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**Date:** February 22, 2023

**Subject:** Memorandum for the Record CEN23FA113  
Engine Examinations

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## General Accident Scene:

The airplane wreckage was found in a wooded area about 1.5 miles from the departure end of runway 18, LIT airport. Most of the wreckage was completely consumed from a post-impact fire. Both engines were found separated from their respective wing mounts and exhibited severe thermal damage. The right engine was found mostly intact, and the left engine was found fractured into 3 sections (one of which was found about 50-yards from the main wreckage area). Detailed on-site documentation of the engines was not possible due to weather and site conditions.

Both engines were recovered from the accident site and transported to a secure hangar at the Little Rock Airport for detailed examinations. The NTSB, FAA, and a Pratt & Whitney representative were present at during the examinations.

## Detailed Findings:

Left Engine Model PT6A-42 Serial Number PCE 93705

**Time Since New (TSN):** 10,498.4

**Cycles Since New (CSN):** 8255

**Time Since Overhaul (TSO):** 559.6

**Cycles Since Overhaul (CSO):** 332

The starter generator was present. The fuel control was present, but damaged from impact. Reduction gear case was presented for examination. Tach generator was missing. The propeller governor was presented for examination. The fuel oil heater was sheared off from impact and not presented for observation. The compressor rotated with difficulty by hand force. Both bleed valves were in the open position. The fuel pump was still attached to the gear box. Accessory gear box was separated from gas generator at compressor strut housing. All components of the cam mechanism were in place and secured by cotter pin. The NG tach generator was in place. The P3 filter contained no obstructions. The P3 lines were in place and secure. The propeller shaft exhibited torsional twisting and was sheared and rotational scarring was observed on the compressor turbine segments. The oil filter was clean with no debris observed. The compressor turbine segments exhibited rotational scarring. The reduction gear box was presented for observation. Power turbine vane housing separated from power section with significant rotational damage. All

PT #1 blades sheared at base. The chip detector was missing due to impact. The exhaust housing exhibited twisting deformation.



Left Engine Power Turbine Section

Right Engine Model PT6A-42 Serial Number PCE 93706

**Time Since New (TSN):** 10498.4

**Cycles Since New (CSN):** 8251

**Time Since Overhaul (TSO):** 1999.1

**Cycles Since Overhaul (CSO):** 1226

The starter generator was sheared off. The fuel control was intact, but damaged from impact. Gear case was not presented for examination. The propeller governor was not presented for examination. The fuel oil heater was sheared off from impact and not presented for observation. The compressor rotated with difficulty by hand force. Both bleed valves were in the open position. The fuel pump was separated from the gear box. All components of the cam mechanism were in place and secured by cotter pin. The NG tach generator was in place. The P3 filter contained no obstructions. The P3 lines were in place and secure. The propeller shaft exhibited torsional twisting and was sheared and rotational scarring was observed on the compressor turbine segments. The oil filter was clean with no debris observed. The compressor turbine segments exhibited rotational scarring. There was an external puncture in oil tank below data plate approximately 1 inch in diameter. The reduction gear box was not presented for observation. The sun gear and planetary gears were present. The chip detector was missing due to impact. The exhaust housing exhibited twisting deformation.



Right Engine Sun Gear Assembly and Fractured Propeller Shaft

## Summary

Both engines showed evidence of rotation at impact. Both engine cases exhibited torsional twisting consistent with rotation at impact. No Pre-impact mechanical anomalies were found with either left or right engine. It should be noted that the left and right propeller assemblies exhibited symmetrical damages to their respective propeller blades, consistent with engine power at impact.

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