



MEMORANDUM FOR RECORD

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Date: 08/27/2024
Subject: Accident Site and Wreckage Examinations
NTSB Case Number: ERA24FA069

Examinations were conducted on-scene on October 21-22, 2023, and at Anglin Aircraft Recovery Services in Clayton, Delaware, on August 22, 2024.

The following information was gathered during the examinations:

Examination of the accident site revealed that a wreckage path was present that extended from the first tree strike and ran on an approximate 320 degree heading for about 200 yards to where the main wreckage came to rest.

Examination of the wreckage revealed that most of the helicopter was consumed by a post-crash fire except for partial areas of tail boom, doors and small pieces that departed the helicopter in the area of the initial impact with the trees.

The airframe was destroyed and heavily fragmented with separation damage from the impact sequence and post-crash fire.

The instrument panel had separated from the airframe, was heavily damaged, and none of the cockpit instruments provided reliable information. The right front seat (pilot's seat) had separated from its mounting location and had come to rest approximately 30 feet forward of the main wreckage. The left rear seat (videographer's seat) was found in the main wreckage. The rest of the cockpit / cabin area was unrecognizable other than the floor structure and some of the steel flight control components.

All three main rotor blades (MRBs) remained attached to the rotor head and exhibited damage consistent with high rotational energy of the rotor system. All three MRBs were found at the main wreckage site and remained attached at the root ends at the respective MRB sleeves which were damaged from fire; however, they remained attached to the Starflex.

All three Starflex arms were fractured with diagonal fractures signatures across the star arms. All three MRBs exhibited impact and thermal damage. Two appeared to be more heavily impact damaged at the outboard ends with broom straw signatures. MRB debris (rotor blade skin and MRB core foam), was observed near the beginning of the wreckage path and throughout the woods up to the main wreckage. Several trees were observed with smooth cuts consistent with MRB strikes in a long shallow descending path through woods to the main ground impact.

The main rotor transmission was separated from the helicopter and was generally intact with the rotor system still attached. The chip detector was removed and found to be clean. The 3 hydraulic servos were still attached, they displayed impact damage, and the hydraulic lines were separated. The hydraulic pump was present, was still attached by the bracket, and was impact damaged. The engine was also separated from the airframe. And laying near the area of the transmission.

Functional continuity of flight control system and main rotor drive system could not be determined due to the post impact fire damage. However, the flight control path was traced from their cockpit input devices to their aerodynamic component connections through the thermal and impact damaged areas. No pre-impact anomalies were noted.

Dual flight controls were installed. The collective control arms were found approximately mid position. The fuel flow control lever setting was not reliable, but near the forward position. The pilot's (right side) cyclic grip was separated and found approximately 20 feet forward of where the pilot seat came to rest. Both pilot's anti-torque pedals were present (installed) however the outboard pedal was bent in a downward direction. The left side (copilot's) inboard pedal was separated and found on the ground approximately 20 feet forward of the main wreckage.

Most of the interior items were consumed by the post impact fire. Several supplemental instruments (related to news broadcasting) were found separated and laying along the wreckage field. All four (4) doors had separated from the airframe and were found on the ground near the broken tree limbs at the beginning of the wreckage path. The right front door exhibited a tree impact with a forward / side impact signature.

The Helicopter was equipped with a high skid landing gear system. The forward section of each skid, and the rest of the right skid was found towards the beginning of the wreckage path. The rest of the landing gear system came to rest with the main wreckage. A cargo hook assembly was found attached underneath the wreckage.

Examination of the Plexiglas windows using black light did not reveal any evidence of a bird strike.

Examination of the engine revealed that had been separated from the airframe during the accident sequence. It was still attached to the main transmission via the liaison tube and was facing the opposite direction of how the main cabin came to rest. The engine showed various states of thermal damage from the post-crash fire.

The fuel, oil and air connections were still properly connected on the engine side but separated from the airframe side. The main transmission shaft was still connected on the engine side but disconnected on the transmission side. The flector group on the transmission side was destroyed in the accident sequence.

The gas generator could be turned by hand. The axial compressor exhibited foreign object damage on several blades, and the nose cone had incurred rotational and thermal damage. The free turbine could be turned by hand and proper freewheel operation was established. There was no blade shedding.

The main and rear bearing electric chip detectors were clean. The module 1 and module 5 magnetic plugs were clean. The oil and fuel filters were not removed.

The engine electrical harness was still connected to its bases but had been separated from the engine deck.

The castellated nut on the front of the freewheel shaft exhibited impact damage with the inside of the transmission shaft.

The throttle and anticipator arms were still connected to the fuel control unit however the cables had been separated.

The module 5 reduction gear box was removed to examine the input pinion scribe marks. The mark was misaligned in the tightening direction approximately 3mm consistent with power delivery at the point of a main rotor impact.