

Inspector Statement

Lee A. Oscar

On August 26, 2019 at 1710 I was contacted by the Western Pacific Duty Office and advised of an accident at Reno Stead Airport (RTS). The aircraft involved is N78988 a Mooney M20C. The first responders were called out at 1644 local time. This aircraft is registered to Joseph B. Wydeven who was reported as the pilot. The aircraft landed ¼ mile short of RTS runway 26.

Three persons on board one was moved to ICU all were transported to the hospital.

I arrived at the crash site at 1750 local time and introduced myself to the Reno PD and began my investigation. The following was noted;

- I took pictures of the entire aircraft site.
- I did not notice any smell of fuel around the ruptured wing fuel tanks.
- The propeller showed signs of no rotation during impact with the fence/ground along the RTS airport.
- No flight controls were missing.
- The NLG was broken off from the impact with the fence/ground.
- One piece of fence pole pierced the right door and right seat which injured the Right seat passenger.
- The right wing had several pieces of barbed wire tangled in it.
- No oil was leaking from the engine cowling.
- No baggage was found in the aircraft just some oil and empty headset bags.
- The Airworthiness Certificate and Registration was in the aircraft.
- The last annual inspection was completed on 2/20/2019 at ATT=3916 hours.
- The last logbook entry for maintenance was 3/26/2019, ATT=3935.4
- The NTSB had the RTS airport manager Mike Scott who found a GoPro camera make sure it was turned off and gave it to me and I secured it to the FSDO.
- The NTSB accident number is WPR19LA243 Tealeye Cornejo [REDACTED] c.
- Mr. Wydeven had just received his Private Pilots certificate ([REDACTED]) on 8/6/2019.
- A search of SPAS revealed that the right seat passenger Sean M. Irwin, has a Commercial Pilots certificate ([REDACTED]) with a first class medical dated 10/30/2017.

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U.S. Department
of Transportation
**Federal Aviation
Administration**

AVIATION SAFETY

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April 8, 2020

An on-site Examination oversight was conducted on March 17 2020 by a San Antonio MIDO Aviation Safety Inspector (ASI), Jose Arizpe for component testing by Mooney personnel at Mooney International, Kerrville, Texas on behalf of the NTSB Reference WPR19LA243 Mooney M20C N78988 SN 2022.

ASI witnessed the unpacking, inspection and testing of the following components.

- Engine instrument cluster block, P/N 22-166-01 SN 4848 (Garwin Inc.)
- Left Fuel transmitter unit, PN AC5642354, no evidence of part marking on part.
- Right Fuel transmitter unit, PN 610242-1 SN 3358

ASI Reviewed Mooney Illustrated Parts Catalog, Manual PN 202 to verify components eligibility with Mooney M-20C.

Tested was conducted using a calibrated Fluke multi-meter ID 065849 S/N 28760149 calibration due date 7/19/20, a 14 VDC electrical power supply source model VLS-35M, Serial # 208080007, and a Heath Decade Resistance box, model EU-30A

Left Fuel Transmitter Unit, PN AC5642354

ASI found the FAA approved data Mooney drawing no. 610027 rev IR dated 8/24/1960 for Left Fuel transmitter unit, PN AC5642354 blurry, and distorted.

Visually inspected Left Fuel Transmitter Unit, No Defects nor damage noted, the unit was noted to be in acceptable condition per Industry Standard Practices with Normal Wear and Tear with minor evidence of corrosion on the base plate and upper part of the float arm. Per FAA approved data the resistance test criteria for the unit is 0.0 to 30.0 ohms. With the float arm in the down/resting position the resistance was measured to be 5.2 ohms. With the float arm in the upper most position the resistance was measured to be 35.6- 35.7 ohms.

Right Fuel Transmitter Unit, PN 610242-1

Visually inspected right fuel transmitter, no defects nor damage noted, the unit was noted to be in acceptable condition per Industry Standard Practices with Normal Wear and Tear. Per FAA approved data drawing no. 610242 Rev. IR dated 3/21/1975 flag note 1 Resistance test criteria for the unit is 0. To .5 ohm at empty, 31+- 2 ohm at full & .5 to 1.5 ohm with float 0.40 off empty stop. With the float arm in the down/resting position the resistance was measured to be 1.4 -1.5 ohms. With the float arm in the upper most position the resistance was measured to be 32.1 ohms.

The engine instrument cluster block with some wire segments attached at the back was noted to be in acceptable condition.

Information on the fuel gages. Mooney drawing 660013 rev IR. Dated 6/21/1961 Cluster Gauges – Engine notes indicates:

5) Right & Left Fuel Qty. range from 0 to 144 lbs. Tol all test +/-3

Right & Left Fuel Qty

E) Range 0 to 156 lbs. Tol. Below at “E” (0 ohm) above at “F” (30 ohm), on center (15 ohm) +/- pointer width Friction & position +/- pointer width

Wire segments from the cluster were connected to the left fuel transmitter and power supply with 14 VDC was applied from a power source to simulate aircraft electrical power. With the float arm in the down/resting position the left fuel gage in the instrument cluster showed above 36 mark approximately 45 lbs. With the float arm in the upper most position the left fuel gage in the instrument cluster showed approximately touching the 144 lbs. mark.

Wire segments from the cluster were connected to the right fuel transmitter and power supply with 14 VDC was applied from a power source to simulate aircraft electrical power with the float arm in the down/resting position the right fuel gage in the instrument cluster showed at E, 0 lbs. mark. With the float arm in the upper most position the right fuel gage in the instrument cluster showed just below the F, 144 lbs. mark.

It was witness that when the float arm was lowered back to the down position, the right fuel gage stopped at approximately 30 lbs. By tapping on the cluster block, the indicator then dropped to 0.

The engine instrument cluster block was then connected to a Heath Decade Resistance box to simulate the signals from the fuel transmitters with 14 VDC applied. The table below shows the results of the test.

Fuel gage indication	Decade Resistance - Left	Decade Resistance - Right
O*	0.2 ohms	2.5 ohms
1/4	5.3 ohms	4.2 ohms
1/2	13 ohms	12.3 ohms
3/4	20.2 ohms	21.0 ohms
Full	29.3 ohms	30.7 ohms

*The left fuel gage could not be completely zeroed during this testing

It was witness that the indications on both fuel gages were inconsistent with approved design data criteria and were affected by tapping on the cluster block.

The results of the on-site test witness revealed that both gauges indicate false readings.