



14 February 2024

Mr. Joshua Cawthra
National Transportation Safety Board

MEMO: MPS-24-007

SUBJECT: Teardown Inspection of Propellers from:
Cessna T337G, N337KN,
File #:(MPS: 2023-04 NTSB: WPR22FA256)

Subject propellers were installed on a Cessna T337G, which crashed on 17 July 2022 near Denver, Colorado. McCauley was requested to assist in the examination of the propellers and with the interpretation of the damage indications.

The propellers were inspected at McCauley Propeller Systems Engineering Lab, Wichita, Kansas, on 12 February 2024, with the following in attendance:

Bobbie Kroetch	In-person and Present	FAA
Ernest Hall	In-person and Present	Textron Aviation Air Safety
Tony Hershberger	In-person and Present	Textron Aviation Air Safety
Travis Martin	In-person and Present	Textron Aviation-McCauley Engineering Lab
Brian Cozine	In-person and Present	Textron Aviation-McCauley Propeller Engineering
Neal Russell	In-person and Present	Textron Aviation-McCauley Propeller Engineering
Scott Thompson	In-person and Present	Textron Aviation-McCauley Engineering Lab

The propellers arrived in a single wooden crate. Inside the crate, there were two propeller assemblies with propeller spinners attached.



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The model number and serial numbers of the propellers are as follows: *(Dates of manufacture for the serialized components are shown parenthetically in italics){obscured or damaged serial and model numbers are shown in brackets}*

	Front Propeller	Rear Propeller
<u>Model:</u>	D2AF34C303-C	D2AF34C305-A
<u>Serial (S/N):</u>	101275 (2010 manufacture)	785633 (1978 manufacture)
<u>Blade 1 (S/N):</u>	AFG26136 (2011 manufacture)	GA053 (1986 manufacture)
<u>Blade 2 (S/N):</u>	AFG26138 (2011 manufacture)	GA071 (1986 manufacture)

Examination of the front propeller resulted in the following observations and conclusions:

1. The front propeller had sudden-failure type damage and gross part deflections typically associated with impact forces. The investigation found no evidence of any type of fatigue failure. There were no indications of any type of propeller failure or malfunction prior to the impact sequence. All components of the start latch system were found intact.
2. The front propeller's blades had chord wise scratches and S-bending. All six mounting holes were ovalized with internal threads ripped out. These observations are consistent with a high amount of rotational energy during the impact sequence. Engine power levels were not determined.
3. The front propeller had witness marks from contact between the feathering spring and both blade root faces. Matching the crushed feathering spring to the witness marks indicates that the witness marks were created during the impact sequence. The orientation of the witness marks show that both blades were at a high pitch in the normal operating range during the impact sequence.

Examination of the rear propeller resulted in the following observations and conclusions:

1. The rear propeller was largely intact following the impact sequence but was subjected to significant heat damage. The exterior of the propeller hub was blackened and approximately 8 inches of the tip of one of the blades was melted and missing. Oil was present in the actuating cylinder



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but was cooked solid. Lubricating grease and plastic ball bearing separators were melted and solidified inside the hub.

2. The rear propeller's blades were found in the feathered position. Very little scratching or bending was observed on the propeller blades. These observations are consistent with little or no rotational energy during the impact sequence.
3. There were no indications of any type of propeller failure or malfunction prior to the impact sequence. All components of the start latch system were found intact.

Following the investigation, the components of the propellers were returned to the shipping crate. Upon request from NTSB, the propellers will be return shipped to: Beegles Aircraft Service of Greeley, Colorado.

Respectfully,



Brian Cozine
Textron Aviation-McCauley Propeller Engineering