Aviation Investigation Final Report

Location:	Milan, Illinois	**Accident Number:**	CEN14LA134
Date & Time:	January 26, 2014, 17:17 Local	**Registration:**	N4VN
Aircraft:	Cessna 172K	**Aircraft Damage:**	Substantial
Defining Event:	Loss of engine power (total)	**Injuries:**	2 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot reported that the airplane experienced a total loss of engine power when he applied carburetor heat during a 1-mile final approach to the destination airport. The pilot then performed a forced landing to a field. Although the pilot stated that the engine rpm decreased when he actuated the carburetor heat during the preflight run-up, postaccident examinations revealed no mechanical anomalies with the carburetor or its heat system that would have precluded normal operation. Atmospheric conditions at the time of the accident were conducive to the accumulation of carburetor icing at glide and cruise power. It is likely that the pilot's delayed use of carburetor heat resulted in a total loss of engine power due to carburetor icing.

Probable Cause and Findings

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

The pilot's delayed use of carburetor heat while operating the airplane in atmospheric conditions conducive to carburetor icing, which resulted in a total loss of engine power due to carburetor icing during a short final approach.

Findings

Personnel issues	Delayed action - Pilot
Aircraft	Fuel control/carburetor - Incorrect use/operation
Environmental issues	Conducive to carburetor icing - Effect on equipment

Factual Information

History of Flight

Approach	Other weather encounter
Approach-VFR pattern final	Loss of engine power (total) (Defining event)
Emergency descent	Loss of engine power (total)
Landing	Collision with terr/obj (non-CFIT)

On January 26, 2014, at 1717 central standard time, a Cessna 172K, N4VN, experienced a total loss of engine power when the pilot applied carburetor heat during a visual approach to Quad City International Airport (MLI), Moline, Illinois. The pilot performed a forced landing to a field near Milan, Illinois. The airplane sustained substantial damage to the right wing. The commercial pilot and passenger were uninjured. Visual meteorological conditions prevailed at the time of the accident. The 14 CFR Part 91 personal flight was not operating on a flight plan. The flight originated from Davenport Municipal Airport, Davenport, Iowa, at 1615 and was destined to MLI.

The pilot stated that he applied carburetor heat after the MLI air traffic control tower issued a landing clearance for runway 31 after receiving a special visual flight rules clearance to the airport. When he applied carburetor heat about one mile from the runway, the engine quit. He performed a forced landing to a field and touched down at 10-15 mph.

The Federal Aviation Administration (FAA) Dupage Flight Standard District Office, West Chicago, Illinois, did not send an FAA maintenance inspector to examine the airplane on-scene following the accident. The National Transportation Safety Board Investigator-In-Charge (IIC) then requested that the airplane owner provide the carburetor and maintenance logbook copies for examination, which were provided by the owner. The airplane owner stated the mechanic who had performed that last annual inspection also installed the carburetor and then removed it for the post-accident examination. The airplane owner stated that during the post-accident removal of the carburetor, there were no mechanical anomalies with the carburetor heat system. The pilot stated that there was an engine rpm decrease when he checked the operation of carburetor heat during an engine run-up prior to departing on the accident flight.

The MLI Automated Surface Observing System (ASOS) recorded the following observation:

At 1715; special (unscheduled) report; wind – 340 degrees at 11 knots, gust - 21 knots; visibility – 1 statute mile; runway 9 runway visual range – 6,000 feet; weather phenomena - light frozen precipitation; sky condition - broken at 2,700 feet mean sea level, broken at 4,000 feet, overcast at 4,900 feet; temperature - -1 degree Celsius; dew point - -5 degrees Celsius; altimeter – 29.55 inches of mercury.

The pilot stated that the airplane did not enter any of the snow showers that were approaching MLI during the accident flight. He said that the snow showers arrived at MLI about 30 minutes after the accident.

Special Airworthiness Bulletin, CE-09-35, Carburetor Icing Prevention, includes a graph that shows the probability of carburetor icing for various temperature and relative humidity conditions. At a temperature and dew point as recorded by the MLI ASOS, there was a probability of icing in glide and cruise power.

The received carburetor was a Marvel Schebler MA-4-5, part number 10-3676, serial number MS820601, carburetor. Logbook copies included an Authorized Release Certificate, FAA Form 8130-3, which stated the carburetor was overhauled by Marvel-Schebler Aircraft Carburetors, LLC. The date of FAA Form 8130-3 was July 25, 2013.

Copies of logbook entry dated June 25, 2013, at a tachometer time of 4,571 hours, stated that an annual inspection was performed. An entry dated October 21, 2013, at a tachometer time of 4,626 hours, stated that the carburetor was [removed and replaced] with an overhauled carburetor, referencing Form 8130-2. The airplane owner said that the tachometer time at the time of the accident was 4,669 hours.

Post-accident disassembly examination of the airplane under the supervision of the IIC and an FAA inspector from Dupage Flight Standard District Office revealed that the fuel screen did not contain contaminant, the idle screw was extended about 2 ½ turns, and the throttle valve and float had clearances from the carburetor body that were within service manual specifications. All of the carburetor retaining hardware was in place and secure.

Pilot Information

Certificate:	Commercial	**Age:**	65
Airplane Rating(s):	Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Lap only
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	Powered-lift	**Toxicology Performed:**	No
Medical Certification:	Class 2 With waivers/limitations	**Last FAA Medical Exam:**	October 23, 2013
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	October 23, 2013
Flight Time:	16180 hours (Total, all aircraft), 663 hours (Total, this make and model), 16180 hours (Pilot In Command, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N4VN
Model/Series:	172K	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	17258242
Landing Gear Type:	Tricycle	**Seats:**	4
Date/Type of Last Inspection:	June 25, 2013 Annual	**Certified Max Gross Wt.:**	2300 lbs
Time Since Last Inspection:	98 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	4571 Hrs as of last inspection	**Engine Manufacturer:**	Lycoming O-360-A1A
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	L-14253-36A
Registered Owner:	AAXIOM CONSULTING LLC	**Rated Power:**	180 Horsepower
Operator:	Pilot	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	MLI,590 ft msl	**Distance from Accident Site:**	2 Nautical Miles
Observation Time:	16:52 Local	**Direction from Accident Site:**	130°
Lowest Cloud Condition:	Clear	**Visibility**	8 miles
Lowest Ceiling:	Overcast / 4600 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	13 knots / 21 knots	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	340°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.51 inches Hg	**Temperature/Dew Point:**	-1°C / -5°C
Precipitation and Obscuration:	Light - None - Snow		
Departure Point:	Davenport, IA (DVN)	**Type of Flight Plan Filed:**	None
Destination:	Milan, IL (MLI)	**Type of Clearance:**	Special VFR
Departure Time:	16:15 Local	**Type of Airspace:**	Class C

Airport Information

Airport:	Quad City International Airpor MLI	**Runway Surface Type:**	Asphalt;Concrete
Airport Elevation:	590 ft msl	**Runway Surface Condition:**	
Runway Used:	31	**IFR Approach:**	None
Runway Length/Width:	7301 ft / 150 ft	**VFR Approach/Landing:**	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 None	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 None	**Latitude, Longitude:**	41.440032,-90.559196(est)

Administrative Information

Investigator In Charge (IIC):	Gallo, Mitchell
Additional Participating Persons:	Spencer Cull; Federal Aviation Administration; DuPage FSDO; West Chicago, IL
Original Publish Date:	September 24, 2014
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=88792

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The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, "accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties … and are not conducted for the purpose of determining the rights or liabilities of any person" (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB's statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available here.