



National Transportation Safety Board Aviation Accident Final Report

Location:	RAVENNA, OH	Accident Number:	NYC99LA005
Date & Time:	10/08/1998, 0255 EDT	Registration:	N3543A
Aircraft:	Piper PA-31-350	Aircraft Damage:	Destroyed
Defining Event:		Injuries:	1 None

Flight Conducted Under: Part 91: General Aviation - Positioning

Analysis

The pilot departed on a night multiple-leg flight series with full tanks. On approach for the second landing, the green landing gear lights extinguished. The pilot discovered that if the landing gear was extended the circuit breaker would stay in and if the landing gear was retracted the circuit breaker would pop. The circuit breaker controlled the landing gear lights, the engine oil pressure, and both fuel quantity gauges. The pilot continued on four additional flights in that condition. The fourth flight terminated 5 miles from the runway with a double power loss. Examination revealed the fuel tanks were empty. The pilot had flown the airplane 4.3 hours including 6 takeoffs, one missed approach, and a 20 minute ground run prior to departure with both engines running on the final flight.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's improper decision to continue to operate the airplane with inoperative equipment which resulted in fuel exhaustion. Factors were the inoperative fuel quantity gauges, and the night conditions.

Findings

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

Findings

1. (F) LIGHT CONDITION - DARK NIGHT
2. (F) ENGINE INSTRUMENTS,FUEL QUANTITY GAGE - INOPERATIVE
3. (C) OPERATION WITH KNOWN DEFICIENCIES IN EQUIPMENT - INTENTIONAL - PILOT IN COMMAND
4. (C) FLUID,FUEL - EXHAUSTION
5. ALL ENGINES

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

Occurrence #3: IN FLIGHT COLLISION WITH OBJECT
Phase of Operation: DESCENT - EMERGENCY

Findings

6. OBJECT - TREE(S)

Factual Information

On October 8, 1998, about 0255 eastern daylight time, a Piper PA-31-350, N3543A, operated by Castle Aviation, was destroyed during a forced landing near Ravenna, Ohio. The certificated commercial pilot was not injured. Night visual meteorological conditions prevailed for the positioning flight, which had departed from Detroit, Michigan (DTW). The flight was operated on an instrument flight rules (IFR) flight plan under 14 CFR Part 91.

Interviews with an inspector from the Federal Aviation Administration (FAA) disclosed that the flight had originated earlier in the evening from Portage County Airport (29G), Ravenna, with full fuel tanks (182 gallons of useable fuel). The pilot operated the airplane on a series of positioning flights under 14 CFR Part 91, and when cargo was carried, the flights were operated under 14 CFR Part 135.

The pilot told the FAA Inspectors that on the second leg of the flight, while on final approach, the green "landing gear down and locked" lights failed to illuminate. The pilot performed a missed approach and while being vectored for the ILS a second time, noticed that a circuit breaker had popped, and reset it. The pilot also reported that the circuit breaker would not stay reset as long as the landing gear was retracted. However, when the landing gear was extended, the circuit breaker would stay reset. After landing, the pilot departed on the next leg of his flight series, and continued to operate the airplane in this condition for four additional flights.

At the completion of the last cargo flight which terminated in DTW, the pilot was asked by company personnel if he had sufficient fuel for the return flight to 29G, and replied that he did.

The pilot reported that en route to 29G, he used the remaining fuel in the auxiliary tanks and then switched to the main tanks. While on a descent, about 2,600 feet mean sea level (MSL), and maneuvering for a visual approach, the engines started surging and subsequently lost power. The pilot then performed a forced landing in a wooded area about 5 miles east of the airport.

Examination of the airplane by FAA Inspectors revealed that all fuel tanks were empty, and the airplane had flown 4.3 hours since being refueled. During that time, the pilot performed six takeoffs, two approaches with higher than normal speeds at the request of approach control, and one missed approach to a second ILS approach. The pilot also incurred a 20 minute ground delay with both engines operating prior to his final departure.

The pilot also told the FAA Inspectors that the fuel gauges indicated between 1/4 and 1/2 on the main fuel tanks prior to departure from DTW. Examination by FAA Inspectors revealed that with no electrical power on the fuel quantity measuring system, the left fuel tank gauge read 1/4 and the right fuel tank gauge read 1/3.

Examination of electrical wiring diagram for the Piper PA-31-350 revealed that the circuit breaker that had popped when the landing gear was retracted, controlled the landing gear lights, the oil pressure indications for both engines, and both fuel quantity gauges.

The toxicological testing report from the Ohio State Highway Crime Lab, Columbus, Ohio, was negative for drugs and alcohol for the pilot.

Pilot Information

Certificate:	Flight Instructor; Commercial	Age:	40, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	Airplane Multi-engine; Airplane Single-engine; Instrument Airplane	Toxicology Performed:	Yes
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim.	Last FAA Medical Exam:	02/04/1998
Occupational Pilot:		Last Flight Review or Equivalent:	
Flight Time:	2370 hours (Total, all aircraft), 80 hours (Total, this make and model), 2200 hours (Pilot In Command, all aircraft), 85 hours (Last 90 days, all aircraft), 50 hours (Last 30 days, all aircraft), 4 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	Registration:	N3543A
Model/Series:	PA-31-350 PA-31-350	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	31-7952242
Landing Gear Type:	Retractable - Tricycle	Seats:	3
Date/Type of Last Inspection:	10/02/1998, Continuous Airworthiness	Certified Max Gross Wt.:	7368 lbs
Time Since Last Inspection:	18 Hours	Engines:	2 Reciprocating
Airframe Total Time:	10112 Hours	Engine Manufacturer:	Lycoming
ELT:	Installed, activated, did not aid in locating accident	Engine Model/Series:	TIO-540-J2BD
Registered Owner:	CASTLE AVIATION	Rated Power:	350 hp
Operator:	CASTLE AVIATION	Operating Certificate(s) Held:	On-demand Air Taxi (135)
Operator Does Business As:		Operator Designator Code:	CSJA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Night/Dark
Observation Facility, Elevation:	, 0 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	0000	Direction from Accident Site:	0°
Lowest Cloud Condition:	Unknown / 0 ft agl	Visibility	3 Miles
Lowest Ceiling:	Broken / 800 ft agl	Visibility (RVR):	0 ft
Wind Speed/Gusts:	Calm /	Turbulence Type Forecast/Actual:	/
Wind Direction:	Variable	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29 inches Hg	Temperature/Dew Point:	13° C / 13° C
Precipitation and Obscuration:			
Departure Point:	DETROIT, MI (DTW)	Type of Flight Plan Filed:	IFR
Destination:	(29G)	Type of Clearance:	IFR
Departure Time:	0210 EDT	Type of Airspace:	Class E

Airport Information

Airport:	PORTAGE COUNTY AIRPORT (29G)	Runway Surface Type:	Asphalt
Airport Elevation:	1197 ft	Runway Surface Condition:	Wet
Runway Used:	27	IFR Approach:	Visual
Runway Length/Width:	3500 ft / 75 ft	VFR Approach/Landing:	None

Wreckage and Impact Information

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

Administrative Information

Investigator In Charge (IIC):	ROBERT L HANCOCK	Report Date:	03/31/2000
Additional Participating Persons:	PAUL HALVERSON; CLEVELAND, OH		
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 , 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](#).