



# National Transportation Safety Board Aviation Accident Final Report

---

<b>Location:</b>	Leesburg, VA	<b>Accident Number:</b>	ERA17LA165
<b>Date &amp; Time:</b>	04/22/2017, 0915 EDT	<b>Registration:</b>	N212AG
<b>Aircraft:</b>	GANJOO AMIT SONEX	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Loss of engine power (total)	<b>Injuries:</b>	1 None
<b>Flight Conducted Under:</b>	Part 91: General Aviation - Personal		

---

## Analysis

The private pilot checked the weather conditions before departure for the personal flight, and he noted that it was drizzling but that the cloud/ceilings were "good." Once airborne, the weather conditions began to deteriorate, and the pilot chose to return to the airport. The pilot added that, while the airplane was on final approach to land at 700 ft above ground level (agl), the engine "just stopped." The pilot attempted to restart the engine to no avail, and he subsequently initiated a forced landing just short of the runway. The pilot said that the airplane "ran out of airspeed" when it was about 100 ft agl and that it then landed hard and slid about 100 ft before coming to a stop.

Postaccident examination of the engine revealed no evidence of any preimpact mechanical malfunctions or failures that would have precluded normal operation. Weather conditions reported at the time of the accident were conducive for serious icing at cruise power. The pilot acknowledged that the weather conditions were conducive to carburetor icing but that he did not apply carburetor heat until he tried to restart the engine, and even then, that he did not use full carburetor heat. Therefore, it is likely that carburetor ice accumulated during the flight, which resulted in a total loss of engine power.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

The pilot's failure to use carburetor heat appropriately, which resulted in a total loss of engine power due to the formation of carburetor ice.

## Findings

<b>Aircraft</b>	Intake anti-ice, deice - Not used/operated (Cause)
<b>Personnel issues</b>	Lack of action - Pilot (Cause)
<b>Environmental issues</b>	Conducive to carburetor icing - Effect on operation (Cause)

## Factual Information

On April 22, 2017, about 0915 eastern daylight time, an experimental amateur-built Sonex, N212AG, was substantially damaged during a forced landing, while attempting to land at the Leesburg Executive Airport (JYO), Leesburg, Virginia. The private pilot was not injured. The airplane was registered to and operated by the pilot as a 14 *Code of Federal Regulations* Part 91 personal flight. Marginal visual meteorological conditions prevailed near the airport about the time of the accident, and no flight plan was filed. The flight originated from JYO about 0845 and was destined for the Blue Ridge Airport (MTV), Martinsville, Virginia.

The pilot stated that he purchased the airplane three months before the accident but had to wait for the weather to improve before he could fly the airplane back to his home in Washington state. On the day of the accident, he topped off the airplane's 16-gallon fuel tank and reviewed weather conditions along his intended route of flight. He said it was "drizzly" but the ceiling was "good." The pilot conducted a preflight inspection of the airplane and performed an engine run-up before he departed. The pilot said when he got about 20 miles south of the airport, weather conditions deteriorated, and he elected to turn back to Leesburg. When he was on final approach to runway 35 at an altitude of 700 ft, the engine "just stopped." The pilot attempted to re-start the engine, but to no avail, and he made a forced landing just short of the runway. The pilot said he "ran out of airspeed" when the airplane was about 100 ft above the ground, and that it then "pancaked" onto the ground and slid for about 100 ft before coming to a stop.

The pilot said that the weather conditions (high humidity and visible moisture) were conducive to carburetor icing, but he did not apply carburetor heat until he tried to re-start the engine. Even then, he did not use full carburetor heat. When the airplane was recovered, the pilot said he drained 13 gallons of fuel from the fuel tank and it was absent of debris and water.

A postaccident examination of the engine revealed that it rotated freely, and compression and valve train continuity was established for each cylinder. A borescope was used to examine the inside of each cylinder and no anomalies were noted. No oil leaks were observed, and oil was present in the sump. The magnetic drain plug was removed, and it was absent of debris. External and internal examination of the distributor, rotor, and points revealed no evidence of anomalies that would have precluded normal operation. Neither of the two ignition coils displayed any evidence of damage. Examination of the sparkplugs revealed the electrodes were gray in color and exhibited normal signatures. The carburetor heat linkage and air door were functional. External and internal examination of the carburetor revealed no evidence of malfunction, the accelerator pump was functional, the floats showed no sign of leakage, and the float bowl contained fluid consistent with 100LL Aviation Gasoline. The fuel was then tested with water finding paste and no water was detected.

The weather conditions reported at JYO, at 0915, included wind 010° at 8 knots, visibility 10 miles, light drizzle, scattered clouds 1,600 ft, broken clouds at 2,400 ft, overcast clouds at 3,600 ft, temperature 55° C, dewpoint 54° C, and a barometric altimeter setting of 29.94 in Hg.

The carburetor icing probability chart from Federal Aviation Administration (FAA) Special Airworthiness Information Bulletin (SAIB): CE-09-35 Carburetor Icing Prevention, June 30, 2009, shows a probability of serious icing at cruise power at the temperature and dew point reported at the time of the accident.

