



AVIATION



HIGHWAY



MARINE



RAILROAD



PIPELINE

Aviation Investigation Final Report

Location:	UVALDE, Texas	Accident Number:	FTW98LA285
Date & Time:	June 28, 1998, 14:00 Local	Registration:	N8445J
Aircraft:	Cessna 150G	Aircraft Damage:	Substantial
Defining Event:		Injuries:	2 Serious
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The airplane impacted the ground in an uncontrolled descent following an inadvertent stall by the 600-hour commercial pilot during the initial takeoff climb from the 3,300 foot paved runway. Density altitude was 3,500 feet. The takeoff flap setting was at least 10 degrees of flaps, although the Cessna 150 owner's manual recommends the use of 10 degrees flaps only for takeoff from soft or rough fields with no obstacles ahead. According to the pilot-rated passenger, during the takeoff roll, the pilot 'kept the nose wheel at a high angle,' and the airplane 'lumbered' off the ground. After completing a left turn to avoid obstacles, the pilot added more flaps, and the airplane stalled and impacted the ground in a nose down attitude. Although the pilot reported a gradual loss of engine power, the passenger did not, and an examination of the engine revealed no evidence of any mechanical discrepancies. In the 90 days before the accident, the pilot had flown 64 hours; however, 60 of these hours were in multi-engine airplanes, and only 2 hours were in a Cessna 150.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's improper use of the flaps which resulted in an inadvertent stall during the initial takeoff climb. Factors were his lack of recent experience in the make and model of airplane and the high density altitude.

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT

Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings

1. (F) WEATHER CONDITION - HIGH DENSITY ALTITUDE
2. (C) FLAPS - IMPROPER USE OF - PILOT IN COMMAND
3. (C) STALL - INADVERTENT - PILOT IN COMMAND
4. (F) LACK OF RECENT EXPERIENCE IN TYPE OF AIRCRAFT - PILOT IN COMMAND

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER

Phase of Operation: DESCENT - UNCONTROLLED

Factual Information

HISTORY OF FLIGHT

On June 28, 1998, approximately 1400 central daylight time, a Cessna 150G airplane, N8445J, impacted the ground in an uncontrolled descent following takeoff from the Benson Airport, Uvalde, Texas. The commercial pilot and his pilot-rated passenger sustained serious injuries. The airplane, which was registered to and operated by a private individual, was substantially damaged. No flight plan was filed and visual meteorological conditions prevailed for the Title 14 CFR Part 91 personal cross country flight to Del Rio, Texas.

According to the operator, he asked the commercial pilot to fly the airplane from the Del Rio International Airport to the Benson Airport to pick up the pilot-rated passenger who was dropping his Cessna 182 off at a maintenance facility on the Benson Airport. Prior to the accident airplane's departure from Del Rio, the operator and the passenger "filled the airplane with 100LL."

The commercial pilot reported that during his pre-flight inspection, prior to departing Del Rio, he "determined that there was between 1/2 - 3/4 of a load of fuel on the airplane." After completing the flight of "about one hour" to the Benson Airport, he "got out of the aircraft, accomplished a post-flight and checked the winds," which he found were "calm." He "decided to takeoff to the northwest because the winds were still calm and that was the direction back to Del Rio." The passenger boarded the airplane, and the airplane departed on runway 33 "with 10 degrees of flaps set." The pilot stated that he used 10 degrees of flaps "because that's how I learned with the Cessna 150 and that's what I've always done."

According to the pilot, the takeoff was "normal;" however, "at approximately 200 ft. AGL," the flight encountered turbulence, and "the airspeed quickly decreased to 60 MPH." The pilot attempted to maintain level flight "but a definite downdraft was noticed." He initiated and completed a "shallow left turn" to avoid obstacles. He then "noticed the RPMs were decreasing through 2,300 RPM even though full throttle was maintained the whole time." The pilot stated that "level flight was no longer possible," and "with a forced landing inevitable, the flaps were lowered to slow the aircraft as much as possible."

