

Aircraft Accident/Incident Report No: _150420

Date of Accident: April 20, 2015

Location: Lakeland, FL. Quality Aircraft

NTSB File No.: ERA15FA191

Aircraft: Mooney, 20TN

Registration No.: N680MR

Serial No.: 31-0132

Operator: per FAA registry:
Premier Aircraft Sales Inc.
[REDACTED]
Ft. Lauderdale, FL 33309

Written by: Daniel Boggs
Air Safety Investigation Manager

Date: May 5 2015

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ACCIDENT SYNOPSIS

According to the NTSB preliminary report, On April 20, 2015, about 1440 eastern daylight time, a Mooney M20TN, N608MR, was substantially damaged during a forced landing following a total loss of engine power while on final approach to Lakeland Linder Regional Airport (LAL), Lakeland, Florida. Day visual meteorological conditions prevailed and an instrument rules flight plan was filed. The commercial pilot sustained serious injuries. The personal flight was conducted under the provisions of Title 14 Code of Federal Regulations Part 91. The flight had departed from the Stuart Airport (SUA), Stuart, Florida, about 1340. The airplane was removed prior to the investigative team's arrival; however, photographs provided to the investigative team revealed that the airplane came to rest near the aft end of a boat, that was on a trailer. The airplane forward of the aft baggage compartment bulkhead, was engulfed in flames. A video, taken by the pilot immediately after exiting the airplane, revealed fire beginning predominately forward of the wings but engulfing the wings within a few seconds of the start of the recording. The accident flight path was oriented on a 060 degree heading and the debris path began with three tire marks, approximately 20 feet in length and 200 feet to the west of the main wreckage resting point. The airplane became airborne, impacted a palm tree about 5 feet agl, as evidenced by an imbedded pitot tube in the tree trunk, impacted an archway over an entrance gate that was about 15 feet in height, struck another palm tree, and then impacted the ground coming to rest on an approximate heading of 260 degrees. The accident location was about 6,100 feet and 76 degrees from the runway 27 threshold, the intended landing runway.

According to the pilot, he had been vectored around some weather and was at 2000 feet above mean sea level (msl). He was given clearance to descend to 1600 feet msl and was placed on the final approach course at the final approach fix for the RNAV runway 27 approach. In order to configure for landing he reduced the power, extended the landing gear, and extended the flaps to the 33 degree flap setting. Once he was established at his planned approach speed, he utilized the veneer knob, on the throttle, to add power; however, the engine failed to respond. He then utilized the throttle lever and applied full power; however, the engine did not respond. He switched fuel tanks, checked his magneto switch, and fuel pump in an attempt to get the engine to respond; however, none were successful. Due to his configuration he elected to make an off airport landing and turned the airplane to the right, towards a vacant field. He further stated that the time from the first attempt to apply power and the accident was less than a minute.

Aircraft Damage: Substantially
Injuries: 1 on board, 1 injury

[REDACTED]

The propeller had mild damage. Two of the blades were bent backwards without any twisting or rotational scoring.

[REDACTED]

The propeller showed no signs of power.

There were no discrepancies noted that would preclude normal operation. All damage was consistent with impact damage.

Propeller Teardown Report**Date of Investigation:** April 22, 2015**Location:** Air Salvage, Groveland, FL**Propeller Model:** PHC-J3YF-1RF with 7498 blades

Representatives:	Daniel Boggs	Hartzell Propeller Inc.
	Nicole Charnon	Continental motors
	Shawn Etcher	NTSB
	Ron Collier	Mooney

General Comments:

This type propeller is a 3-blade single-acting, hydraulically operated, constant speed model. Oil pressure from the propeller governor is used to move the blades to the high pitch (blade angle) direction. A spring and blade twisting moment move the blades toward the low pitch direction in the absence of governor oil pressure. The blades and hub are of aluminum construction. Propeller rotation is clockwise as viewed from the rear.

Installation Data: (Data reference the 30-inch station)

Low Pitch:	17.0 $\pm$ 0.2 degrees
High Pitch:	38.0 $\pm$ 1.0 degrees

Service History:

	<u>S/N</u>	<u>Date of manufacture</u>	<u>TTSN</u>	<u>TSO</u>
Hub	FP8344B	02/26/2014	unknown	unknown
Blades	K82356	02/26/2014	unknown	unknown
	K82353	02/26/2014	unknown	unknown
	K82355	02/26/2014	unknown	unknown

Hub Serial Number: FP8344B

Blade Model:

S/N # A: K82356

S/N # B: K82353

S/N # C: K82355

Blade Orientation:

The blades were arbitrarily number 1-2-3 clockwise as viewed from the rear of the propeller. The hub serial number was between the A and C blades.

As Received Condition:

See pictures on page 5.

The propeller was thermally damaged. The propeller was still attached to the engine. All bolts were torqued. The #1 and #3 blades were bent aft at midblade. There were no signs of power on any of the blades.

Spinner Dome:

The spinner dome was thermally damaged and bent on the bottom.

Spinner Bulkhead:

The bulkhead was thermally damaged and bent around the edges.

