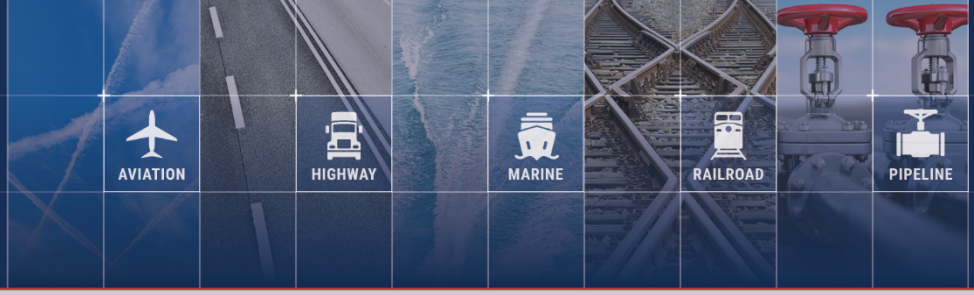

Aviation Investigation Final Report

Location:	Bahia Key, Florida	**Accident Number:**	ERA23LA148
Date & Time:	March 11, 2023, 13:31 Local	**Registration:**	N343BD
Aircraft:	Velocity Velocity Se	**Aircraft Damage:**	Substantial
Defining Event:	Unknown or undetermined	**Injuries:**	1 Serious
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The accident flight was a short, 15-minute return flight, from island to island, with about 19 gallons of fuel onboard. Since the pilot had not flown in several months, he veered north of course to practice a slow speed descent and the power settings that he would be using during his landing approach. He slowed and reduced power, which was followed by a total loss of engine power. The pilot was unable to restore engine power and ditched the airplane in a bay.

Postaccident examination of the airplane and fuel-injected engine did not reveal any preimpact mechanical malfunctions. Fuel, mixed with sea water, was observed in both wing tanks and the center tank. Data were extracted from an onboard engine information system; however, the unit did not contain any relevant engine performance parameters.

Probable Cause and Findings

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

A total loss of engine power for undetermined reasons.

Findings

Aircraft	(general) - Unknown/Not determined

Factual Information

History of Flight

Enroute	Unknown or undetermined (Defining event)
Enroute	Ditching

On March 11, 2023, about 1331 eastern standard time, an experimental amateur-built Velocity SE RG, N343BD, was substantially damaged during a ditching in Florida Bay, near Bahia Key, Florida. The pilot was seriously injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

The pilot, who owned the airplane, reported that he was en route from Florida Keys Marathon International Airport (MTH), Marathon, Florida, to his home airport, Summerland Key Cover Airport (FD51), Summerland Key, Florida, which was about a 15-minute flight. Since he had not flown in several months, he veered north of course to practice the slow speed descent and power settings that he would be using during approach to FD51. He slowed the airplane and reduced power, "when the engine suddenly, and without warning, quit." He immediately turned on the electric fuel pump, which brought a momentary "burp" of power. The "burp" was less than 1 second and he observed a low fuel pressure warning (0 to -1). At that point he turned north and ditched the airplane in Florida Bay, near the shore of an island.

The pilot stated that he had not flown the airplane in 2 to 3 months as he was performing the annual condition inspection. The inspection took longer than normal because he and his wife had taken an "RV" trip during the inspection. The pilot performed the inspection himself and did not work on the fuel system, other than moving the fuel shutoff valve to off to clean the filters; however, he stated that he moved the valve back to on as he flew uneventfully from FD51 to MTH about 3 hours before the accident. The pilot further stated that the "sump tank" center fuel tank held 2 gallons of fuel, and a red light would illuminate in the cockpit if the fuel level was low. He departed on the accident flight with 19 gallons of fuel (22 gallons of fuel from FD51 on the prior flight) and the red (low fuel) light never illuminated.

The wreckage was examined by two Federal Aviation Administration inspectors during recovery and after it was transported back to FD51. They observed fuel, mixed with sea water in both wing tanks and the center tank; however, the fuel injector lines, and fuel manifold were absent of fuel. The mechanical fuel pump contained slightly more than 1 ounce of fuel. Residual fuel was also found in the electric boost pump.

The mechanical fuel pump was removed and it operated normally when actuated by hand. The electric boost pump switch was in the on position and when the electric boost bump was tested with a 12-volt battery it operated normally. The top spark plugs were removed and no

anomalies were noted with their electrodes. When the propeller was rotated by hand, crankshaft, camshaft, and valvetrain continuity were confirmed to the rear accessory section of the engine. Additionally, thumb compression was attained on all cylinders. The engine was equipped with an electronic ignition system that could not be tested.

A Grand Rapids Technology 6000 Engine Information System (EIS) was retained and forwarded to the National Transportation Safety Board Vehicle Recorders Laboratory, Washington, DC. Data were extracted from the unit; however, the EIS did not record any parameters relevant to engine performance.

Pilot Information

Certificate:	Airline transport; Commercial; Flight engineer; Flight instructor; Remote	**Age:**	74,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	4-point
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	Instrument airplane	**Toxicology Performed:**	
Medical Certification:	BasicMed	**Last FAA Medical Exam:**	
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	June 27, 2022
Flight Time:	20000 hours (Total, all aircraft), 260 hours (Total, this make and model), 15000 hours (Pilot In Command, all aircraft), 14 hours (Last 90 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Velocity	**Registration:**	N343BD
Model/Series:	Velocity Se RG	**Aircraft Category:**	Airplane
Year of Manufacture:	2015	**Amateur Built:**	Yes
Airworthiness Certificate:	Experimental (Special)	**Serial Number:**	SRE 045
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	March 10, 2023 Condition	**Certified Max Gross Wt.:**	2200 lbs
Time Since Last Inspection:	1 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	247.1 Hrs as of last inspection	**Engine Manufacturer:**	Lycoming
ELT:	Not installed	**Engine Model/Series:**	IO-540
Registered Owner:	On file	**Rated Power:**	275 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:	MTH,3 ft msl	**Distance from Accident Site:**	12 Nautical Miles
Observation Time:	12:53 Local	**Direction from Accident Site:**	109°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	8 knots /	**Turbulence Type Forecast/Actual:**	None / None
Wind Direction:	300°	**Turbulence Severity Forecast/Actual:**	N/A / N/A
Altimeter Setting:	29.95 inches Hg	**Temperature/Dew Point:**	28°C / 20°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Marathon, FL (MTH)	**Type of Flight Plan Filed:**	None
Destination:	Summerland Key, FL (FD51)	**Type of Clearance:**	None
Departure Time:	13:21 Local	**Type of Airspace:**	Class G

Wreckage and Impact Information

Crew Injuries:	1 Serious	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:		**Aircraft Explosion:**	None
Total Injuries:	1 Serious	**Latitude, Longitude:**	24.794444,-81.263889

Administrative Information

Investigator In Charge (IIC):	Gretz, Robert
Additional Participating Persons:	Donald Casto; FAA/FSDO; Miramar, FL
Original Publish Date:	May 14, 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=106870