



# Aviation Investigation Preliminary Report

|                                |   |                         |            |
|--------------------------------|---|-------------------------|------------|
| <b>Location:</b>               | Owenton, KY   | <b>Accident Number:</b> | ERA25FA005 |
| <b>Date &amp; Time:</b>        | October 7, 2024, 17:35 Local  | <b>Registration:</b>    | N230AE     |
| <b>Aircraft:</b>               | Bell 206L-3   | <b>Injuries:</b>        | 3 Fatal    |
| <b>Flight Conducted Under:</b> | Part 135: Air taxi & commuter - Non-scheduled - Air Medical (Medical emergency) |                         |            |

On October 7, 2024, at 1730 eastern daylight time, a Bell 206L3+, N230AE, was destroyed when it was involved in an accident in Owenton, Kentucky. The pilot, a flight nurse, and a flight medic were fatally injured. The helicopter was operated by Air Evac Life Team as a Title 14 Code of Federal Regulations Part 135 air medical flight.

Communication records from the Kentucky State Police (KSP) revealed that the flight was requested at 1714, and three minutes later, the flight was confirmed with a 14-minute estimated time of arrival. Coordination between the landing zone (LZ), adjacent to a local high school, and the accident helicopter continued for several minutes while the helicopter was enroute and the LZ was properly staffed and equipped for the helicopter's arrival. At 1724, the helicopter was advised that the requisite fire units had yet to arrive, and the pilot advised that he would "circle" the LZ until it was prepared for the landing. At 1729, the pilot advised that the high school was in sight, that they would perform "a couple of recons, and then head down."

At 1731, county fire units reported a helicopter accident over their radios.

Several witnesses described that the helicopter approached from the north at "low altitude" with no unusual sounds or movements. A guyed television signal transmission tower, with a height of 601 ft above ground level (1,559 ft mean sea level) was located on the high school campus adjacent to the LZ. The witnesses saw the helicopter strike one of the guy wires supporting the tower before it descended to ground contact. Several detailed written statements described watching the helicopter strike the wire, watching the wire "move," and "pieces"; more specifically, the main rotor, separate from the helicopter, before the helicopter and the main rotor system descended separately to the ground.

ADS-B track data revealed that the helicopter approached the tower from the northeast on an approximate ground track of 210° magnetic at an altitude of about 1,300 ft msl. At the time,

the sun was 18° above the horizon on an azimuth of 246°. Figure 1 shows the area of the accident site including the helicopter's ADS-B ground track, the guyed tower, and the LZ.



Figure 1 - Aerial image with the helicopter's ground track, as well as positions of the accident site, select pieces of wreckage, the tower and guy anchors, and the LZ annotated.

The pilot held an airline transport pilot certificate with ratings for airplane multiengine land and rotorcraft-helicopter, with multiple type ratings. He held commercial pilot privileges for airplane single-engine land. The operator reported that the pilot had accrued 19,638 total hours of flight experience, of which 7,791 hours were in the accident helicopter make and model.

According to FAA and maintenance records, the helicopter was manufactured in 1990 and was powered by a Rolls-Royce M250-C30P, 650-horsepower turboshaft engine. The helicopter's most recent inspection was completed on September 16, 2024, at 12,401 total aircraft hours.

The helicopter was equipped with a two-axis autopilot, a Garmin 650 GPS, a Garmin 500txi cockpit display, synthetic vision, and a Helicopter Terrain Awareness and Warning System (HTAWS). These systems provided both visual and aural terrain and obstacle advisories to the pilot and crew. Figure 2 shows an exemplar instrument panel including terrain and obstacle awareness displays.



Figure 2 - Exemplar of instrument panel as configured in accident helicopter.

The wreckage was examined at the accident site on and all major components of the helicopter were accounted for at the scene. The fuselage came to rest on its left side about 670 ft beyond the base of the tower on an approximate azimuth of 220° and was destroyed by impact and fire. The tailboom remained attached but was deformed by impact and fire. The tailrotor and tailrotor gearbox were separated from the airframe as a unit and found entangled in the wreckage. One blade was separated from its grip and damaged by fire.

All flight controls displayed fractures with features consistent with overload separation, and the hydraulic servos were present but displayed overload bending and fractures. The cockpit instruments and avionics components were destroyed by impact and fire.

The transmission load mounts and pylon assemblies were connected to the upper fuselage deck and to the main transmission, with severe bending of link assemblies noted. The main rotor mast was fractured at its base near the top of the transmission case, and the fracture exhibited features consistent with overload separation.

