Aviation Investigation Final Report

Location:	Fort Washington, Pennsylvania	**Accident Number:**	ERA25LA204
Date & Time:	May 19, 2025, 19:41 Local	**Registration:**	N117NC
Aircraft:	EUROCOPTER DEUTSCHLAND GMBH MBB-BK 117 C-1	**Aircraft Damage:**	Substantial
Defining Event:	Part(s) separation from AC	**Injuries:**	3 Minor
Flight Conducted Under:	Part 135: Air taxi & commuter - Non-scheduled - Air Medical (Medical emergency)		

Analysis

The helicopter was returning to its home base following a patient transport mission when it became uncontrollable and began shuddering violently. The pilot experienced a total loss of tail rotor control with no warning. He performed an autorotation, and the helicopter came to rest on a residential lawn.

Postaccident examination of the helicopter revealed that the air conditioning louver assembly, tail rotor gearbox, and tail rotor assembly had separated in flight. A recovered louver fragment exhibited contact damage from a tail rotor blade, and both tail rotor blades were destroyed. Examination of the louver's forward attachment points revealed stripped rivet nuts and evidence of a prior repair; bolts for fastening the louver assembly to the rivet nuts were found within the airframe. Maintenance records indicated that the louver assembly had been removed and reinstalled about 16 flight hours before the accident.

Based on the evidence, the rivet nuts for the air conditioning louver assembly were likely stripped during maintenance, resulting in the louver assembly separating from the helicopter in flight and impacting the tail rotor. The tail rotor assembly then separated from the helicopter, which led to a loss of control.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

Maintenance personnel’s failure to identify and replace damaged rivet nuts at the air conditioning louver assembly, which resulted in the separation of the louver assembly from the helicopter, the louver assembly’s impact with the tail rotor, and subsequent loss of helicopter control.

Findings

Personnel issues	Repair - Maintenance personnel
Personnel issues	Incorrect action performance - Maintenance personnel

Factual Information

History of Flight

Enroute-cruise	Part(s) separation from AC (Defining event)
Emergency descent	Loss of tail rotor effectiveness
Autorotation	Collision with terr/obj (non-CFIT)
Prior to flight	Aircraft maintenance event

On May 19, 2025, at 1941 eastern daylight time, a Eurocopter MBB-BK117 C-1 helicopter, N117NC, was substantially damaged when it was involved in an accident near Fort Washington, Pennsylvania. The commercial pilot and two passengers sustained minor injuries. The helicopter was operated as a Title 14 *Code of Federal Regulations* Part 135 air medical flight.

According to the pilot, the flight originated from the Penn Presbyterian Medical Center helipad (PA39), Philadelphia, Pennsylvania, and was en route to Wings Field Airport (LOM), Philadelphia, Pennsylvania, the helicopter's home base, following the completion of a patient transport mission.

While cruising at an altitude of about 1,300 ft mean sea level and 120 kts indicated airspeed, about 3 to 4 nautical miles south of LOM, the helicopter became uncontrollable and began shuddering violently. The pilot reported there were no visual or aural warnings before the event. He experienced a total loss of tail rotor control, including a loss of pedal authority and tail rotor thrust.

The pilot lowered the collective and initiated an autorotation descent. During the descent, he identified a grass field adjacent to a driveway as a suitable forced landing area. The helicopter touched down following a rotation of about 180°. After landing, the pilot performed an emergency engine shutdown and applied the rotor brake.

Examination of the airframe at the accident site revealed the top portion of the vertical stabilizer was missing, consistent with the in-flight separation of the tail rotor gearbox and tail rotor assembly. The skid gear exhibited splaying, and the fuselage structure was displaced about 12 to 18 inches to the left of centerline, consistent with impact in soft terrain. One main rotor blade (the "A" blade) exhibited minor damage about 3 ft inboard from the blade tip. The left vertical stabilizer and tail stinger exhibited damage consistent with ground contact.

Further examination revealed the air conditioning louver assembly was missing from the helicopter, with only the aft portion of the louver frame remaining attached to the air conditioner coil assembly. The aft portion exhibited tearing and aft-bending deformation

adjacent to the left and right attachment tabs. The forward portion of the louver assembly had separated in flight. About half of the right side of the louver was recovered at the accident site.

The recovered louver fragment exhibited bending consistent with contact from a tail rotor blade. Both tail rotor blades were destroyed; one blade exhibited broomstrawing consistent with overstress separation. The 90° tail rotor gearbox, along with the tail rotor assembly, had separated from the helicopter. The severed gearbox and tail rotor were located along the helicopter's flightpath.

Inspection of the forward attachment points for the louver assembly revealed that both rivet nuts were stripped and exhibited damage. An AN3-4A bolt (17/32-inch length; 1/8 inch grip) was recovered from the right side of the engine deck, and an AN3-6A bolt (25/32-inch length; 3/8-inch grip) was located within the driveshaft plenum area on the left side of the helicopter. The forward right corner of the louver assembly featured a doubler at the attachment interface, consistent with a prior structural repair or reinforcement.

A review of maintenance records indicated that work was performed on the air conditioning coil assembly on May 7 and 9, 2025, at an airframe total time of 9715.9 hours (15.7 flight hours prior to the accident). According to the aircraft manufacturer, this would have required removal and reinstallation of the louver panel.

