



National Transportation Safety Board Aviation Accident Final Report

Location:	Mount Pleasant, SC	Accident Number:	ATL03TA078
Date & Time:	04/14/2003, 1140 EDT	Registration:	N19WL
Aircraft:	Aero Commander 500S	Aircraft Damage:	Destroyed
Defining Event:		Injuries:	2 Serious
Flight Conducted Under:	Part 91: General Aviation - Public Aircraft		

Analysis

According to the pilot, he requested the refueler to top off his fuel tanks with "100 low lead fuel". After refueling, the pilot performed a preflight including taking fuel samples from under the wings, draining the rear fuel drain, and checking the fuel cap for security. The engine start, run-up, and taxi were uneventful. The airplane departed runway 17 and was in a positive rate of climb. At approximately 200 feet AGL the airplane began to lose power. Shortly after the pilot ensured that the throttle, propeller, and mixture controls were in the full forward position, the airplane lost power in both engines. The pilot executed an emergency off field landing. Examination of the wreckage revealed that the left wing had broken off and the aft cabin area was crushed. According to the refueler, he stated that he mistakenly used the Jet-A fuel truck instead of the AVGAS 100 low lead truck, and pumped 58 gallons of Jet-A into the airplane. Examination of the fuel samples taken from both engines revealed the left and right engine contained 70 percent of jet A fuel.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The improper refueling of the airplane by airport personnel with the incorrect fuel grade that resulted in a total loss in engine power on both engines during initial climb. A factor was the inadequate preflight inspection by the pilot in command.

Findings

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

Findings

1. (C) FLUID,FUEL GRADE - INCORRECT
 2. (C) REFUELING - IMPROPER - AIRPORT PERSONNEL
 3. ALL ENGINES - FAILURE,TOTAL
 4. (F) AIRCRAFT PREFLIGHT - INADEQUATE - PILOT IN COMMAND
-

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

Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: EMERGENCY LANDING

Findings

5. TERRAIN CONDITION - GROUND

Factual Information

On April 14, 2003, at 1140 eastern daylight time, an Aero Commander 500S, N19WL, registered to and operated by the South Carolina Department of Natural Resources, collided with the ground following a total loss of power in both engines at East Cooper Airport, Mount Pleasant, South Carolina. The public use flight was operated under the provisions of Title 14 Part 91 and visual flight rules. Visual meteorological conditions prevailed at the time of the accident. The airplane was destroyed, and the airline transport pilot and passenger received serious injuries. The flight departed East Cooper Airport, Mount Pleasant, South Carolina, at 1130, on April 14, 2003.

According to the pilot, he requested the refueler to top off his fuel tanks with "100 low lead fuel". The refueler informed the pilot of the amount of gallons of fuel he placed on the airplane and had the pilot sign the fuel ticket. The pilot performed a preflight including taking fuel samples from under the wings, draining the rear fuel drain, and checking the fuel cap for security. The engine start, run-up, and taxi were uneventful. The airplane departed runway 17 on the initial take-off climb. At approximately 200 feet AGL the airplane began to lose power. The pilot ensured that the throttle, propeller, and mixture controls were in the full forward position. The pilot then rechecked that the landing gear was up and that the flap handle was in the up position. The airplane lost full power in both engines, and the pilot executed an emergency off field landing. Examination of the wreckage revealed that the left wing had broken off and the aft cabin area was crushed.

According to a lineman employee at Aero-East, he spoke to the refueler shortly after the accident. The refueler explained to the lineman at the time of the accident he was refueling a helicopter as he watched the airplane takeoff. He indicated that the airplane did not seem to be making full power as it leveled off, bank to the left and collided with trees. The lineman asked the refueler if he had refueled the airplane, and he said that he had refueled the airplane with 58 gallons of fuel. The manager of Aero-East ordered all fueling operations stopped, fueling records secure, and fuel samples taken from the 100LL AVGAS truck. The lineman checked the fueling receipts and found a discrepancy on the fuel receipt for the accident airplane. The word "AVGAS" had been handwritten over the product description. The lineman checked the other fueling records and found that the fuel truck logs were also altered.

In an interview with the refueler, he stated that he mistakenly used the Jet-A fuel truck instead of the AVGAS 100 low lead truck, and he had pumped 58 gallons of Jet-A into the airplane. The refueler affirmed that the paper work errors were to keep the product inventory in balance because he thought he made wrong entries on the other forms. The document entry changes were made prior to the accident.

Fuel samples from the AVGS truck, JET-A truck, left engine and right engine were sent to General Engineering Laboratories, LLC for a fingerprint analysis. Both samples of fuel taken from the left and right engine contained approximately thirty percent AVGAS 100 low lead and seventy percent Jet-A fuel.

Pilot Information

Certificate:	Airline Transport	Age:	39, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	Helicopter	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane; Helicopter	Second Pilot Present:	No
Instructor Rating(s):	Helicopter	Toxicology Performed:	No
Medical Certification:	Class 2 Valid Medical--no waivers/lim.	Last FAA Medical Exam:	04/04/2003
Occupational Pilot:		Last Flight Review or Equivalent:	12/09/2001
Flight Time:	4578 hours (Total, all aircraft), 280 hours (Total, this make and model), 4301 hours (Pilot In Command, all aircraft), 43 hours (Last 90 days, all aircraft), 15 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Aero Commander	Registration:	N19WL
Model/Series:	500S	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	3160
Landing Gear Type:	Retractable - Tricycle	Seats:	7
Date/Type of Last Inspection:	05/06/2002, Annual	Certified Max Gross Wt.:	6750 lbs
Time Since Last Inspection:	94 Hours	Engines:	2 Reciprocating
Airframe Total Time:	11617 Hours at time of accident	Engine Manufacturer:	Lycoming
ELT:	Installed, activated, did not aid in locating accident	Engine Model/Series:	IO-540-E1B5
Registered Owner:	South Carolina Department of Natural Resources	Rated Power:	290 hp
Operator:	John William Madden	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	CHS, 46 ft msl	Distance from Accident Site:	1 Nautical Miles
Observation Time:	1318 EDT	Direction from Accident Site:	170°
Lowest Cloud Condition:	Few / 5500 ft agl	Visibility	10 Miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	12 knots / 15 knots	Turbulence Type Forecast/Actual:	/
Wind Direction:	160°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.29 inches Hg	Temperature/Dew Point:	26° C / 13° C
Precipitation and Obscuration:			
Departure Point:	MOUNT PLEASANT, SC (8S5)	Type of Flight Plan Filed:	Company VFR
Destination:	MOUNT PLEASANT, SC (8S5)	Type of Clearance:	VFR
Departure Time:	1140 EDT	Type of Airspace:	Class E

Airport Information

Airport:	EAST COOPER (8S5)	Runway Surface Type:	Asphalt
Airport Elevation:	12 ft	Runway Surface Condition:	Dry
Runway Used:	17	IFR Approach:	None
Runway Length/Width:	3700 ft / 75 ft	VFR Approach/Landing:	None

Wreckage and Impact Information

Crew Injuries:	1 Serious	Aircraft Damage:	Destroyed
Passenger Injuries:	1 Serious	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 Serious	Latitude, Longitude:	32.897778, -79.782778

Administrative Information

Investigator In Charge (IIC):	Eric H Alleyne	Report Date:	06/28/2006
Additional Participating Persons:	Lewis Blackwell; Columbia FSDO; Columbia, SC		
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 pubinquiry@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](#).