

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



WPR24LA046

PROPELLER EXAMINATION SUMMARY REPORT

Factual Report

May 22, 2024

Table of Contents

A. ACCIDENT.....	3
B. PARTICIPANTS.....	3
C. DETAILS OF THE EXAMINATION.....	3
1.0 PROPELLER EXAMINATION	3

A. ACCIDENT

Location: Big Bear City, California
Date: December 2, 2023
Time: 1400 Pacific Standard Time
Airplane: Cessna P-210N

B. PARTICIPANTS

IIC	Andrew Swick NTSB AS-WPR Phoenix, Arizona
Air Safety Investigator	Tony Hershberger Textron Aviation Wichita, Kansas
Propeller Assembler	Steve Frame Warner Propeller & Governor Co. Tucson, Arizona

C. DETAILS OF THE EXAMINATION

1.0 Propeller Examination

The undamaged shipping container was opened, and the propeller components were secured to the bottom side of the container. The forward end of the beta rod was bent to one side and cut from the forward end of the propeller hub. The beta rod was driven through the propeller with a hammer and punch to facilitate the removal of the gear box section from the propeller hub.



Figure 1-Shipping container contents.



Figure 2-Gearbox and beta rod sections.

The propeller spinner had impact damage and was removed from the hub. The propeller hub was attached to a test bench and the beta rod forward port was plugged. The No. 1 blade had about 12 inches of blade material remaining. The No. 2 blade had about 10 inches of blade material remaining. The Nos. 3, 4 and 5 blades all had about 1 inch of blade material remaining. The No. 5 blade snap ring and spacer were damaged.



Figure 3-Propeller assembly attached to a test bench.

About 150 psi of air pressure was added to the propeller hub from the test bench and the blades rotated slowly in unison to near the reverse position. The spinner forward plate was damaged and was making contact with a blade counterweight.

The top cover was removed from the hub and all internal components were covered in yellow colored grease. Normal rubbing of internal parts was noted. The piston extension and pitch change blocks and spacers were removed and undamaged. The propeller blades were removed normally from the hub and the ball bearings and bearing races were covered heavily in bearing grease. The ball bearings and races showed normal operation and no spalling signatures were noted.



Figure 4-Propeller hub springs.



Figure 5-Propeller hub and internal components.

The piston and rod assembly was removed from the hub and was undamaged. The piston O-ring was undamaged, and the cylinder wall showed normal rubbing and seating signatures.

The propeller governor was undamaged and was removed from the gearbox attachment flange. The propeller governor was obtained by the IIC for further examination.

Submitted by:
Andrew Swick
Aviation Accident Investigator