Aviation Investigation Final Report

Location:	Fryeburg, Maine	**Accident Number:**	NYC03LA055
Date & Time:	February 16, 2003, 14:30 Local	**Registration:**	N76897
Aircraft:	Cessna 140	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	2 None
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

During an instructional flight, about 2,500 feet msl, the CFI applied carburetor heat and set the engine power to idle for a simulated engine failure. The private pilot completed the emergency checklist items, and positioned the airplane for a simulated forced landing to a field. During the descent, the carburetor heat remained on, and the CFI occasionally cycled the throttle to clear the engine. About 15-20 feet above the field, the pilot attempted to add power for a go-around, but the engine did not respond. The CFI then took control of the airplane, and performed a forced landing to the field. A certificated mechanic examined the wreckage after the accident. The mechanic was able to rotate the propeller by hand, and did not note any discrepancies with the engine. He also observed adequate fuel in the airplane. The mechanic further stated that he believed the power loss occurred due to carburetor ice. On the make and model accident engine, the carburetor was situated below the engine, and more susceptible to carburetor ice. In addition, the carburetor heat relied on two cylinders, rather than all four. The mechanic was confident that carburetor ice caused the power loss, and did not attempt to disassemble the carburetor to look for ice. A Federal Aviation Administration inspector stated that she did not examine the wreckage, but the certificated mechanic had determined the power loss was due to carburetor ice.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: An in-flight encounter with carburetor ice, which resulted in a total loss of engine power during a simulated engine failure.

Findings

Occurrence #1: LOSS OF ENGINE POWER(TOTAL) - NONMECHANICAL
Phase of Operation: APPROACH

Findings
1. (C) WEATHER CONDITION - CARBURETOR ICING CONDITIONS
2. FUEL SYSTEM,CARBURETOR - ICE

Occurrence #2: FORCED LANDING
Phase of Operation: DESCENT - EMERGENCY

Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: EMERGENCY DESCENT/LANDING

Findings
3. TERRAIN CONDITION - SNOWBANK

Factual Information

On February 16, 2003, about 1430 eastern standard time, a Cessna 140, N76897, was substantially damaged during a forced landing to a field near Fryeburg, Maine. The certified flight instructor (CFI) and the private pilot were not injured. Visual meteorological conditions prevailed for the flight that departed Eastern Slopes Regional Airport (IZG), Fryeburg, Maine, about 1400. No flight plan was filed for the local instructional flight conducted under 14 CFR Part 91.

The private pilot stated that he had recently purchased the airplane, and was receiving flight instruction. The private pilot completed some maneuvers at an altitude of 2,500-3,000 feet msl, and about 1430, the CFI applied carburetor heat while setting the engine power to idle for a simulated engine failure.

The private pilot completed the emergency checklist items, and positioned the airplane for a simulated forced landing to a field. During the descent, the carburetor heat remained on, and the CFI occasionally cycled the throttle to "clear the engine."

About 15-20 feet above the field, the pilot attempted to add power for a go-around, but the engine did not respond. The CFI then took control of the airplane, and performed a forced landing to the field. During the landing, the airplane struck a snow bank and came to rest inverted. The airplane sustained damage to the gearbox, fuselage, wings, and vertical stabilizer.

A certificated mechanic examined the wreckage after the accident. The mechanic was able to rotate the propeller by hand, and did not note any discrepancies with the engine. He also observed fuel in the airplane. The mechanic further stated that he believed the power loss occurred due to carburetor ice. He added that on the make and model accident engine, the carburetor was situated below the engine, and more susceptible to carburetor ice. In addition, the carburetor heat relied on two cylinders, rather than all four. The mechanic was confident that carburetor ice caused the power loss, and did not attempt to disassemble the carburetor to look for ice.

A Federal Aviation Administration inspector stated that she did not examine the wreckage, but the certificated mechanic had determined the power loss was due to carburetor ice.

The reported temperature at an airport approximately 30 miles southeast of the accident site, at 1451, was 16 degrees F. The reported dew point was -16 degrees F, which yielded a relative humidity of 22 percent.

According to DOT/FAA/CT-82/44 Publication, Carburetor Icing Probability Chart, the engine

was not susceptible to carburetor ice under those conditions.

Flight instructor Information

Certificate:	Commercial	**Age:**	50,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	Airplane single-engine	**Toxicology Performed:**	No
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	April 23, 2002
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	August 8, 2002
Flight Time:	2732 hours (Total, all aircraft), 7 hours (Total, this make and model), 2608 hours (Pilot In Command, all aircraft), 47 hours (Last 90 days, all aircraft), 15 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

Pilot Information

Certificate:	Private	**Age:**	49,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	May 29, 2001
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	April 20, 2001
Flight Time:	744 hours (Total, all aircraft), 6 hours (Total, this make and model), 650 hours (Pilot In Command, all aircraft), 19 hours (Last 90 days, all aircraft), 13 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N76897
Model/Series:	140	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	11331
Landing Gear Type:	Tailwheel	**Seats:**	2
Date/Type of Last Inspection:	February 1, 2003 AAIP	**Certified Max Gross Wt.:**	1450 lbs
Time Since Last Inspection:	8 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	1430 Hrs at time of accident	**Engine Manufacturer:**	Continental
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	C85
Registered Owner:	Green Thumb Farms	**Rated Power:**	85 Horsepower
Operator:	Don Thibodwau	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	PWM,74 ft msl	**Distance from Accident Site:**	30 Nautical Miles
Observation Time:	14:51 Local	**Direction from Accident Site:**	150°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	9 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	310°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.63 inches Hg	**Temperature/Dew Point:**	-9°C / -27°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Fryeburg, ME (IZG)	**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	None
Departure Time:	14:00 Local	**Type of Airspace:**	Class G

Airport Information

Airport:	Eastern Slopes Regional Airpor IZG	**Runway Surface Type:**	Snow
Airport Elevation:	454 ft msl	**Runway Surface Condition:**	Snow
Runway Used:		**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	Forced landing;Simulated forced landing

Wreckage and Impact Information

Crew Injuries:	2 None	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 None	**Latitude, Longitude:**	43.991111,-70.947776

Administrative Information

Investigator In Charge (IIC):	Gretz, Robert
Additional Participating Persons:	Sandy Taylor; FAA FSDO-05; Portland, ME
Original Publish Date:	November 25, 2003
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=56538