

ERA22FA098

December 30, 2021 Bronson, FL

Robinson R44, N442VB

NTSB EXAMINATION NOTES

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On December 30, 2021, about 2025 eastern standard time, a Robinson R44, N442VB, was destroyed when it was involved in an accident near Bronson, Florida. The pilot and three passengers were fatally injured. The helicopter was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

The pilot departed a private residence located in Bronson Florida about 2020 destined for his personal residence in Bell Florida. According to preliminary radar data provided by the Federal Aviation Administration, the helicopter continued westbound for about 2 minutes before radar contact was lost.

A witness out walking her dog stated about 8:25 pm local time she heard a helicopter, she looked for the helicopter but could not see it because it was too dark outside, and she did not see any lights. Seconds later, she heard the helicopter crash and a “large fireball” light up the sky. she yelled at her mom to call 911.

The accident site was located in a wooded area and the wreckage path was about 225 ft long. The helicopter was heavily fragmented and scattered along a debris path on a heading of about 360 degrees magnetic. The right ski was stuck into the ground at the main impact site, at a 42° angle. An 8-foot section of the main rotor blade was stuck in the ground about 3 feet deep. The engine was located about 225 ft north of the main impact point. The main rotor gearbox and sections of the main rotor blades were located about 175 feet northeast of the main impact point.

The engine was further examined at the recovery facility. The engine was suspended from a lift and partially disassembled to facilitate the examination. The oil sump was separated from the

engine and fragmented. The engine data plate was separated from the oil sump and not observed among the recovered wreckage. The exhaust and intake tubing was partially crushed. The rear mounted engine accessories were impact damaged. The alternator was impact separated. The engine was rotated through about 350 degrees by turning the cooling fan and it was determined that the valve train was not moving with engine rotation. The engine accessory case was removed and the crankshaft rear gear was observed not to be in contact with the rear crankshaft face. The rear gear bolt was partially backed out of the crankshaft bolt hole. The bolt was turned about 3 turns to remove it from the crankshaft. The gear bolt safety washer remained on the gear bolt and was properly installed. The rear gear locator dowel was sheared flush with the surface of the crankshaft. The broken portion of the dowel was removed and the gear was reinstalled on the crankshaft rear face. The engine was rotated by turning the cooling fan and continuity of the crankshaft to the rear gears and to the valve train was confirmed. Compression and suction were observed from all six cylinders. The interiors of the cylinders and the intake and exhaust valve heads were observed using a lighted borescope and no anomalies noted. The rear crankshaft gear and bolt were removed and set aside with the other removed engine parts. According to the aircraft maintenance logbooks, the most recent aircraft annual inspection was completed on 08/23/2021. The engine was installed new from Lycoming Engines and had accumulated about 467 hours of time in service since new. The time in service was calculated by adding engine total time from the engine logbook at the most recent inspection to time from the pilot's flight logbook since the date of the last maintenance entry.

Dan Boggs

