Aviation Investigation Final Report

Location:	SPRINGFIELD, Illinois	**Accident Number:**	CHI01LA019
Date & Time:	October 21, 2000, 09:05 Local	**Registration:**	N420ZA
Aircraft:	Zenair CH2000	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The airplane was substantially damaged when it struck a gate and a fence during a forced landing after takeoff. The pilot said that at about 450 feet agl, "...the engine started to run very erratic with an appreciable loss of thrust...." He said that the engine was not producing enough thrust to maintain level flight. A forced landing was attempted on an airport road. No mechanical malfunction was listed in the pilot's written report. The aircraft engine was examined and the nut that secures the carburetor heat control cable housing was found loose. According to the inspectors report, "... full travel of the carburetor heat valve could not be achieved." A postaccident engine run was conducted and the engine ran at idle power with "slight roughness". Engine speed was increased to 1700 rpm and a magneto check performed with the right magneto showing about a 150-rpm drop, and the left showing about a 125-rpm drop. The engine produced 2400 static rpm at full throttle. The weather report listed the temperature and dew point as 13 degrees Celsius and 11 degrees Celsius respectively. According to the Carburetor Icing chart from Transport Canada, this temperature and dew point are in the range for serious icing potential at all power settings.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the loose carburetor heat control clamp bolt and carburetor heat not available to the pilot. Factors were the low altitude, the carburetor icing conditions, the fence and the security gate.

Findings

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

Findings
1. (F) WEATHER CONDITION - CARBURETOR ICING CONDITIONS
2. (C) CARBURETOR HEAT CONTROL,CABLE/PUSH-PULL ROD - LOOSE PART/BOLT/NUT/CLAMP/ETC
3. (C) CARBURETOR HEAT - NOT AVAILABLE - PILOT IN COMMAND
4. (F) ALTITUDE - LOW

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

Occurrence #3: ON GROUND/WATER COLLISION WITH OBJECT
Phase of Operation: EMERGENCY LANDING

Findings
5. (F) OBJECT - FENCE
6. (F) OBJECT - OTHER

Factual Information

On October 21, 2000, at 0905 central daylight time, a Zenair CH2000, N420ZA, owned and piloted by an airline transport pilot, sustained substantial damage when it collided with a fence during a forced landing following a loss of engine power after takeoff from runway 31 (7,000 feet by 150 feet dry asphalt) at the Capital Airport, Springfield, Illinois. The 14 CFR Part 91 personal flight was operating in visual meteorological conditions. No flight plan was on file. The pilot, who was the sole occupant, reported no injuries. The local flight was originating at the time of the accident.

In a written statement, the pilot said that about 450 feet agl, "...the engine started to run very erratic with an appreciable loss of thrust...." The pilot said that the engine was not producing enough thrust to maintain level flight. The pilot attempted a forced landing on an airport road that leads from the airport boundary to the control tower. The aircraft touched down short of the road in a plowed field and then traveled across a perimeter road and onto the road leading to the tower. The aircraft stuck a security gate and then a fence before coming to rest. The pilot listed no mechanical malfunction in his written report.

A Federal Aviation Administration Inspector conducted a postaccident examination of the aircraft. The aircraft engine was examined and the nut that secures the carburetor heat control cable housing was found loose. According to the inspectors report, "... full travel of the carburetor heat valve could not be achieved." A postaccident engine run was conducted and the engine ran at idle power with "slight roughness". Engine speed was increased to 1700 rpm and a magneto check performed with the right magneto showing about a 150-rpm drop, and the left showing about a 125-rpm drop. The engine produced 2400 static rpm at full throttle.

The weather report for the Capital Airport at 0854 reported the temperature and dew point as 13 degrees Celsius and 11 degrees Celsius respectively. According to the Carburetor Icing chart from Transport Canada, this temperature and dew point are in the range for serious icing potential at all power settings.

Pilot Information

Certificate:	Airline transport; Commercial	**Age:**	61,Male
Airplane Rating(s):	Single-engine land; Single-engine sea; Multi-engine land; Multi-engine sea	**Seat Occupied:**	Left
Other Aircraft Rating(s):	Glider	**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 2 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	February 9, 2000
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	
Flight Time:	17750 hours (Total, all aircraft), 367 hours (Total, this make and model), 16485 hours (Pilot In Command, all aircraft), 47 hours (Last 90 days, all aircraft), 6 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Zenair	**Registration:**	N420ZA
Model/Series:	CH2000 CH2000	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Utility	**Serial Number:**	200042
Landing Gear Type:	Tricycle	**Seats:**	2
Date/Type of Last Inspection:	November 4, 1999 Annual	**Certified Max Gross Wt.:**	1606 lbs
Time Since Last Inspection:	185 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	342 Hrs	**Engine Manufacturer:**	Lycoming
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	O-235-N2C
Registered Owner:	EDWIN G. QUINLAN	**Rated Power:**	116 Horsepower
Operator:		**Operating Certificate(s) Held:**	None
Operator Does Business As:		**Operator Designator Code:**	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	SPI ,597 ft msl	**Distance from Accident Site:**	
Observation Time:	08:54 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:	Clear	**Visibility**	9 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	0°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	56°C / 52°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	(SPI)	**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	VFR
Departure Time:	09:05 Local	**Type of Airspace:**	Class C

Airport Information

Airport:	CAPITAL AIRPORT SPI	**Runway Surface Type:**	
Airport Elevation:	597 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	0	**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 None	**Latitude, Longitude:**	39.84951,-89.650344(est)

Administrative Information

Investigator In Charge (IIC):	Brannen, John
Additional Participating Persons:	KERRY GAMBREL; SPRINGFIELD , IL
Original Publish Date:	October 23, 2001
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=50529