



Aviation Investigation Final Report

Location:	Marysville, California	Accident Number:	WPR17LA067
Date & Time:	February 23, 2017, 17:30 Local	Registration:	N470LM
Aircraft:	GUARINO Vans	Aircraft Damage:	Substantial
Defining Event:	Loss of engine power (partial)	Injuries:	2 Minor
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot stated that while en route on the personal cross-country flight, the engine experienced a loss of thrust, and the airspeed slowed. The propeller was windmilling, but the throttle had no effect on the engine. The pilot noted that the propeller circuit breaker had popped out but did not note any other indications of an anomaly in the cockpit. In addition, with the engine operating at partial power, the pilot was unable to maintain level flight so he configured the airplane for the best glide speed. He attempted to regain engine power twice and switched fuel tanks, to no avail. The pilot made a forced landing in a soft field, which resulted in substantial damage to the airframe.

A postaccident examination noted no evidence of engine mechanical anomalies or thermal distress. There were several wires and a wiring harness disconnected in between the cockpit and the firewall; it is unknown if this happened after impact. During an attempted engine test, a fuel source was rigged to the left fuel tank; the starter solenoid was heard activating, but the engine would not start. An external power source was used in an attempt to start the engine; the engine cranked but would not start. Fuel continuity and pressure in the system was confirmed. The fragmentation of the wreckage, specifically the electrical system, precluded a definitive determination of the cause of the engine failure.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: A partial loss of engine power for reasons that could not be determined due to the fragmentation of the electrical system.

Findings

Not determined	(general) - Unknown/Not determined
Aircraft	Powerplant wiring - Not specified

Factual Information

History of Flight

Enroute-cruise	Loss of engine power (partial) (Defining event)
Enroute-cruise	Attempted remediation/recovery
Emergency descent	Off-field or emergency landing

On February 23, 2017, about 1730 Pacific standard time, an amateur-built Guarino, Vans RV-8 airplane, N470LM, was substantially damaged during a forced landing in a field in Marysville, California. The airline transport pilot and passenger sustained minor injuries. The airplane was registered to and operated by the pilot as a Title 14 *Code of Federal Regulations* Part 91 personal flight. Visual meteorological conditions prevailed, and no flight plan had been filed for the cross country flight. The flight originated from Half Moon Bay Airport, Half Moon Bay, California, about 1600 with a planned destination of Auburn, California.

The pilot stated that he departed with full fuel in the wing tanks earlier that day from an airport in Davis, California. He landed in Half Moon Bay for lunch and departed about 1600 with a planned destination of Auburn. As he approached the vicinity of Auburn, he decided to divert over to the Oroville Dam area to sightsee. He maneuvered around the area at about 2,000 ft above ground level (agl) and then started the leg back to Auburn. While en route, the engine experienced a loss of thrust and the pilot could feel the airspeed slow. The propeller was still windmilling, but the throttle had no effect on the engine. He noted that the propeller circuit breaker had popped out, but there were no other indications of an anomaly in the cockpit.

The pilot further stated that with the engine operating at partial power, he was unable to maintain level flight and configured for the best glide speed. He attempted to restart the engine twice and switched fuel tanks, to no avail. The pilot made a forced landing in a soft field, resulting in the airframe sustaining substantial damage. The pilot estimated that at the time of the accident he had enough fuel on board for about 1.5 hours of flight time.

A post accident examination and attempted engine operational test was completed. There was no apparent visible evidence of engine mechanical anomalies or thermal distress. Fuel continuity and pressure in the system was confirmed. There were several wires and a wiring harness disconnected in between the cockpit and the firewall; it is unknown if this happened after impact. A fuel source was rigged to the left fuel tank and investigators attempted to start the engine. The starter solenoid was heard to activate, but the engine would not start. An external source of power was used in attempt to start the engine and the engine cranked but would not start. A starting fluid was sprayed into the air intake, and investigators again attempted to run the engine; the engine temporarily started, but then quit after 1-3 seconds. The fragmentation of the electrical system precluded investigators from definitively determining the engine failure.

Pilot Information

Certificate:	Airline transport; Commercial; Military	Age:	27, Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Front
Other Aircraft Rating(s):	None	Restraint Used:	5-point
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	Instrument airplane	Toxicology Performed:	No
Medical Certification:	Class 1 Without waivers/limitations	Last FAA Medical Exam:	May 10, 2016
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	
Flight Time:	1379 hours (Total, all aircraft), 3835 hours (Total, this make and model), 500 hours (Pilot In Command, all aircraft), 150 hours (Last 90 days, all aircraft), 60 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	GUARINO	Registration:	N470LM
Model/Series:	Vans RV-8	Aircraft Category:	Airplane
Year of Manufacture:	2008	Amateur Built:	Yes
Airworthiness Certificate:	Experimental (Special)	Serial Number:	80070
Landing Gear Type:	Tailwheel	Seats:	2
Date/Type of Last Inspection:	Condition	Certified Max Gross Wt.:	
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:	250 Hrs at time of accident	Engine Manufacturer:	Subaru
ELT:	Installed, not activated	Engine Model/Series:	H6
Registered Owner:		Rated Power:	190 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:	KBAB, 113 ft msl	Distance from Accident Site:	14 Nautical Miles
Observation Time:	00:58 Local	Direction from Accident Site:	182°
Lowest Cloud Condition:	Few / 4000 ft AGL	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	3 knots /	Turbulence Type Forecast/Actual:	None / None
Wind Direction:		Turbulence Severity Forecast/Actual:	N/A / N/A
Altimeter Setting:	30.14 inches Hg	Temperature/Dew Point:	10°C / -2°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	HALF MOON BAY, CA (HAF)	Type of Flight Plan Filed:	None
Destination:	Auburn, CA (AUN)	Type of Clearance:	VFR flight following
Departure Time:	16:00 Local	Type of Airspace:	

Airport Information

Airport:	AUBURN MUNI AUN	Runway Surface Type:	Dirt
Airport Elevation:	1539 ft msl	Runway Surface Condition:	Soft;Vegetation
Runway Used:		IFR Approach:	None
Runway Length/Width:		VFR Approach/Landing:	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 Minor	Aircraft Damage:	Substantial
Passenger Injuries:	1 Minor	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 Minor	Latitude, Longitude:	39.36972,-121.423614(est)

Administrative Information

Investigator In Charge (IIC):	Keliher, Zoe
Additional Participating Persons:	Richard Dillbeck; Federal Aviation Administration; Sacramento, CA
Original Publish Date:	May 28, 2020
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=94781

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).