occurrence #4: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Findings
5. TERRAIN CONDITION - GROUND

Factual Information

HISTORY OF FLIGHT

On March 21, 2004, about 1210 Pacific standard time, an Alon A2, N6374V, experienced a partial loss of engine power during initial climb from the Cameron Airpark, Cameron Park, California. The pilot reversed course and commenced heading back toward the departure airport. The pilot lost control of his airplane while maneuvering during a forced landing on a dirt trail. The airplane impacted the ground in a nose down attitude and was destroyed. The private pilot and passenger were fatally injured. The airplane was owned and operated by the pilot under the provisions of 14 CFR Part 91. Visual meteorological conditions prevailed at the time of the personal flight, and no flight plan was filed. The flight originated from Cameron Airpark about 1208.

According to a pilot flying a Cessna airplane who had taken off immediately following the accident airplane, he heard the pilot broadcast the following statement on the common traffic radio frequency: "seven four Victor starting a left turn to return to the airport." The Cessna pilot estimated that the total length of the Alon's flight was 2 minutes.

A witness, who was standing in a parking lot about 0.36 nautical miles (nm) south of the accident site reported observing the accident airplane flying slowly. The witness indicated that the airplane's engine was making a very low constant humming sound, and it was not revving up. Initially, the airplane's wings and nose were level with the horizon. Suddenly, the airplane turned left. The nose went "straight down" and the airplane rapidly descended while reversing course.

Another witness, who was located about 0.2 nm southwest of the accident site, reported observing the accident airplane in a right bank. The witness estimated that the bank angle was likely 60 degrees. Also, the airplane's nose was pointing about 45 degrees downward.

PERSONNEL INFORMATION

The pilot held a private pilot certificate with the following ratings: airplane single engine land and instrument airplane.

A review of the pilot's personal flight record logbooks indicated that he began flight training in 1960. He received a private pilot certificate in 1961, and an instrument rating in 2000. The pilot's last flight review was completed in July 2003.

By the accident date, the pilot's approximate total flight time was 1,342 hours. He had flown the accident model of airplane about 118 hours. The pilot had flown about 8 hours during the

90-day period preceding the accident date.

AIRCRAFT INFORMATION

The airplane was manufactured in 1965. The pilot acquired the airplane in April 2002. The logbook records indicate that the engine was overhauled on January 12, 2003. On March 21, 2003, the airplane received an annual inspection and had new cylinders installed at an airframe total time of 1,502.4 hours. The recording engine tachometer indicated 178.8 hours at the time of this maintenance.

The accident pilot performed the last recorded maintenance on November 13, 2003. The logbook indicates that the pilot performed, in part, an oil and filter change, and test ran the engine. The listed tachometer time was 229.1 hours. Following this maintenance, the pilot flew his airplane on four flights, for a total of about 3.1 hours until the accident occurred. There was no indication in the records that any other person flew his airplane or performed maintenance during this period.

METEOROLOGICAL INFORMATION

The Auburn Municipal Airport, about 18 nm from the accident site, reported its local weather at 1145. In part, the sky was clear, the wind was from 210 degrees at 4 knots, and the temperature/dew point were 21/12 degrees Celsius, respectively. First responders to the accident site and witnesses reported to the National Transportation Safety Board investigator that the sky was clear and the wind was light and variable.

WRECKAGE AND IMPACT INFORMATION

The Safety Board investigator's on scene examination of the accident site and airplane wreckage revealed the airplane impacted the near level terrain on Bureau of Land Management property in an estimated 45-degree nose low pitch attitude, at the following global positioning satellite coordinates: 38 degrees 40.17 minutes north latitude by 120 degrees 58.19 minutes west longitude. The terrain (dirt trail) was surrounded by native vegetation several yards higher than the cockpit, and several yards narrower than the airplane's wingspan.

The accident site is about 0.9 nm east-southeast (121 degrees, magnetic) from the departure end of Cameron Airpark's runway 13. The airport's elevation is 1,286 feet mean sea level (msl), and the accident site's estimated elevation is 1,400 feet msl.

Fragments from the wingtip navigation light lenses were located in the soil beneath both wingtips. The native vegetation surrounding the main wreckage appeared intact. No evidence of ground scar was noted leading up to the main wreckage. There was no evidence of fire.

First responders to the accident site reported observing fuel draining from the engine area. A damp soil area with a fuel-like odor was noted by the Safety Board investigator beneath and

downslope from the cockpit and engine areas. The area was about 6 feet long by 2.5 feet wide, and had a maximum depth of 2.5 inches.

The airplane was observed in an upright attitude, and it was oriented toward 163 degrees, magnetic. The propeller was at ground level. The nose gear, engine, and instrument panel were found displaced in an aft direction relative to the airframe's longitudinal axis. The empennage was found bent in an upward and forward direction. The leading edges of the wings were crushed with accordian-like folds in an aft direction (see photographs).

