



November 1, 2011

Mr. Jose Obregon
National Transportation Safety Board
[REDACTED],
Suite 418
Doral, FL 33166

Subject: Teardown Inspection of Propellers
From Cessna 310Q, N444YM (file: 11-07)

Dear Mr. Obregon:

The following report concerns the teardown inspection of the propellers from the above subject aircraft.

Subject propellers were installed on a Cessna 310Q aircraft, N444YM, which crashed on August 17, 2011 near Tupelo, Mississippi. 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, Wichita, Kansas on October 27, 2011 with the following in attendance:

Jeff Janusz	-FAA (Wichita ACO)
Peter Basile	-Cessna Aircraft Company
Danny Ball	-McCauley Propeller Systems
Aaron Sturgeon	-McCauley Propeller Systems
Travis Martin	-McCauley Propeller Systems

The model numbers and serial numbers of the propellers are as follows:

	<u>Left Propeller</u>	<u>Right Propeller</u>
Model No.	3AF32C87-QR/S82NC-4	3AF32C87-QR/S82NC-4
Serial No.	910078	911179
Blade #1 S/N	F38582YS	F37363YS
Blade #2 S/N	F38790YS	F37572YS
Blade #3 S/N	F38793YS	F38776YS

As a result of our examination, the following conclusions were drawn:

1. Propeller damage was a result of impact. There were no indications of any type of propeller failure prior to impact.



2. Both propellers were rotating at impact. Neither propeller was at or near the feather position at impact.
3. The left propeller was operating at low power or windmilling. The right propeller was operating with some higher power level. Exact amount of power was not determined.
4. While exact blade angles at impact were not determined, impact signature markings indicate both propellers were operating at or near the low pitch position at impact.

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

1. All propeller damage was of the type associated with impact forces; with gross deflections, and was of sudden failure type. There were no indications of any type of fatigue failure.
2. Feather stop mechanisms of each propeller were undamaged indicating the mechanisms were not engaged at impact
3. The left propeller hub socket cover plates were found with impact marks from contact with the blade counterweights. The position of these marks indicates a propeller blade angle of approximately low pitch position at impact. Additionally, the piston rod projection was similar to that of a propeller indicating a similar blade angle at impact.
4. The right propeller hub socket cover plates were found with impact marks from contact with the blade counterweights. Additionally, the butt of blade 1 had an impact mark from the feathering spring. The position of these marks indicates a propeller blade angle of approximately low pitch position at impact. Additionally, the piston rod projection out the rear of the hub was similar to that of a propeller indicating a similar blade angle at impact.
5. The right propeller had deep chordwise scoring on some blades and blade bending and twisting and overall propeller damage indicative of rotation with some power at impact.
6. Blade bending, twisting, and overall propeller damage was minimal for the left propeller and was typical of that associated with low power at impact.

Mr. Jose Obregon



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If McCauley can be of further assistance, I am your point of contact. The propellers are being shipped to Gulf Coast Aircraft Recovery, Baton Rouge, LA.

Respectfully,

A handwritten signature in black ink, which appears to read "Danny L. Ball". The signature is partially obscured by a thick black horizontal redaction bar.

Danny L. Ball
Engineering

cc: Jeff Janusz, Peter Basile