



National Transportation Safety Board Aviation Accident Final Report

Location:	Jordan, MN	Accident Number:	CEN16LA369
Date & Time:	09/14/2016, 0910 CDT	Registration:	N715FB
Aircraft:	STINSON V77	Aircraft Damage:	Substantial
Defining Event:	Loss of engine power (partial)	Injuries:	1 None
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

The pilot was conducting a personal flight to break in the recently overhauled engine. After about 30 minutes, when the airplane was about 2,000 ft above ground level, the engine started to backfire and lose power. The pilot attempted to troubleshoot the problem by switching fuel tanks; adjusting the engine throttle, mixture, and propeller controls; and selecting the individual magneto positions, to no avail. He performed an emergency landing to a soft field; the airplane subsequently nosed over during the landing roll, and the rudder sustained substantial damage. Postaccident examinations of the airframe, engine, and magnetos found no mechanical malfunctions or failures that would have precluded normal operation. Weather conditions at the time of the accident were conducive to serious carburetor icing at cruise power. Thus, it is likely that the engine lost power due to serious carburetor icing.

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 due to carburetor icing.

Findings

Environmental issues	Conducive to carburetor icing - Effect on equipment (Cause) Conducive to carburetor icing - Ability to respond/compensate
-----------------------------	--

Factual Information

On September 14, 2016 about 0910 central daylight time (CDT), a Stinson V-77 airplane, N715FB, was substantially damaged during an accident near East Jordan, Minnesota. The airline transport pilot was not injured. The airplane was privately registered and operated under the provisions of Title 14 *Code of Federal Regulations* Part 91 as a personal flight. Visual meteorological conditions prevailed for the flight, and no flight plan was filed. The local flight departed South St. Paul Municipal Airport-Richard E Fleming Field (SGS), Minnesota, about 0820.

The pilot was conducting the flight to put additional break-in hours on a newly-installed engine. The engine had about 10 total hrs since overhaul and 2 hrs since the last inspection at the time of the accident. About 30 minutes after take off, and at 2,000 ft above the ground (AGL), the engine started to constantly backfire and lost power. The airplane was unable to maintain level flight due to the power loss. The pilot attempted to regain engine power; he switched fuel tanks, adjusted the engine throttle, fuel/ air mixture, and propeller controls, and selected the individual magneto positions. There was no subsequent increase of engine power or reduction of backfiring. The pilot performed an emergency landing to a soft field where the airplane nosed over during landing. The rudder sustained substantial damage.

An on-scene examination of the airplane by the Federal Aviation Administration (FAA) inspector revealed that the fuel selector was in the left tank position, the magneto switch was in the "BOTH" position, the primer was in and locked, the mixture was in the "RICH" position, the throttle was in the "CLOSED" position, and the propeller control was approximately ¼ back from the full-forward position.

An additional examination was conducted by the FAA inspector on October 5, 2016. The Bendix dual magneto timing was 34° before top-dead center (BTC) on the left and 30° BTC on the right. All spark plug leads were tight and in like-new condition. The magneto switch was checked and appeared to operate normally. Magneto lead continuity was confirmed. The magneto points were checked while rotating the propeller and they opened normally. Both magnetos sparked. Both coils appeared to have a good spark. The magneto was removed and bench tested. No anomalies were noted with the magneto.

The fuel system was examined and small amounts of liquid consistent with 100LL fuel were recovered from the carburetor bowl and the airframe gascolator. The carburetor was examined and no anomalies were noted. No pre-impact anomalies were noted with the airframe or engine that would have contributed to a partial loss of power.

The pilot reported a temperature of 50° F at the time of the accident. He did not know the dewpoint at the accident location. At 0853, the temperature and dewpoint at Minneapolis-St. Paul International/Wold-Chamberlain Airport (MSP), Minneapolis, Minnesota, located 25 miles northeast of the accident site, were reported as 54° F and 45° F respectively at 0853. According to the carburetor icing probability chart in FAA Special Airworthiness Information Bulletin CE-09-35, these conditions were conducive to serious icing at cruise power.

History of Flight

Enroute	Loss of engine power (partial) (Defining event)
---------	---

Pilot Information

Certificate:	Airline Transport; Flight Instructor; Commercial; Flight Engineer	Age:	60, Female
Airplane Rating(s):	Multi-engine Land; Single-engine Land; Single-engine Sea	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	Airplane Multi-engine; Airplane Single-engine; Instrument Airplane	Toxicology Performed:	No
Medical Certification:	Class 3 With Waivers/Limitations	Last FAA Medical Exam:	03/03/2015
Occupational Pilot:	No	Last Flight Review or Equivalent:	04/28/2015
Flight Time:	(Estimated) 16000 hours (Total, all aircraft), 281 hours (Total, this make and model), 10800 hours (Pilot In Command, all aircraft), 8 hours (Last 90 days, all aircraft), 3 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	STINSON	Registration:	N715FB
Model/Series:	V77 NO SERIES	Aircraft Category:	Airplane
Year of Manufacture:	1944	Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	77-443
Landing Gear Type:	Tailwheel	Seats:	3
Date/Type of Last Inspection:	08/24/2016, Annual	Certified Max Gross Wt.:	3999 lbs
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:	158 Hours as of last inspection	Engine Manufacturer:	LYCOMING
ELT:	C91A installed, not activated	Engine Model/Series:	R680-13
Registered Owner:	On file	Rated Power:	300 hp
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:	MSP	Distance from Accident Site:	25 Nautical Miles
Observation Time:	1353 UTC	Direction from Accident Site:	53°
Lowest Cloud Condition:	Few / 11000 ft agl	Visibility	10 Miles
Lowest Ceiling:		Visibility (RVR):	
Wind Speed/Gusts:	3 knots /	Turbulence Type Forecast/Actual:	/ None
Wind Direction:	30°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.34 inches Hg	Temperature/Dew Point:	12° C / 7° C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	SOUTH ST PAUL, MN (SGS)	Type of Flight Plan Filed:	None
Destination:	SOUTH ST PAUL, MN (SGS)	Type of Clearance:	None
Departure Time:	0820 CDT	Type of Airspace:	Class G

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:	44.668333, -93.632500 (est)

Administrative Information

Investigator In Charge (IIC):	Courtney Liedler	Report Date:	06/08/2020
Additional Participating Persons:	David R Nelson; FAA; Minneapolis, MN		
Publish Date:	06/08/2020		
Note:	The NTSB did not travel to the scene of this accident.		
Investigation Docket:	http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=94011		

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](#).