



# Aviation Investigation Final Report

<b>Location:</b>	Garwood, Texas	<b>Accident Number:</b>	CEN18LA152
<b>Date &amp; Time:</b>	April 27, 2018, 18:00 Local	<b>Registration:</b>	N6637
<b>Aircraft:</b>	Grumman G 164A	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Loss of engine power (partial)	<b>Injuries:</b>	1 None
<b>Flight Conducted Under:</b>	Part 137: Agricultural		

## Analysis

The commercial pilot was departing on an agricultural application flight when the engine experienced a partial loss of power shortly after takeoff. The pilot released part of the load of fertilizer and attempted to land in a nearby field. The airplane contacted a levee during the landing, which separated the landing gear. The airplane became airborne again, then settled back onto the ground and subsequently nosed over. The reported weather conditions were conducive to serious carburetor icing at glide power; however, the airplane was operating at a high power setting for takeoff. Therefore, it is unlikely that carburetor icing was present. A postaccident examination of the engine did not reveal any mechanical malfunctions or anomalies and the reason for the partial loss of power could not be determined.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: A partial loss of engine power for reasons that could not be determined because postaccident examination of the engine did not reveal any anomalies that would have precluded normal operation.

## Findings

<b>Not determined</b>	(general) - Unknown/Not determined
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## Factual Information

### History of Flight

<b>Initial climb</b>	Loss of engine power (partial) (Defining event)
<b>Landing</b>	Collision with terr/obj (non-CFIT)
<b>Landing-flare/touchdown</b>	Landing gear collapse
<b>Landing-flare/touchdown</b>	Nose over/nose down

On April 27, 2018, at 1800 central daylight time, a Grumman G-164A airplane, nosed over during an off airport forced landing in Garwood, Texas. The pilot was not injured. The airplane was substantially damaged. The airplane was registered to and operated by Aero Ag Services Inc., as a Title 14 *Code of Federal Regulations* Part 137 aerial application flight. Day visual meteorological conditions prevailed. The flight was not operated on flight plan. The local flight was originating from a private airstrip in Garwood, Texas, when the accident occurred.

The pilot reported that he was taking off with a full load of fertilizer on the 28TH flight of the day when the accident occurred. He stated the ground run and lift off were normal. After lifting off, he began a turn and reduced the engine power to 32 inches of manifold pressure. He then felt a "slight shudder" and an additional reduction in engine power with no sputtering or backfiring. Although the manifold pressure still indicated 32 inches of manifold pressure and the propeller was at full rpm, the pilot decided to return to the airstrip. As he turned, the pilot perceived that the engine was not producing power, so he leveled the wings, lowered the nose, and dumped some of the fertilizer load. The airplane contacted a levee during the forced landing which separated the landing gear and the airplane becoming airborne. The airplane touched down a second time and nosed over.

A postaccident examination of the engine was conducted on September 12, 2018, at Air Salvage of Dallas, Lancaster, Texas. One propeller blade was bent rearward about 70° and the other was slightly bent rearward. The carburetor was broken off the engine. Both magnetos produced spark when rotated by hand. Engine continuity was established, and compression was achieved on all cylinders except for the No. 5 cylinder that sustained impact damage. The spark plugs were removed. All the plugs were slightly dark in color with normal wear signatures. The blower impeller was visually examined and appeared normal. The impeller appeared to have excessive backlash, about 0.750 inches, but there was no end play and no signs of contact between the impeller and the case. No metal was detected in the oil sump or inlet screen. The air box and air filter were clear of debris. The carburetor heat door was wired in the open/off position. The examination of the engine did not reveal any anomalies that would have precluded normal operation.

The temperature and dewpoint recorded at the Wharton Regional Airport (ARM), Wharton, Texas, located 23 miles southeast of the accident site, at 1815 were 77°F and 48°F respectively. According to the Federal Aviation Administration SAIB CE-09-35 Carburetor Icing Probability Chart those conditions were favorable for serious carburetor icing at glide power.

## Pilot Information

<b>Certificate:</b>	Commercial	<b>Age:</b>	29,Male
<b>Airplane Rating(s):</b>	Single-engine land	<b>Seat Occupied:</b>	Center
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	4-point
<b>Instrument Rating(s):</b>	None	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 2 Without waivers/limitations	<b>Last FAA Medical Exam:</b>	December 28, 2017
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	January 5, 2017
<b>Flight Time:</b>	2140 hours (Total, all aircraft), 1125 hours (Total, this make and model), 2115 hours (Pilot In Command, all aircraft), 240 hours (Last 90 days, all aircraft), 40 hours (Last 30 days, all aircraft), 6 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Grumman	<b>Registration:</b>	N6637
<b>Model/Series:</b>	G 164A	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>	1970	<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Restricted (Special)	<b>Serial Number:</b>	766
<b>Landing Gear Type:</b>	Tailwheel	<b>Seats:</b>	1
<b>Date/Type of Last Inspection:</b>	February 28, 2018 Annual	<b>Certified Max Gross Wt.:</b>	6000 lbs
<b>Time Since Last Inspection:</b>	20 Hrs	<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	17000 Hrs	<b>Engine Manufacturer:</b>	Pratt & Whitney
<b>ELT:</b>	Not installed	<b>Engine Model/Series:</b>	R-1340-AN1
<b>Registered Owner:</b>		<b>Rated Power:</b>	600 Horsepower
<b>Operator:</b>		<b>Operating Certificate(s) Held:</b>	Agricultural aircraft (137)

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	KARM,100 ft msl	<b>Distance from Accident Site:</b>	23 Nautical Miles
<b>Observation Time:</b>	18:15 Local	<b>Direction from Accident Site:</b>	118°
<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>	7 knots /	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	10°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	30.01 inches Hg	<b>Temperature/Dew Point:</b>	25°C / 9°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Garwood, TX (PVT )	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>	Garwood, TX (PVT )	<b>Type of Clearance:</b>	None
<b>Departure Time:</b>		<b>Type of Airspace:</b>	Class G

## Airport Information

<b>Airport:</b>	Private PVT	<b>Runway Surface Type:</b>	Dirt
<b>Airport Elevation:</b>	178 ft msl	<b>Runway Surface Condition:</b>	Rough
<b>Runway Used:</b>		<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>		<b>VFR Approach/Landing:</b>	Forced landing

## 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>	29.444723,-96.399169

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Sullivan, Pamela
<b>Additional Participating Persons:</b>	Peter Branson; FAA; Houston, TX
<b>Original Publish Date:</b>	March 18, 2019
<b>Note:</b>	The NTSB did not travel to the scene of this accident.
<b>Investigation Docket:</b>	<a href="https://data.nts.gov/Docket?ProjectID=97131">https://data.nts.gov/Docket?ProjectID=97131</a>

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