The KAflex main driveshaft was attached at the transmission but could not be rotated due to surrounding damage. The driveshaft displayed severe rotational scoring.

The engine was still attached in its general mounted position, with the left and right mounts fractured, and the KAflex driveshaft partially fractured at that engine-driven end.

The compressor remained in position and exhibited impact damage around the airframe bellmouth area. About five impeller blades exhibited bending along the leading edges near the tips in the direction opposite of blade rotation. All five inlet guide vanes exhibited trailing edge impact damage deflection in the direction of blade rotation. The compressor damage was consistent with engine operation during and ingestion of material during the impact sequence.

The main rotor hub and blade assembly with main rotor mast attached was located about 300 ft past the base of the tower on a 192° azimuth. The swashplate was not located. The “white” main rotor blade was accounted for in its entirety where the system came to rest, as the separated outboard section of the blade was found embedded in the ground adjacent to fractured end of the same blade.

The “silver” blade was fractured about mid-span, and the outboard approximate 5 ft of the blade was found about 525 ft from the base of the tower on an azimuth of about 335°. Its chordwise separation fracture displayed features consistent with overload. Measurements of the severely damaged trailing edge and other fragments accounted for a complete silver blade before impact and overload separations.

Both blades displayed similar leading-edge gouges and striations similar in dimension to the strands of the guy wire cabling.

A structural engineering firm performed an inspection of the tower immediately after the accident and submitted a report to the tower operator. According to the report, “The crew inspected each guy anchor, measured guy wire tensions, checked tower plumb, flew a drone up each tower face as well as along the entire length of the top northwest guy wire, and climbed the tower in order to check for possible damage to the tower... The lower hardware for the top northwest guy wire was found to be damaged. The guy wire tensioning rods were bent and the vibration dampers were broken off. No additional tower damage was observed during the inspection. An exact impact location could not be identified.”

#### **Aircraft and Owner/Operator Information**

|                                  |         |                                       |                          |
|----------------------------------|---------|---------------------------------------|--------------------------|
| <b>Aircraft Make:</b>            | Bell    | <b>Registration:</b>                  | N230AE                   |
| <b>Model/Series:</b>             | 206L-3  | <b>Aircraft Category:</b>             | Helicopter               |
| <b>Amateur Built:</b>            |         |                                       |                          |
| <b>Operator:</b>                 | On file | <b>Operating Certificate(s) Held:</b> | On-demand air taxi (135) |
| <b>Operator Designator Code:</b> |         |                                       |                          |



## Meteorological Information and Flight Plan

|                                  |                         |                              |                 |
|----------------------------------|-------------------------|------------------------------|-----------------|
| Conditions at Accident Site:     | VMC                     | Condition of Light:          | Day             |
| Observation Facility, Elevation: | KFFT, 777 ft msl        | Observation Time:            | 17:53 Local     |
| Distance from Accident Site:     | 21 Nautical Miles       | Temperature/Dew Point:       | 21°C / 7°C      |
| Lowest Cloud Condition:          | Clear                   | Wind Speed/Gusts, Direction: | 6 knots / , 30° |
| Lowest Ceiling:                  | None                    | Visibility:                  | 10 miles        |
| Altimeter Setting:               | 30.03 inches Hg         | Type of Flight Plan Filed:   | Company VFR     |
| Departure Point:                 | Williamstown, KY (AE13) | Destination:                 | Owenton, KY     |

## Wreckage and Impact Information

|                     |         |                      |                   |
|---------------------|---------|----------------------|-------------------|
| Crew Injuries:      | 3 Fatal | Aircraft Damage:     | Destroyed         |
| Passenger Injuries: |         | Aircraft Fire:       | On-ground         |
| Ground Injuries:    | N/A     | Aircraft Explosion:  | None              |
| Total Injuries:     | 3 Fatal | Latitude, Longitude: | 38.5241,-84.81245 |

## Administrative Information

|                                   |   |
|-----------------------------------|---|
| Investigator In Charge (IIC):     | Rayner, Brian   |
| Additional Participating Persons: | Danny Gregory; FAA/FSDO; Louisville, KY<br>David Riser; Rolls-Royce; Indianapolis, IN<br>Mathew McLuckie; Bell Helicopter; Fort Worth, TX<br>Timothy Jenkins; Air Evac Lifeteam; O'Fallon, MO |
| Investigation Class:              | <a href="#">Class 3</a>   |
| Note:                             |   |