

NOTE: Docket Items

The following information was placed in the docket for this accident as a separate document, because the IIC conducted the airframe and engine exams on-scene and wanted to maintain a detailed record of the findings, which are not necessary for the factual report because they do not directly support the probable cause.

Summary of On-scene Examination of Airframe and Engine ERA13FA219

The cockpit fairing was shattered and departed the airframe. The instrument panel was ripped out of the cockpit and lying on the ground. The altimeter indicated 9 feet, the airspeed indicator read 78 knots, the ignition switch was on start, and the throttle cable was connected and about one quarter open as verified on the carburetors. The fuel selector valve was found in the off position. It was confirmed that emergency responders turned the fuel selector valve to off during emergency operations.

The cyclic/collective was bent aft 4 inches outboard of its connection point. The pitot-tube was straight and unremarkable. The keel was fractured at the seat mount attachment point. The seat, and seat mount were bent aft. The control pedals were undamaged and exhibited scratching on the left pedal. The seat cover showed scratches on the left side. The seat restraints were intact and connected to the pilot after ground impact and cut by emergency responders.

Pitch, roll, and yaw control continuity was verified on all control surfaces. The left rotor pitch control tube was severed by the propeller. The right rotor pitch control tube failed due to bending overload.

The rudder and horizontal surfaces remained attached to each other, departed the airframe, and were cracked about 8 inches upward from the bottom of the vertical stabilizer.

The mast was bent aft about 30 degrees and the yardarm was bent upward and contacted the pitch rod control arm. The pre-rotator bendix was bent up into the ring gear. The bendix ring gear was verified to be in the retracted position. The gimbal moved freely and the rotor teeter blocks were unremarkable. The aft keel was unremarkable.

Rotor blade A remained attached to the rotor head via the retaining bolt and was lodged underneath the left main landing gear of the parked airplane. The leading edge exhibited chord wise scratches on the upper side of the blade from the wing tip 92 inches inboard. These scratches were matched to ground strikes at the accident site. The lower side of the blade trailing edge showed buckling and chord wise scratches 39 inches outboard the rotor hub to the rotor tip. The trailing edge was unzipped 41 inches outboard the rotor hub.

Rotor blade B rigid connection bar separated from blade A due to overload. Blade B was located 090° magnetic at a distance of 30 yards from the wreckage. Blade B exhibited S bending 42 inches outboard the rotor hub to the end of the rotor tip. The blade was unzipped 42 inches outboard the rotor hub and 52 inches inboard the rotor tip. There was trailing edge denting along the entire blade surface and chord wise scratching from the blade tip to 53 inches inboard on the top surface. These scratches were matched to ground strikes at the accident site. The bottom trailing edge exhibited buckling from the rotor tip to 91 inches inboard.

The propeller exhibited fragmenting on all three blades about 7 inches outboard from the root. Engine propeller blade strike with the mast was verified by composite evidence on the rotor mast. The engine hydraulic pump supply and return lines were severed by the engine propeller blades.

Suction and compression was verified on both engine cylinders and crankshaft continuity was verified through the engine to the accessory drive ring gear by rotating the propeller blades by hand.

The left main landing gear tire exhibited scratches on the outer wall and the right main landing gear tire axle and rim exhibited white paint transfer consistent with the paint from the parked airplane. The left main landing gear strut was buckled aft at the midpoint. The right main landing gear strut was bent forward at the midpoint. The nose landing gear strut was unremarkable and the tire exhibited scratches on the outer wall and to the connecting bolt.