Aviation Investigation Final Report

Location:	Killeen, Texas	**Accident Number:**	GAA18CA300
Date & Time:	May 17, 2018, 11:00 Local	**Registration:**	N7750F
Aircraft:	Cessna 150	**Aircraft Damage:**	Substantial
Defining Event:	Miscellaneous/other	**Injuries:**	1 None
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

The pilot reported that, during a max performance takeoff, he set the flaps to 10° and accelerated to 60 mph. He pulled back and pitched the airplane for Vx (best angle climb), 52 mph, to simulate an obstacle, and then pitched for Vy (best rate climb), 72 mph, where he observed that the airplane was descending. He pitched back to gain altitude but immediately heard the stall warning horn and felt a lack of responsiveness in the flight controls. He leveled the airplane to touch down on the remaining runway, but the right wing and right horizontal stabilizer impacted the runway.

The airplane sustained substantial damage to the right wing and right horizontal stabilizer.

The pilot reported that the cause of the accident was that the published Vx airspeed was below the stall speed.

The pilot reported that there were no preaccident mechanical failures or malfunctions with the airplane that would have precluded normal operation but that it was possible that the engine was not performing at optimal performance.

The airplane owner's manual checklist titled "Maximum Performance Take-Off" stated:

1. *Wing Flaps – Up.*

2. *Carburetor Heat – Cold.*

3. *Brakes – Hold.*

4. *Throttle – Full "OPEN."*

5. *Brakes – Release.*

6. *Elevator Control – Slightly tail low.*

7. *Climb Speed – 52 MPH (with obstacles head).*

The manual also stated:

Normal and obstacle clearance take-offs are performed with flaps up. The use of 10° 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° flap is reserved for minimum ground runs or for take-off from soft or rough fields with no obstacles ahead.

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 adequate airspeed and his exceedance of the airplane's critical angle of attack during a maximum performance takeoff, which resulted in an aerodynamic stall. Also causal was the pilot's failure to use the appropriate flap setting in accordance with the manufacturer's Maximum Performance Takeoff checklist.

Findings

Aircraft	Angle of attack - Capability exceeded
Aircraft	Airspeed - Not attained/maintained
Aircraft	TE flap control system - Incorrect use/operation
Personnel issues	Aircraft control - Pilot
Personnel issues	Use of checklist - Pilot

Factual Information

History of Flight

Takeoff	Miscellaneous/other (Defining event)
Takeoff	Aerodynamic stall/spin
Takeoff	Collision with terr/obj (non-CFIT)

Pilot Information

Certificate:	Commercial	**Age:**	40,Male
Airplane Rating(s):	Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	Lap only
Instrument Rating(s):	Airplane; Helicopter	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 1 Without waivers/limitations	**Last FAA Medical Exam:**	February 26, 2018
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	August 17, 2017
Flight Time:	(Estimated) 492 hours (Total, all aircraft), 60 hours (Total, this make and model), 460 hours (Pilot In Command, all aircraft), 43 hours (Last 90 days, all aircraft), 20 hours (Last 30 days, all aircraft), 5 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N7750F
Model/Series:	150 F	**Aircraft Category:**	Airplane
Year of Manufacture:	1966	**Amateur Built:**	
Airworthiness Certificate:	Utility	**Serial Number:**	15063850
Landing Gear Type:	Tricycle	**Seats:**	2
Date/Type of Last Inspection:	March 7, 2018 Annual	**Certified Max Gross Wt.:**	1600 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	CONT MOTOR
ELT:	Installed, not activated	**Engine Model/Series:**	O-200 SERIES
Registered Owner:		**Rated Power:**	100 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:	KILE,841 ft msl	**Distance from Accident Site:**	0 Nautical Miles
Observation Time:	15:56 Local	**Direction from Accident Site:**	108°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	None / None
Wind Direction:		**Turbulence Severity Forecast/Actual:**	N/A / N/A
Altimeter Setting:	29.93 inches Hg	**Temperature/Dew Point:**	29°C / 20°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Killeen, TX (ILE)	**Type of Flight Plan Filed:**	None
Destination:	Grand Prairie, TX (GPM)	**Type of Clearance:**	None
Departure Time:	11:00 Local	**Type of Airspace:**	Class E

Airport Information

Airport:	SKYLARK FIELD ILE	**Runway Surface Type:**	Asphalt
Airport Elevation:	847 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	01	**IFR Approach:**	None
Runway Length/Width:	5495 ft / 100 ft	**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 None	**Latitude, Longitude:**	31.084167,-97.687225(est)

Administrative Information

Investigator In Charge (IIC):	Benhoff, Kathryn
Additional Participating Persons:	Christian Morales; FAA; San Antonio, TX
Original Publish Date:	October 24, 2018
Note:	This accident report documents the factual circumstances of this accident as described to the NTSB.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=97324