The pilot held a private pilot certificate with a rating for airplane single-engine land, and instrument airplane. His last FAA third class medical was issued on January 4, 2015. The pilot reported a total of 932 hours, of which, 2 hours were in the accident airplane.

### History of Flight

Approach-VFR pattern final	Other weather encounter Loss of engine power (total) (Defining event) Loss of control in flight
Landing	Off-field or emergency landing

### Pilot Information

Certificate:	Private	Age:	53, Male
Airplane Rating(s):	Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	3-point
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 3 With Waivers/Limitations	Last FAA Medical Exam:	01/04/2012
Occupational Pilot:	No	Last Flight Review or Equivalent:	03/11/2017
Flight Time:	932 hours (Total, all aircraft), 2 hours (Total, this make and model), 854 hours (Pilot In Command, all aircraft), 7 hours (Last 90 days, all aircraft), 5 hours (Last 30 days, all aircraft)		

## Aircraft and Owner/Operator Information

Aircraft Make:	GANJOO AMIT	Registration:	N212AG
Model/Series:	SONEX NO SERIES	Aircraft Category:	Airplane
Year of Manufacture:	2017	Amateur Built:	Yes
Airworthiness Certificate:	Experimental	Serial Number:	1470
Landing Gear Type:	Tailwheel	Seats:	2
Date/Type of Last Inspection:	08/03/2016, Annual	Certified Max Gross Wt.:	1250 lbs
Time Since Last Inspection:	3 Hours	Engines:	1 Reciprocating
Airframe Total Time:	72 Hours at time of accident	Engine Manufacturer:	Ganjo
ELT:	Installed, activated, did not aid in locating accident	Engine Model/Series:	Convair
Registered Owner:	On file	Rated Power:	120
Operator:	On file	Operating Certificate(s) Held:	None

## Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	JYO, 389 ft msl	Distance from Accident Site:	1 Nautical Miles
Observation Time:	0915 EDT	Direction from Accident Site:	170°
Lowest Cloud Condition:	Scattered / 1600 ft agl	Visibility	10 Miles
Lowest Ceiling:	Broken / 2400 ft agl	Visibility (RVR):	
Wind Speed/Gusts:	8 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	10°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29.94 inches Hg	Temperature/Dew Point:	13°C / 12°C
Precipitation and Obscuration:			
Departure Point:	Leesburg, VA (JYO)	Type of Flight Plan Filed:	None
Destination:	Martinsville, VA (MTV)	Type of Clearance:	None
Departure Time:	0845 EDT	Type of Airspace:	Class B

## Airport Information

Airport:	Leesburg (JYO)	Runway Surface Type:	N/A
Airport Elevation:	389 ft	Runway Surface Condition:	Soft; Vegetation; Wet
Runway Used:	N/A	IFR Approach:	None
Runway Length/Width:		VFR Approach/Landing:	Forced Landing

## Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 None	Latitude, Longitude:	39.068333, -77.552500 (est)

## Preventing Similar Accidents

### Preventing Carburetor Icing

Accidents involving carburetor ice stem from pilots not recognizing when weather conditions are favorable to carburetor icing and inaccurately believing that carburetor icing is only a cold- or wet-weather problem. Pilots also may not use the carburetor heat according to the aircraft's approved procedures to prevent carburetor ice formation. Carburetor icing accidents can occur when pilots do not recognize and promptly act upon the signs of carburetor icing.

Be sure to check the temperature and dew point to determine whether the conditions are favorable for carburetor icing. Remember, serious carburetor icing can occur in ambient temperatures as high as 90° F or in relative humidity conditions as low as 35 percent at glide power. Consider installing a carburetor temperature gauge, if available.

Refer to the approved aircraft flight manual or operating handbook to ensure that carburetor heat is used according to the approved procedures and properly perform the following actions: 1) Check the functionality of the carburetor heat before flight. 2) Use carburetor heat to prevent the formation of carburetor ice when operating in conditions and at power settings in which carburetor icing is probable. Remember, ground idling or taxiing time can allow carburetor ice to accumulate before takeoff. 3) Immediately apply carburetor heat at the first sign of carburetor icing, which typically includes a drop in rpm or manifold pressure (depending upon how your airplane is equipped). Engine roughness may follow.

Engines that run on automobile gas may be more susceptible to carburetor icing than engines that run on Avgas.

See [http://www.nts.gov/safety/safety-alerts/documents/SA\\_029.pdf](http://www.nts.gov/safety/safety-alerts/documents/SA_029.pdf) for additional resources.

The NTSB presents this information to prevent recurrence of similar accidents. Note that this should not be considered guidance from the regulator, nor does this supersede existing FAA Regulations (FARs).

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Leah D Read	<b>Report Date:</b>	04/04/2019
<b>Additional Participating Persons:</b>	Perry Benshoof; FAA/FSDO; Herndon, VA		
<b>Publish Date:</b>	04/04/2019		
<b>Note:</b>	The NTSB did not travel to the scene of this accident.		
<b>Investigation Docket:</b>	<a href="http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=95042">http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=95042</a>		

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](#).