



# Aviation Investigation Final Report

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

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## 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 V<sub>x</sub> (best angle climb), 52 mph, to simulate an obstacle, and then pitched for V<sub>y</sub> (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 V<sub>x</sub> 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

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

## Factual Information

### History of Flight

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

### Pilot Information

<b>Certificate:</b>	Commercial	<b>Age:</b>	40, Male
<b>Airplane Rating(s):</b>	Multi-engine land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	Helicopter	<b>Restraint Used:</b>	Lap only
<b>Instrument Rating(s):</b>	Airplane; Helicopter	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 1 Without waivers/limitations	<b>Last FAA Medical Exam:</b>	February 26, 2018
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	August 17, 2017
<b>Flight Time:</b>	(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

<b>Aircraft Make:</b>	Cessna	<b>Registration:</b>	N7750F
<b>Model/Series:</b>	150 F	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>	1966	<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Utility	<b>Serial Number:</b>	15063850
<b>Landing Gear Type:</b>	Tricycle	<b>Seats:</b>	2
<b>Date/Type of Last Inspection:</b>	March 7, 2018 Annual	<b>Certified Max Gross Wt.:</b>	1600 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>		<b>Engine Manufacturer:</b>	CONT MOTOR
<b>ELT:</b>	Installed, not activated	<b>Engine Model/Series:</b>	O-200 SERIES
<b>Registered Owner:</b>	On file	<b>Rated Power:</b>	100 Horsepower
<b>Operator:</b>	On file	<b>Operating Certificate(s) Held:</b>	None

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	KILE,841 ft msl	<b>Distance from Accident Site:</b>	0 Nautical Miles
<b>Observation Time:</b>	15:56 Local	<b>Direction from Accident Site:</b>	108°
<b>Lowest Cloud Condition:</b>	Clear	<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	None	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	/	<b>Turbulence Type Forecast/Actual:</b>	None / None
<b>Wind Direction:</b>		<b>Turbulence Severity Forecast/Actual:</b>	N/A / N/A
<b>Altimeter Setting:</b>	29.93 inches Hg	<b>Temperature/Dew Point:</b>	29°C / 20°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Killeen, TX (ILE )	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>	Grand Prairie, TX (GPM )	<b>Type of Clearance:</b>	None
<b>Departure Time:</b>	11:00 Local	<b>Type of Airspace:</b>	Class E

## Airport Information

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

## Wreckage and Impact Information

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

## Administrative Information

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

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