NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Washington, D.C. 20594

September 7-8, 2022

EXAMINATION SUMMARY

ERA22FA399

A. ACCIDENT

Location:	Bay City, Wisconsin
Date:	September 6, 2022
Time:	1324 CDT
Airplane:	Philip J Conway Glasair Super II SFT, N11HC

B. INVESTIGATION PARTICIPANTS

Ralph E. Hicks - IIC
Eastern Region Aviation (ERA)
National Transportation Safety Board
Marietta, Georgia

Ryan Enders
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C. SUMMARY

On September 6, 2022, at 1324 central daylight time, a Philip J Conway Glasair Super II SFT, N11HC, was destroyed when it was involved in an accident at Bay City, Wisconsin. The commercial-rated pilot-under-instruction and a commercial-rated flight instructor were fatally injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 instructional flight.

1.0 Wreckage Examination

The examination of the wreckage was performed on September 7, 2022, at the accident site, Bay City, Wisconsin and on September 8, 2022, and at the facilities of Wentworth Aviation, Lakeville, Minnesota.

Accident Site (General)

The initial impact point (IIP) was on flat, dry terrain, near the perimeter of Red Wing Regional Airport (RGK), on a heading of 045° and came to rest about 80 ft from the IIP at coordinates 44.59111, -92.50083. The total length of the wreckage path was 115 ft and it was about 25 ft wide. The elevation at the accident site was about 760 ft. The crash site was about 285°/0.35 nm from the RGK runway 9 approach threshold.

The wreckage was transported to Wentworth Aviation, Airlake Airport (LVN), Lakeville, MN on 9/7/2022. A layout examination of the airframe occurred on 9/8/2022 with the NTSB IIC, FAA coordinator, and Lycoming Engines ASI conducting the examination.

Fuselage

The fuselage exhibited structural damage and fiberglass skin separation in several areas. The cockpit entry doors were removed by first responders.

The fuselage-mounted header fuel tank was breached by impact forces and no evidence of fuel was found.

The center console-mounted fuel tank selector was found in its detent in the “HEADER” tank position.

The ELT remained mounted in the aft fuselage. The ELT was armed and activated after the accident. U.S. Air Force personnel in Panama City, Florida reported receiving the ELT signal before it was deactivated by FAA personnel.

The Garmin G3X components separated from the instrument panel and were found scattered along the wreckage path. Both GX3 SD cards containing flight data were recovered at the scene.

The starter/magneto switch was found in the BOTH position with the key in the switch.

Left Wing

The left wing sustained structural damage. The airplane was equipped with extended length wing tips and the left wing tip was separated and found adjacent to the left wing. The fiberglass skin from the upper wing buckled upward. The leading edge of the wing exhibited crushing signatures. The integral, 21.5 gallon fuel tank was breached and no fuel was observed inside the tank area. The fuel filler cap was in place and secure with no indications of leakage noted. The left flap was found extended. The Garmin G3X data showed that flaps were in transit toward the full down (45°) position and the last recorded position was 36°. The left aileron remained partially attached to the wing. Control continuity was confirmed from the left aileron to the cockpit controls. The left wing was removed by recovery personnel with an electric reciprocating saw.

Right Wing

The right wing sustained structural damage. The airplane was equipped with extended length wing tips and the right wing tip remained attached. The fiberglass skin from the lower wing separated and was found immediately aft of the right wing. The leading edge of the wing exhibited crushing signatures. The integral, 21.5 gallon fuel tank was breached and no fuel was observed inside the tank area. The fuel filler cap was in place and secure with no indications of leakage noted. The right flap was found extended. The Garmin G3X data showed that flaps were in transit toward the full down (45°) position and the last recorded position was 36°. The right aileron remained attached to the wing. Control continuity was confirmed from the right aileron to the cockpit controls. The right wing was removed by recovery personnel with an electric reciprocating saw.

Empennage

The fiberglass dorsal transition from the vertical stabilizer to the upper fuselage was cracked and partially separated from impact forces. The vertical stabilizer skin separated and was buckled and folded down to the right. The rudder was partially separated from the vertical stabilizer. Rudder cable continuity was confirmed from the rudder attachment points to the rudder pedals.