Pilot Information

Certificate:	Commercial	**Age:**	55,Male
Airplane Rating(s):	None	**Seat Occupied:**	Right
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	4-point
Instrument Rating(s):	Helicopter	**Second Pilot Present:**	No
Instructor Rating(s):	Helicopter; Instrument helicopter	**Toxicology Performed:**	
Medical Certification:	Class 2 With waivers/limitations	**Last FAA Medical Exam:**	December 23, 2024
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	(Estimated) 2951 hours (Total, all aircraft), 73 hours (Total, this make and model), 2551 hours (Pilot In Command, all aircraft), 41 hours (Last 90 days, all aircraft), 13 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

Passenger Information

Certificate:		**Age:**	Male
Airplane Rating(s):		**Seat Occupied:**	Left
Other Aircraft Rating(s):		**Restraint Used:**	4-point
Instrument Rating(s):		**Second Pilot Present:**	No
Instructor Rating(s):		**Toxicology Performed:**	
Medical Certification:		**Last FAA Medical Exam:**	
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:			

Passenger Information

Certificate:		**Age:**	Male
Airplane Rating(s):		**Seat Occupied:**	Right
Other Aircraft Rating(s):		**Restraint Used:**	4-point
Instrument Rating(s):		**Second Pilot Present:**	No
Instructor Rating(s):		**Toxicology Performed:**	
Medical Certification:		**Last FAA Medical Exam:**	
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Make:	EUROCOPTER DEUTSCHLAND GMBH	**Registration:**	N117NC
Model/Series:	MBB-BK 117 C-1	**Aircraft Category:**	Helicopter
Year of Manufacture:	1997	**Amateur Built:**	
Airworthiness Certificate:	Transport	**Serial Number:**	7517
Landing Gear Type:	Tandem; Skid	**Seats:**	6
Date/Type of Last Inspection:	April 25, 2025 AAIP	**Certified Max Gross Wt.:**	7385 lbs
Time Since Last Inspection:	24 Hrs	**Engines:**	2 Turbo shaft
Airframe Total Time:	9731.6 Hrs at time of accident	**Engine Manufacturer:**	Turbomeca
ELT:	C126 installed, not activated	**Engine Model/Series:**	Arriel 1SER
Registered Owner:	TRIPLE M LEASING LLC	**Rated Power:**	681 Horsepower
Operator:	TRIPLE M LEASING LLC	**Operating Certificate(s) Held:**	On-demand air taxi (135)
Operator Does Business As:	Metro Aviation Inc	**Operator Designator Code:**	HDNA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KLOM,302 ft msl	**Distance from Accident Site:**	1 Nautical Miles
Observation Time:	19:55 Local	**Direction from Accident Site:**	228°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	7 knots / None	**Turbulence Type Forecast/Actual:**	None / None
Wind Direction:	300°	**Turbulence Severity Forecast/Actual:**	N/A / N/A
Altimeter Setting:	29.85 inches Hg	**Temperature/Dew Point:**	18°C / 9°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Philadelphia, PA (PA39)	**Type of Flight Plan Filed:**	Company VFR
Destination:	Philadelphia, PA (LOM)	**Type of Clearance:**	VFR
Departure Time:	19:33 Local	**Type of Airspace:**	Class E;Class G

Airport Information

Airport:	Wings Field Airport LOM	**Runway Surface Type:**	
Airport Elevation:	301 ft msl	**Runway Surface Condition:**	Vegetation
Runway Used:		**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 Minor	**Aircraft Damage:**	Substantial
Passenger Injuries:	2 Minor	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	3 Minor	**Latitude, Longitude:**	40.116432,-75.242765(est)

Preventing Similar Accidents

Helicopter Maintenance (SA-032)

The Problem

Appropriate maintenance procedures and postmaintenance inspections are particularly critical for helicopters because of their mechanical and operational complexity and the potentially adverse environments they operate in. A lack of vigilance in performing maintenance tasks or in verifying that the work was done correctly can lead to accidents. One improperly torqued or degraded piece of hardware may result in an uncontrollable helicopter.

Fatigue and other human performance issues (such as stress, complacency, distraction, pressure to complete work, and not adhering to standard operating procedures) can increase the risk of errors, even when performing the simplest tasks.

What can you do?

- Ensure that you receive adequate training so that you have the skills necessary to complete specific maintenance tasks.
- Use work cards, if available, to document completed maintenance steps. Doing so will help ensure the safety and security of items that have undergone maintenance and of any surrounding components that may have been disconnected. If work cards are not available, consider developing them from available maintenance manuals.
- Obtain independent inspections of critical items that have undergone maintenance.
- Verify that all work was performed in accordance with manufacturers' procedures and work with flight check pilots to ensure that all appropriate checks are completed.
- Review available guidance and training materials regarding human performance errors associated with aviation maintenance. These can include pressures to complete the work, missed steps due to fatigue, and company procedures that are contrary to the manufacturer's guidance. Even experienced aviation maintenance technicians can make mistakes.

See https://www.ntsb.gov/Advocacy/safety-alerts/Documents/SA-032.pdf for additional resources.

The NTSB presents this information to prevent recurrence of similar accidents. Note that this should not be considered guidance from the regulator, nor does this supersede existing FAA Regulations (FARs).

Administrative Information

Investigator In Charge (IIC):	Alleyne, Eric
Additional Participating Persons:	Larry J Solley; FAA/FSDO; Philadelphia , PA Seth Buttner; Airbus Helicopters; Grand Prairie , TX Brady Carpenter; Metro Aviation; Shreveport , LA Frederic Dupre; Federal Bureau of Aircraft Accident Investigation
Original Publish Date:	August 19, 2026
Last Revision Date:	
Investigation Class:	Class 3
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=200184