Aviation Investigation Final Report

Location:	Brigham City, Utah	**Accident Number:**	WPR23LA134
Date & Time:	March 11, 2023, 11:30 Local	**Registration:**	N639BH
Aircraft:	HARRIS ROBERT W ZENITH CH 801	**Aircraft Damage:**	Substantial
Defining Event:	Hard landing	**Injuries:**	2 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot reported that the airplane sustained a loss of engine thrust during the initial takeoff climb, but the engine continued to run. The pilot elected to land on the remaining runway; however, during the landing flare, the airplane landed hard on its nose and the nose landing gear collapsed. Additionally, the pilot stated that he defueled about 40 gallons of fuel from the airplane after the accident.

A visual inspection of the fuel system was conducted, and continuity was established from the main fuel tanks throughout the system; however, fuel was not observed within the fuel system.

A postaccident engine ground run was accomplished, and the engine performed at various power settings. Due to a damaged propeller, the propeller governor was removed and functionally tested; it performed within manufacturer's specifications.

Postaccident examination of the airplane’s engine revealed no evidence of any preaccident mechanical malfunctions or failures that would have precluded normal operation. Examination of the propeller governor indicated no visible signs of damage and the governor control lever moved freely from stop to stop. The propeller governor was functionally tested and performed within the manufacturer's specifications. While it’s likely that the loss of engine thrust may have been fuel related, it could not be substantiated due to the available evidence.

Probable Cause and Findings

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

The pilot’s improper flare, which resulted in a hard landing following a reported loss of engine thrust for undetermined reasons.

Findings

Aircraft	(general) - Unknown/Not determined
Personnel issues	Aircraft control - Pilot
Aircraft	Landing flare - Not attained/maintained

Factual Information

History of Flight

Takeoff	Unknown or undetermined
Landing-flare/touchdown	Hard landing (Defining event)

On March 11, 2023, about 1130 mountain daylight time, an experimental amateur-built Zenith CH 801, N638BH, was substantially damaged when it was involved in an accident near Brigham City, Utah. The pilot and passenger were not injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

The pilot reported that he departed Brigham City Regional Airport (BMC) and while ascending, about 200 to 300 ft above ground level, the airplane sustained a loss of thrust, but the engine continued to run. Unable to maintain altitude, the pilot elected to land on the remaining runway. Subsequently, the airplane landed hard, and the nose landing gear collapsed. The pilot stated that he defueled about 40 gallons of fuel from the airplane after the accident.

A pilot-rated passenger in the airplane reported that, during the first lap in the pattern, while on the downwind leg, the engine rpm seemed to fluctuate, as if the engine was surging. Not having been in this type of airplane before, he did not know if the fluctuating rpm was normal. While on final approach to land, the pilot moved the propeller control full forward, landed the airplane, and started to take off again. However, during the initial takeoff climb, the pilot stated he had no power. The passenger looked at the engine rpm and it seemed normal. The pilot then said, 'we got the power back'. The passenger noticed they had plenty of runway and recommended the pilot land the airplane. During the landing flare, the airplane landed hard.

Postaccident examination of the airplane identified structural bending of the aft fuselage. Flight control continuity was established from all primary flight control surfaces to the cockpit controls.

Examination of the recovered airframe and engine revealed no preaccident mechanical failures or malfunctions that would have precluded normal operation. A visual inspection was conducted of the fuel system. Continuity was established from the main fuel tanks throughout the system to the carburetor. The airframe fuel strainer was void of fuel.

An external fuel source was mounted to the right-wing fuel inlet line to facilitate a test run. The engine started during the initial attempt and ran through various power settings uneventfully for about 5 minutes. Due to the damaged propeller, the throttle was not advanced to the full power position. However, the engine did produce a static rpm of 2,600.

The propeller governor was removed for further examination. There were no visible signs of damage and the governor control lever moved freely from stop to stop. The propeller governor was functionally tested and performed within the manufacturer's specifications.

Pilot Information

Certificate:	Private	**Age:**	65,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	Unknown
Instrument Rating(s):	None	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	
Medical Certification:	BasicMed With waivers/limitations	**Last FAA Medical Exam:**	October 29, 2021
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	October 22, 2021
Flight Time:	(Estimated) 505 hours (Total, all aircraft), 14 hours (Total, this make and model), 335 hours (Pilot In Command, all aircraft), 9 hours (Last 90 days, all aircraft), 6 hours (Last 30 days, all aircraft)		

Passenger Information

Certificate:		**Age:**	Male
Airplane Rating(s):		**Seat Occupied:**	Right
Other Aircraft Rating(s):		**Restraint Used:**	Unknown
Instrument Rating(s):		**Second Pilot Present:**	Yes
Instructor Rating(s):		**Toxicology Performed:**	
Medical Certification:		**Last FAA Medical Exam:**	
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Make:	HARRIS ROBERT W	**Registration:**	N639BH
Model/Series:	ZENITH CH 801	**Aircraft Category:**	Airplane
Year of Manufacture:	2006	**Amateur Built:**	Yes
Airworthiness Certificate:	Experimental (Special)	**Serial Number:**	841534
Landing Gear Type:	Tricycle	**Seats:**	4
Date/Type of Last Inspection:	September 6, 2022 Condition	**Certified Max Gross Wt.:**	2200 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	21 Hrs as of last inspection	**Engine Manufacturer:**	Franklin
ELT:	Installed, not activated	**Engine Model/Series:**	PZLR-6A-350CIR
Registered Owner:	On file	**Rated Power:**	220 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KBMC,4226 ft msl	**Distance from Accident Site:**	0 Nautical Miles
Observation Time:	11:30 Local	**Direction from Accident Site:**	175°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	3 knots /	**Turbulence Type Forecast/Actual:**	None / None
Wind Direction:	340°	**Turbulence Severity Forecast/Actual:**	N/A / N/A
Altimeter Setting:	30.01 inches Hg	**Temperature/Dew Point:**	2°C / -5°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Brigham City, UT	**Type of Flight Plan Filed:**	None
Destination:	Brigham City, UT	**Type of Clearance:**	None
Departure Time:		**Type of Airspace:**	Class E

Airport Information

Airport:	BRIGHAM CITY RGNL BMC	**Runway Surface Type:**	Asphalt
Airport Elevation:	4229 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	35	**IFR Approach:**	None
Runway Length/Width:	8900 ft / 100 ft	**VFR Approach/Landing:**	Traffic pattern

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 None	**Aircraft Fire:**	None
Ground Injuries:		**Aircraft Explosion:**	None
Total Injuries:	2 None	**Latitude, Longitude:**	41.554306,-112.06225

Administrative Information

Investigator In Charge (IIC):	Gutierrez, Eric
Additional Participating Persons:	Keith Crockett; Federal Aviation Administration
Original Publish Date:	June 5, 2024
Last Revision Date:	
Investigation Class:	Class 3
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=106921