The throttle control in the cockpit was in the full forward position, and the carburetor heat control was in the full (forward) cold position. The magneto switch was in the "both" position, and the key was broken off in the switch.

The engine's primer was found in the closed and locked position. The Safety Board investigator unlocked and pumped the primer. Fuel was observed spraying out of a crack in a primer line in an impact-damaged area of the engine. Fuel was also found in the line routed to the header fuel tank. The engine's impact damaged recording tachometer was observed registering about 233 hours.

MEDICAL AND PATHOLOGICAL INFORMATION

The pilot's last aviation medical certificate was issued in the third class on May 7, 2002. The certificate bore the limitation that the pilot must wear corrective lenses.

An autopsy was performed on the pilot by the coroner, County of El Dorado, Placerville, California, 95667.

The El Dorado County coroner and the Federal Aviation Administration's Bioaeronautical Sciences Research Laboratory, Oklahoma City, Oklahoma, performed toxicology tests on the pilot. The tests revealed no evidence of carbon monoxide, ethanol, or any screened drugs.

TESTS AND RESEARCH

Fuel.

The Cameron Park Airport District personnel reported to the Safety Board investigator that the pilot's bank charge card had been used on March 21, 2004, for the purchase of 10.8 gallons of 80-octane aviation fuel. The transaction was time stamped 11:55 am.

Airframe Examination.

The airplane was initially examined during the Safety Board investigator's on scene inspection. Thereafter, the airframe and engine were recovered from the accident site and were partially torn down for accomplishment of a detailed examination.

In summary, all of the flight control surfaces were found with the airplane. The continuity of the flight control system was confirmed.

Propeller Examination.

No evidence of torsional deformation was observed on the propeller's spinner. One of the propeller blades was bent approximately 45 degrees in an aft direction, and the blade did not exhibit any evidence of chordwise scratches. The other blade was bent aft about 10 degrees, and chordwise scratches were noted on its cambered surface. No leading edge nicks were noted in the leading edge of either blade.

Engine and Accessory Examination.

In pertinent part, the following items were noted:

The oil pump was found functional, and it pumped oil upon manual gear rotation. The induction air filter was observed devoid of foreign objects except for the presence of native vegetation.

The carburetor was disassembled. An estimated 0.5 ounces of red colored gasoline was observed in the bowl. The fuel filter screen was clear.

The engine driven fuel pump was manually activated and it ejected fuel. An estimated 0.75 ounces of fuel was found in the pump.

The crankshaft was rotated by hand. No evidence of preimpact mechanical malfunction was observed with any internal component of the engine.

The Continental Engine participant made the following written statement to the Safety Board investigator, who also witnessed the findings: "During the exterior examination it was noted that the right magneto flange appeared to have been working back and forth through its adjustment range. The right magneto could be rotated through its entire adjustment range by hand. Both of the right magneto mounting bolts and both of the left magneto mounting bolts could be removed by this writer's fingers."

ADDITIONAL INFORMATION

The airplane wreckage was released to the pilot's family on April 24, 2004. No parts were retained.

Pilot Information

Certificate:	Private	**Age:**	70,Male
Airplane Rating(s):	Single-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 With waivers/limitations	**Last FAA Medical Exam:**	May 1, 2002
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	July 1, 2003
Flight Time:	1342 hours (Total, all aircraft), 118 hours (Total, this make and model), 1181 hours (Pilot In Command, all aircraft), 8 hours (Last 90 days, all aircraft), 4 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Alon	**Registration:**	N6374V
Model/Series:	A2	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	A-50
Landing Gear Type:	Tricycle	**Seats:**	2
Date/Type of Last Inspection:	March 1, 2003 Annual	**Certified Max Gross Wt.:**	1450 lbs
Time Since Last Inspection:	54 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	1557 Hrs at time of accident	**Engine Manufacturer:**	Continental
ELT:	Installed	**Engine Model/Series:**	C-90-16F
Registered Owner:	On file	**Rated Power:**	90 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	AUN,1536 ft msl	**Distance from Accident Site:**	18 Nautical Miles
Observation Time:	11:45 Local	**Direction from Accident Site:**	331°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	4 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	210°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.09 inches Hg	**Temperature/Dew Point:**	21°C / 12°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Cameron Park, CA (O61)	**Type of Flight Plan Filed:**	None
Destination:	Columbia, CA (O22)	**Type of Clearance:**	None
Departure Time:	12:08 Local	**Type of Airspace:**	

Airport Information

Airport:	Cameron Airpark O61	**Runway Surface Type:**	Asphalt
Airport Elevation:	1286 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	13	**IFR Approach:**	None
Runway Length/Width:	4051 ft / 50 ft	**VFR Approach/Landing:**	Forced landing

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:**	38.669445,-120.970001

Administrative Information

Investigator In Charge (IIC):	Pollack, Wayne
Additional Participating Persons:	Dennis Day; Federal Aviation Administration; Sacramento, CA Mike Grimes; Teledyne Continental Engines; Mobile, AL
Original Publish Date:	April 25, 2006
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=58930