The passenger reported that after he boarded the airplane, the pilot started the engine and set the flaps. He looked out the window at the flaps and was "taken aback," because it appeared to be "a lot of flaps, at least 15 degrees, definitely more than 10 degrees." The passenger was expecting to back taxi on the runway for a takeoff to the south, and it surprised him when the pilot chose to depart to the north. During the takeoff roll, the pilot "kept the nose wheel at a high angle," and the airplane "lumbered" off the ground.

According to the passenger, he was concerned about obstacles off the end of the runway and told the pilot to turn left. The turn was completed and he was no longer worried about the obstacles; however, the airplane was "still teetering on the edge of a stall." The pilot reached for the flap control and added more flaps. "Within seconds, the airplane stalled, the nose dropped, and the airplane hit the ground." The passenger stated that there was "nothing wrong with the engine." He further stated that the airplane "could not get airspeed due to too much flaps and the nose being too high, resulting in too much drag."

PERSONNEL INFORMATION

The pilot held a commercial pilot certificate with airplane single and multi-engine land and instrument ratings. He also held a current flight instructor certificate with airplane single engine land and instrument ratings. On the Pilot/Operator Aircraft Accident Report (NTSB Form 6120.1/2), the pilot reported that he had a total flight time of 600 hours of which 50 hours were in a Cessna 150. In the 90 days prior to the accident, he flew 64 hours (60 hours in multi-engine airplanes and 4 hours in single engine airplanes) of which 2 hours were in a Cessna 150.

AIRCRAFT INFORMATION

Review of the 1967 model airplane's maintenance records by an FAA airworthiness inspector revealed no evidence of any uncorrected maintenance discrepancies. Estimates of the airplane's weight and balance at the time of the accident indicated it was within limits.

The 1967 Cessna 150 Owner's Manual contained the following information on takeoff flap settings:

Normal and obstacle clearance take-offs are performed with flaps up. The use of 10 degrees flaps will shorten the ground run approximately 10%, but this advantage is lost in the climb to a 50-foot obstacle. Therefore, the use of 10 degrees flap is reserved for minimum ground runs or for take-off from soft or rough fields with no obstacles ahead.

If 10 degrees of flaps are used in ground runs, it is preferable to leave them extended rather than retract them in the climb to the obstacle. The exception to this rule would be in a high altitude take-off in hot weather where climb would be marginal with flaps 10 degrees.

Flap deflections of 30 degrees and 40 degrees are not recommended at any time for take-off.

METEOROLOGICAL INFORMATION

At 1351, the Automated Surface Observing System (ASOS) at the Hondo Municipal Airport, field elevation 930 feet msl, located 35 nautical miles east-northeast of the accident site,

recorded the following weather conditions: wind from 130 degrees at 12 knots, temperature 34.4 degrees C, and altimeter setting 29.91 inches of mercury. Using these conditions, a density altitude of 3,500 feet was calculated by the NTSB investigator-in-charge (IIC).

At 1353, the ASOS at the Del Rio International Airport, field elevation 999 feet msl, located 57 nautical miles west of the accident site, reported the following weather conditions: wind from 130 at 11 knots, temperature 36.1 degrees C, and altimeter setting 29.84 inches of mercury. Using these conditions, a density altitude of 3,800 feet was calculated by the IIC.

The pilot reported that the temperature at the time of the accident was 95 degrees F (35 degrees C). Using this temperature and standard pressure of 29.92 inches of mercury, a density altitude of 3,500 feet was calculated by the IIC.

AERODROME INFORMATION

The Benson Airport is a privately owned airport located about 2 miles northwest of Uvalde, Texas. It has one paved asphalt runway, runway 15/33, which is 3,300 feet long. The field elevation is 929 feet msl.