Propeller Cycling:

The propeller cycling was not possible due to thermal damage.

Engine/Propeller Mounting:

The engine to propeller mounting was intact.

Cylinder:

The cylinder was intact and unremarkable.



Photo #1, propeller as received.



Photo #2, propeller as received.

Piston:

The piston was intact and unremarkable.

Pitch Change Rod:

The pitch change rod was intact and unremarkable.

Fork:

The fork was intact and unremarkable.

Spring:

The spring was intact and unremarkable.

Pitch Stops:

Low Pitch Stop: The low pitch stop was intact and unremarkable.

High Pitch Stop: The high pitch stop was intact and unremarkable.

Hub Assembly:

The hub was intact and unremarkable.

Preload Plates:

NOTE: For this propeller model, when the blade knob is aligned with the hub parting line, the blade angle at the reference station is 47° (knob $11^{\circ} + 36 = 47^{\circ}$).

The preload plates showed normal wear and tear.

Blade Bearings and Blade Pitch Change Knobs:

The blade bearings and blade pitch change knobs were intact and unremarkable.

Propeller Blades:

See pictures on page 8.

1 blade

paint, camber side - thermally damaged.
paint, flat side - thermally damaged.
bend - aft midblade.
twist - forward.
lead edge damage - nick and gouges at tip.
trail edge damage - none.
knob condition - intact.

2 blade

paint, camber side - thermally damaged.
paint, flat side - thermally damaged.
bend - none.
twist - none.
lead edge damage - none.
trail edge damage - bent at tip.
knob condition - intact.

3 blade

paint, camber side - thermally damaged.
paint, flat side - thermally damaged.
bend - aft midblade.
twist - forward.
lead edge damage - nicks.
trail edge damage - nicks.
knob condition - intact.



Photo #3, propeller blades



Photo #4, propeller blades

PHOTOGRAPHIC SUMMARY

NOTE: The following digital photographs are original and unedited and available on compact disc. The numbering sequence may not be chronological as some may have been deleted if out-of-focus, too dark, redundant, etc. Photos used in the text of this report are taken from photos on this list but may have been adjusted from the original. Modifications to images used in the report are limited to cropping, magnification, file compression, or enhancement of color, brightness, or contrast for the sole purpose to improve clarity of the report. No other alterations are permitted.

PHOTOGRAPH NUMBER DESCRIPTION

P1020161.JPG	aircraft picture.
P1020162.JPG	aircraft picture.
P1020163.JPG	aircraft view front.
P1020164.JPG	aircraft view side.
P1020165.JPG	aircraft dash view.
P1020166.JPG	propeller mounting.
P1020167.JPG	engine.
P1020168.JPG	engine.
P1020169.JPG	engine.
P1020170.JPG	engine.
P1020171.JPG	turbocharger.
P1020172.JPG	turbocharger.
P1020173.JPG	turbocharger.
P1020174.JPG	turbocharger.
P1020175.JPG	turbocharger.
P1020176.JPG	engine components.
P1020177.JPG	linkage.
P1020178.JPG	turbocharger.
P1020179.JPG	engine.
P1020180.JPG	linkage.
P1020181.JPG	linkage.
P1020182.JPG	linkage.
P1020183.JPG	fuel system.
P1020184.JPG	fuel system.
P1020185.JPG	lines.
P1020186.JPG	lines.
P1020187.JPG	lines.
P1020188.JPG	lines.
P1020189.JPG	lines.
P1020190.JPG	lines.
P1020191.JPG	data plate.
P1020192.JPG	turbo charger.
P1020193.JPG	lines.
P1020194.JPG	engine.
P1020195.JPG	engine.
P1020196.JPG	mags.

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P1020197.JPG	dash panel.
P1020198.JPG	dash panel.
P1020199.JPG	dash panel.
P1020200.JPG	dash panel.
P1020201.JPG	dash panel.
P1020202.JPG	dash panel.
P1020203.JPG	linkage.
P1020204.JPG	linkage.
P1020205.JPG	linkage.
P1020206.JPG	linkage.
P1020207.JPG	dash panel.
P1020208.JPG	linkage.
P1020209.JPG	linkage.
P1020210.JPG	linkage.
P1020211.JPG	linkage.
P1020212.JPG	linkage.
P1020213.JPG	linkage.
P1020214.JPG	linkage.
P1020215.JPG	cracked oil line.
P1020216.JPG	propeller as received.
P1020217.JPG	propeller as received.
P1020218.JPG	hub.
P1020219.JPG	serial number.
P1020220.JPG	piston.
P1020221.JPG	hardware.
P1020222.JPG	cylinder.
P1020223.JPG	fork.
P1020224.JPG	preload plates.
P1020225.JPG	blade knob guides.
P1020226.JPG	blades.
P1020227.JPG	blade butt.
P1020228.JPG	blade butt.
P1020229.JPG	bladte butt.
P1020230.JPG	blades.
P1020231.JPG	blades.
P1020232.JPG	spinner dome.
P1020233.JPG	spinner dome.
P1020234.JPG	bulkhead.
P1020235.JPG	bulkhead.