



# National Transportation Safety Board Aviation Accident Preliminary Report

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<b>Location:</b>	Argyle, NY	<b>Accident Number:</b>	ERA21FA317
<b>Date &amp; Time:</b>	August 7, 2021, 18:00 Local	<b>Registration:</b>	N162KJ
<b>Aircraft:</b>	Rotorway Exec 162F	<b>Injuries:</b>	2 Fatal
<b>Flight Conducted Under:</b>	Part 91: General aviation - Personal		

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On August 7, 2021, at 1810 eastern daylight time, an experimental amateur-built Rotorway Exec 162F, N162KJ, was destroyed when it was involved in an accident in Argyle, New York. The pilot and passenger were fatally injured. The helicopter was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

A witness located about 1/2-mile north of the accident site observed the helicopter flying southbound at an estimated altitude of 50-75 ft above the ground. He stated that he believed the helicopter was “having issues, as (it) could not stay up in the air, it was almost like it was bouncing.” Just after the helicopter flew over a tree line, he heard a “loud sound” and “watched the [rotor] just stop.” The helicopter then “fell straight down.”

Examination of the accident scene revealed a debris path that was about 400 ft-long and oriented on a heading of 210° magnetic. It began in an open field of 4-ft-tall grass, with a 4-inch by 4-inch fractured piece of aluminum skin from the right side of the tailboom, just forward of the tail rotor arc. A portion of the helicopter’s registration number was visible on the piece. The right horizontal stabilizer was located 156 ft along the wreckage path, 70 ft left of the path centerline. The left horizontal stabilizer was located about 10 feet further along the path, and 205 ft left of the path centerline. A 4-ft-long section of the aft end of the tailboom, including the vertical stabilizer, the tail rotor gearbox (with one tail rotor blade attached) was located 30 ft further down the path, 10 ft left of centerline, just after the path transitioned from the grass field through the tree line into a wooded area. An impact mark on the right side of the tailboom section, near the fractured forward end, was consistent in size and shape with the profile of the main rotor blade. The wreckage path continued for another 200 ft through the woods, down a steep hill, with numerous fragments of clear plastic canopy along, and left and right of the path. The main wreckage was located at the end of the path and came to rest on its right side and top, almost completely inverted. The wreckage was largely consumed by a postimpact fire. Molten aluminum remnants were present at several locations beneath the main wreckage. There were no ground scars leading up to the main wreckage, and there was no damage to trees or foliage along the wreckage path, with the exception of some broken branches directly above, and immediately surrounding the main wreckage.

Two pairs of push-pull control cables were continuous from their mounts (one on the right side fuselage tubing, the other on the cyclic control cross tube) in the cockpit area to fractured segments of control arms near the main rotor head. The left cyclic stick was not found, the right cyclic stick remained attached to its fitting on the cross tube, with no control rods found attached. The collective stick and collective cross tube were relatively intact. The throttle control torque tube remained intact; however, none of the linkage components remained attached to the torque tube. The collective cross tube weldment fittings remained in place; however, no attachment fittings or control rods remained attached at the weldment. The single push pull control cable from the left side anti-torque pedals was continuous from the pedals to the section of tailboom that remained attached to the fuselage. All of the small diameter wire elements were separated from the terminal fitting at the pedals, the single large diameter wire remained attached to the fitting.

Both main rotor blades were intact, exhibited downward bending damage in several locations, and remained attached to the blade grips. The teetering hinge attach point was fractured on both sides of the main mast. One rotor blade had leading edge damage and gouging about 1-2 ft inboard of the blade tip. Both pitch change links were fractured at their upper (blade end) rod ends and both remained attached to fractured segments of their lower control horns. The tail rotor actuator linkage and pitch change links remained attached to the separated portion of the tailboom, all operated normally and smoothly. The tail rotor shaft rotated smoothly. The terminal end of the control cable remained attached to the control arm, no remnants of the cable remained connected to the terminal fitting.

The engine crankshaft would not rotate when a lever was applied by hand to the flywheel. One spark plug was removed from each cylinder, all electrodes were tan in color, the insulators were white, and the plugs were free from debris or contamination with the exception of the No. 3 spark plug which was oil-soaked. The rocker arm cover for the Nos 1 and 2 cylinder bank was removed, all rocker arms, pushrods, valve springs and stems were in place and intact. The Nos. 3 and 4 cylinder bank was inaccessible due to the wreckage orientation. All exhaust tubes were intact and undamaged. Both intake manifolds were fracture separated from their respective cylinder bank. The Nos 1 and 2 fuel injectors were separated from the intake manifold and found loose on the ground. The Nos 3 and 4 fuel injectors remained in the manifold. No lines remained attached to any of the injectors. A borescope examination of all cylinders revealed no anomalies to the piston tops or walls, and little or no buildup of carbon on the piston tops. The spin-on engine oil filter was opened and no debris was found in the filter element.

Fragments of rubber belts were found between engine pulley assembly and secondary drive unit (which houses the sprag clutch) and between the secondary drive unit and the idlers and main sprocket. Most of the belts were consumed by fire. The secondary drive unit could not be rotated by hand. The main sprocket and engine pulley assembly each had a single impact mark on the lower and upper edge, respectively, with no rotational scoring found around the circumference of either edge. The tail rotor drive belt was broken in several places, all tail rotor pulleys remained in place and intact.

The pilot held a private pilot certificate with a rating for airplane single engine land. He did not possess a rotorcraft-helicopter rating. The pilot was the registered owner and builder of the helicopter, which was completed in May 2003.

### Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Rotorway	<b>Registration:</b>	N162KJ
<b>Model/Series:</b>	Exec 162F	<b>Aircraft Category:</b>	Helicopter
<b>Amateur Built:</b>	Yes		
<b>Operator:</b>	On file	<b>Operating Certificate(s) Held:</b>	None
<b>Operator Designator Code:</b>			

### Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	VMC	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	DDH,826 ft msl	<b>Observation Time:</b>	17:54 Local
<b>Distance from Accident Site:</b>	22 Nautical Miles	<b>Temperature/Dew Point:</b>	27°C /21°C
<b>Lowest Cloud Condition:</b>	Scattered / 9000 ft AGL	<b>Wind Speed/Gusts, Direction:</b>	4 knots / , 210°
<b>Lowest Ceiling:</b>		<b>Visibility:</b>	10 miles
<b>Altimeter Setting:</b>	30.01 inches Hg	<b>Type of Flight Plan Filed:</b>	None
<b>Departure Point:</b>	Argyle, NY	<b>Destination:</b>	Argyle, NY

### Wreckage and Impact Information

<b>Crew Injuries:</b>	1 Fatal	<b>Aircraft Damage:</b>	Destroyed
<b>Passenger Injuries:</b>	1 Fatal	<b>Aircraft Fire:</b>	On-ground
<b>Ground Injuries:</b>		<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	2 Fatal	<b>Latitude, Longitude:</b>	43.210144,-73.506795

### Administrative Information

<b>Investigator In Charge (IIC):</b>	Brazy, Douglass
<b>Additional Participating Persons:</b>	Mike Bush; FAA/FSDO; Albany, NY
<b>Note:</b>	