Aviation Investigation Final Report

Location:	SANTA FE, New Mexico	**Accident Number:**	DEN99LA174
Date & Time:	September 5, 1999, 10:10 Local	**Registration:**	N999KM
Aircraft:	Cessna P210N	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	2 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The airplane was equipped with a Rolls Royce (Allison) 250-B17F turbine engine. All the fuel tanks (wings, tips, fuselage) were topped off with Jet-A fuel (about 147 gallons) and Prist, a fuel additive. During the first attempt to start the engine, N1 reached about 30% with no temperature rise, so the pilot stopped the start sequence. After waiting about five minutes, a second start attempt was successful. Peak turbine outlet temperature (TOT) was 707 degrees C. Taxi, runup, and takeoff were normal. About 10 minutes after departure, as the airplane was climbing through 12,000 feet msl, 'the engine stopped, the generator light came on, and the torque needle went to zero.' An inflight restart was attempted but was not successful. The pilot made a forced landing on Highway 16. Oncoming traffic forced the pilot to depart the side of the road shearing off the nose wheel at the fork. The wings flexed during the off roadway excursion, causing the spar web and cap to buckle downward. The engine was later functionally tested successfully.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: A non-mechanical total loss of engine power for reasons undetermined. Factors were maneuvering to avoid oncoming vehicles, and the rough and uneven terrain.

Findings

Occurrence #1: LOSS OF ENGINE POWER(TOTAL) - NONMECHANICAL
Phase of Operation: CLIMB - TO CRUISE

Findings
1. (C) REASON FOR OCCURRENCE UNDETERMINED

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

Occurrence #3: NOSE GEAR COLLAPSED
Phase of Operation: LANDING - ROLL

Findings
2. (F) MANEUVER TO AVOID OBSTRUCTIONS - INTENTIONAL - PILOT IN COMMAND
3. (F) OBJECT - VEHICLE
4. (F) TERRAIN CONDITION - ROUGH/UNEVEN

Factual Information

On September 5, 1999, approximately 1010 mountain daylight time, a Cessna P210N, N999KM, was substantially damaged when it collided with terrain during a forced landing 10 miles west of Santa Fe, New Mexico. The private pilot, the sole occupant aboard, was not injured. Visual meteorological conditions prevailed, and an IFR flight plan had been filed for the business flight being conducted under Title 14 CFR Part 91. The flight originated at Santa Fe approximately 1000.

The airplane was equipped with a Rolls Royce (Allison) 250-B17F turbine engine. The pilot said that in preparation for his return flight to San Jose, California, he had all the fuel tanks (wings, tips, fuselage) topped off with Jet-A fuel (about 147 gallons) and Prist, a fuel additive. He said that on his first attempt to start the engine, N1 reached only about 30% with no temperature rise, so he stopped the start sequence. After waiting five minutes, a second start attempt was successful. Peak turbine outlet temperature (TOT) was 707 degrees C. Taxi, runup, and takeoff were said to be normal.

The pilot said about 10 minutes after departure, as the airplane was climbing through 12,000 feet msl (mean sea level), "the engine stopped, the generator light came on, and the torque needle went to zero." An inflight restart was attempted but was not successful. The pilot made a forced landing on Highway 16. Oncoming traffic forced the pilot to depart the side of the road, shearing off the nose wheel at the fork.

Damage was originally assessed to be minor and the mishap was classified as an incident. Subsequent examination disclosed negative buckling of the spar web and cap caused by the wings flexing during the off roadway excursion.

According to Allison, a Federal Aviation Administration inspector "motored" the engine at least 3 times without verifying the amount of fuel in the lines and filters. The engine was shipped to National Airmotive for testing. On October 5 and 6, the fuel control was tested. After being reattached, the engine was started and stabilized at idle. Shortly thereafter, TOT began to rise and oil pressure dropped slightly. The engine was shut down. Two other engine starts were aborted due to high TOT. The next two engine starts were normal but the gearbox pressure was high. The engine was again shut down. On October 7, two engine starts were made. The first ended in a premature shutdown when "test stand hysteresis" caused the test cell throttle linkage to move to the OFF position. The second start was successful and performance calibration was completed.

Pilot Information

Certificate:	Private	**Age:**	54,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:**	No
Medical Certification:	Class 3 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	February 11, 1998
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	
Flight Time:	695 hours (Total, all aircraft), 357 hours (Total, this make and model), 614 hours (Pilot In Command, all aircraft), 5 hours (Last 90 days, all aircraft), 5 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N999KM
Model/Series:	P210N P210N	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	P21000387
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	April 2, 1999 Annual	**Certified Max Gross Wt.:**	4000 lbs
Time Since Last Inspection:	15 Hrs	**Engines:**	1 Turbo prop
Airframe Total Time:	2992 Hrs	**Engine Manufacturer:**	Allison
ELT:	Installed, not activated	**Engine Model/Series:**	250-B17F/2
Registered Owner:	DAVID E. LIDDLE	**Rated Power:**	450 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:	SAF ,6348 ft msl	**Distance from Accident Site:**	11 Nautical Miles
Observation Time:	09:53 Local	**Direction from Accident Site:**	60°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	7 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	20°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	19°C / 3°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	, NM (SAF)	**Type of Flight Plan Filed:**	IFR
Destination:	SAN JOSE , CA (SJC)	**Type of Clearance:**	IFR
Departure Time:	10:00 Local	**Type of Airspace:**	Class D

Airport Information

Airport:		**Runway Surface Type:**	
Airport Elevation:		**Runway Surface Condition:**	
Runway Used:	0	**IFR Approach:**	
Runway Length/Width:		**VFR Approach/Landing:**	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 None	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 None	**Latitude, Longitude:**	35.740829,-105.85987(est)

Administrative Information

Investigator In Charge (IIC):	Scott, Arnold
Additional Participating Persons:	TERRY W MARTIN; ALBUQUERQUE , NM
Original Publish Date:	November 2, 2000
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=47815