WRECKAGE AND IMPACT INFORMATION

According to the FAA inspector who responded to the accident site, the airplane came to rest in the inverted position, in a field about 1 mile northwest of the Benson Airport. The inspector reported that the lower cowling and lower firewall were crushed, and the nose landing gear was torn from its mount. The right flap appeared to have been cut from the flap tracks to facilitate rescue operations. The left flap was "near the full down [40 degree] position based on roller position" in the flap tracks.

At the request of the NTSB IIC, a Cessna representative examined the airplane after it was recovered to the Benson Airport and measured the extension of the flap jack screw at 5.5 to 5.6 inches. According to the Cessna representative, a jack screw extensions of 4.9 and 5.9 inches correspond to flap settings of 30 and 40 degrees, respectively.

TESTS AND RESEARCH

On August 5, 1998, the engine, a Continental O-200-A, S/N 213080-70A, was examined at the operator's ranch in Brackettville, Texas, by a Continental representative under the supervision of an FAA inspector. According to the Continental representative, the engine was intact with the carburetor and the vacuum pump separated and the left magneto partially separated. Continuity was confirmed to all of the cylinders and to the accessory drive gears by hand rotating the crankshaft. Thumb compression was noted on all of the cylinders. Both magnetos sparked at all terminals when hand rotated. The spark plugs had "moderate wear" and light deposits in the electrode areas. The carburetor was disassembled, and the float and needle valve were found attached and free to move.

Pilot Information

Certificate:	Commercial; Flight instructor	Age:	27,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	Airplane single-engine; Instrument airplane	Toxicology Performed:	No
Medical Certification:	Class 1 Valid Medical--no waivers/lim.	Last FAA Medical Exam:	February 28, 1997
Occupational Pilot:	UNK	Last Flight Review or Equivalent:	
Flight Time:	600 hours (Total, all aircraft), 50 hours (Total, this make and model), 520 hours (Pilot In Command, all aircraft), 64 hours (Last 90 days, all aircraft), 22 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	Registration:	N8445J
Model/Series:	150G 150G	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	15066345
Landing Gear Type:	Tricycle	Seats:	2
Date/Type of Last Inspection:	January 31, 1998 Annual	Certified Max Gross Wt.:	1600 lbs
Time Since Last Inspection:	36 Hrs	Engines:	1 Reciprocating
Airframe Total Time:	4908 Hrs	Engine Manufacturer:	Continental
ELT:	Installed, activated, aided in locating accident	Engine Model/Series:	O-200-A
Registered Owner:	KENNETH R. PHILLIPS	Rated Power:	100 Horsepower
Operator:		Operating Certificate(s) Held:	On-demand air taxi (135)
Operator Does Business As:	PHILLIPS AIR CHARTER	Operator Designator Code:	PCZA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:		Distance from Accident Site:	
Observation Time:		Direction from Accident Site:	
Lowest Cloud Condition:	Clear	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	/ None	Turbulence Type Forecast/Actual:	/
Wind Direction:	0°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:		Temperature/Dew Point:	35°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	(2XS8)	Type of Flight Plan Filed:	None
Destination:	DEL RIO (DRT)	Type of Clearance:	None
Departure Time:	14:00 Local	Type of Airspace:	Class G

Airport Information

Airport:	BENSON 2XS8	Runway Surface Type:	Asphalt
Airport Elevation:	929 ft msl	Runway Surface Condition:	Dry
Runway Used:	33	IFR Approach:	None
Runway Length/Width:	3300 ft / 50 ft	VFR Approach/Landing:	None

Wreckage and Impact Information

Crew Injuries:	1 Serious	Aircraft Damage:	Substantial
Passenger Injuries:	1 Serious	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 Serious	Latitude, Longitude:	29.209249,-99.779006(est)

Administrative Information

Investigator In Charge (IIC): Snyder, Georgia

Additional Participating Persons: DAVID G WAGNER; SAN ANTONIO , TX
JOHN T KENT; MOBILE , AL
HENRY J SODERLUND; WICHITA , KS

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Last Revision Date:

Investigation Class: [Class](#)

Note:

Investigation Docket: <https://data.nts.gov/Docket?ProjectID=20663>

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