The left and right elevators remained attached to the horizontal stabilizers and aft fuselage. Elevator continuity was confirmed (push-pull tube) from the elevator attachment point to the cockpit area.

The nose landing gear separated near the point of initial ground impact. The right main landing gear and wheel remained attached to the fuselage. The left main landing gear and wheel separated from the airframe during the impact sequence.

Engine

As first viewed, the engine remained attached to the aircraft firewall. The propeller remained attached to the crankshaft flange, but the crankshaft flange had separated from the crankshaft during the impact. Oil was observed leaking from the bottom of the engine. Extensive impact damage was observed on the bottom of the engine. The oil sump was mostly missing, except for a piece towards the rear that was displaced aft. The rear accessories appeared mostly undamaged. The engine had a sticker from “Poplar Grove”. The engine data plate was not recovered and the serial number on the spine of the engine was found grinded off.

The engine was cut free from the engine mounts and hoisted for the engine examination. The Millennium cylinders were undamaged. The rocker box covers were removed to facilitate the engine examination. The crankshaft rotated via the vacuum pump drive. Thumb compression and suction were established and camshaft to crankshaft continuity was confirmed throughout the engine. Valve train movement and lift were observed on all cylinders.

The intake pipes and exhaust stacks were crush damaged on all four cylinders.

The fuel injector remained attached to the support structure and induction pipe. The mixture and control cables remained attached to the unit. The unit was removed for further examination. Fuel was found inside the injector and was tested with a water finding paste, the paste tested negative for water. The throttle plate appeared to be fully “open”. Both the throttle and mixture arms had expected travel when moved by hand. The fuel inlet screen was clean. The diaphragms of the unit appeared undamaged.

The flow divider was found undamaged on top of the engine with the fuel lines secured going to each respective cylinder head. The fuel line from the injector to the divider was secured and fuel was found in the line. The flow divider was removed for further examination. The diaphragm was undamaged, and fuel was present inside the unit.

The GAMI nozzles remained installed in their respective cylinder heads and were undamaged. The nozzles were removed and found to be unobstructed.

The diaphragm fuel pump remained attached to the accessory housing and the bolts were safety wired in place. The pump was impact-damaged which fractured the housing of the unit. The pump was removed for further examination. The diaphragms, except for the top diaphragm, were intact and undamaged. The top diaphragm was damaged from the impact forces.

Both magnetos remained attached to the accessory housing of the engine with minor impact damage to the harness caps. The units were removed and both units produced spark at all 4 leads when rotated.

The spark plugs remained installed in their respective cylinder heads. The number 2 bottom and number 1 bottom had impact damage to the harness end of the plugs. The plugs were removed for further examination and found to have normal coloration and wear when compared to the Champion Spark plug AV-27 Check-a-Plug chart. The static soaking of the number 1 and 3 spark plugs is attributed to the resting position of the engine post recovery.

The harness received moderate impact damage during the impact sequence. The harness had pulled from both magneto harness caps.

The aircraft was equipped with two alternators. The front alternator was displaced aft and was coated in organic matter. It was not removed during the examination. The second alternator was mounted on the accessory housing and was mostly undamaged. It was removed to facilitate the engine examination.

The oil suction screen remained safety wired in place. It was removed for further examination and was found to have organic matter on the outside. The inside of the suction screen was clean. The oil filter was safety wired in place and impact damage was noted around the wrench fitting. The unit was opened and found to be clean. The oil sump of the engine was mostly absent, and the remaining portion of the sump was displaced aft.

Nothing was found during the course of this engine examination that would have precluded the powerplant from making power prior to the impact sequence.

Propeller

The propeller remained attached to the crankshaft flange. The flange of the crankshaft had separated from the remainder of the crankshaft during the impact sequence. Blade “A” was bent aft approximately 15 degrees and showed polishing on the leading edge. Blade “B” displayed polishing and rotational scoring on the leading edge.

The rear mounted propeller governor remained attached to the accessory housing. The propeller control cable was attached. The governor was removed for further examination. The unit pumped oil when then gear was rotated by hand.