



August 17, 2016

Mr. James Silliman
National Transportation Safety Board
Central Region

MEMO: MPS-16-065

SUBJECT: Photographic Examination of Propeller from:
Cessna, P210N, N6609P
File #: (MPS: 16-06, NTSB: CEN16FA188)

The following report concerns the inspection of a series 25 digital photographs of the recovered propeller from the above subject aircraft.

Subject propeller was installed on a Cessna P210N, N6609P, which crashed on May 18, 2016 near Sheridan Lake, Colorado. McCauley was requested to assist in the examination of the propeller and with the interpretation of the damage indications. A series of 25 digital image files of the propeller were provided by the NTSB investigator, and were examined at McCauley Propeller Systems, Wichita, Kansas on August 17, 2016. No physical parts were examined as part of this report.

The propeller model number and serial number was derived from accident propeller photographs as follows:

Hub Model: D3A34C402

Serial (S/N): 789239 *(1978 manufacture)*

As a result of the photo examination, the following conclusions are drawn:

1. The propeller sustained multiple damages that appeared to be a result of impact and subsequent recovery of the aircraft. There were no indications of propeller failure or malfunction prior to impact.
2. The propeller exhibited damage indications consistent with low rotational energy absorption during the impact sequence. This generally indicates low to no engine power at impact.
3. Exact blade angle at impact could not be determined due to the lack of visible impact signature markings in the provided photos.



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The conclusions noted are based on a variety of observations, some of which are noted below:

1. Blade bending, twisting, and overall propeller damage is typical of that associated with low power at impact.
2. The portions of blades visible in the photographs lacked impact notches, scarring and damage typical of high rotational energy at impact. Bending was smooth in nature, no evidence of blade tearing, or tip departure was noted.
3. The blade retention snap rings, shims and shim carriers are dislodged due to gross blade deflections in the hub, but present. These parts are often thrown from the assembly in high rotational energy impact scenarios.
4. The propeller actuation cylinder appears intact and undamaged. The blade angles relative to the hub indicate that all three blades are likely disconnected from the internal pitch change mechanism, this is typical after impact.
5. The spinner assembly appears to have some light damage associated with gross blade deflections and ground impact.
6. The propeller appears to have remained attached to the engine flange during the impact sequence.

The propeller had indications of prior field overhaul. The blade trademark decals are of a type frequently used during blade overhaul.

If there are additional questions, McCauley would be happy to assist.

Respectfully,



Danny L. Ball
Engineering