

August 7, 2020

To whom it may concern:

At the request of the National Transportation Safety Board, in relation to NTSB Accident Number ERA20LA261, the following is a narrative statement, to the best of my knowledge, in relation to the nature for the maintenance on the aircraft fuel system that required the purchase and installation of the CiES fuel senders on my 1972 Cessna 177RG Cardinal, N1813Q SN#0213 and all the events associated to this.

On 19 February 2020, while taxiing for the very first flight, after the annual inspection and installation of the New Avionics, my flight instructor and I noticed an extremely erratic fuel amount indication on the aircraft's JPI EDM900. Having Full fuel tanks, the JPI EDM 900 was swinging on one of the fuel tanks from a "full" to a "Low fuel" indication.

After maintenance was done in Ponce on 20 Feb and the airplane was safely flown back to San Juan Isla Grande, I expressed my concern to Mr. Robert Nieves, from Million Air, who explained to me that those fuel senders were designed for analog indicators in the 70's where such sensitivity was not noted on such small fuel quantity indicators. Mr. Nieves added that pilots depended on calibrated fuel tank deep sticks and fuel calculations for their flights and when being installed on modern digital displays, such sensitivity and erratic indications could be possible. After asking for possible replacement alternatives, he was aware of some but could not precise which. (Note: Fuel Tanks were not accessed. If Fuel senders were to be tested, it was done by removing an inspection plate below the wing to access the sender.)

Shortly after and despite all the discrepancies that were reported and needed to be addressed, I decided to ground the aircraft, purchase the fuel senders, have them installed and not to fly again until this discrepancy was corrected. I told Mr. Nieves that I must eliminate distractions and have my concerns directed to flying the aircraft and must get rid of erratic instruments for the tranquility of my family and my safety. It would also beat the purpose of the avionics upgrade.

Since Dec 2014, I have been a member of the "Cardinal Flyers Online" (www.cardinalflyers.com), (Member# [REDACTED] which is a group of Cessna Cardinal Owners, with a vast data base on all Cardinal Issues, upgrades, inspections, procedures, and recommendations, among others. Through their website, I learned about the CiES Fuel Senders STC for the Cardinal. So, I proceeded with purchase. (please find attached copy of invoice)

Delivery of the fuel senders was scheduled for the end of March 2020 and scheduled for installation few more weeks afterwards. Therefore, I agreed with Mr. Nieves that since the fuel tanks, as part of the installation had to be emptied and refueled for calibration, were also to be cleaned, inspected and fuel tank vent lines blown. Overall, the following issues were to be addressed in addition to the CiES fuel senders were installation:

1. The amount of water entering the fuel tanks while waiting for the fuel senders to arrive and be installed. Specifically coming from the left wing.
2. The slow amount of fuel coming from the right wing fuel drain and the possibility of dirty fuel tanks in lieu of some small, dark and sludgy watery residue that was drained from the right wing while waiting for the fuel senders to arrive and the aircraft was being drained for water and warmed up on a randomly basis. Such draining inability disabled me to determine more accurately the condition of the fuel tank. (I showed Mechanic Jesús "Chuito" Guadalupe the fuel sample. Also, he witnessed and previously drained water from the aircraft which in one occasion was significant to the point that I was not able to start the engine and upon inspection "humid" spark plugs were noted)(Between end of April and early June). Mr. Nieves suggested that this possibility, of dirty fuel tanks, may be caused by the time without flying the aircraft. I asked him if such "suspected" accumulation, if real, could be possible from the date of inspection for which he replied that it could be possible.
3. To inspect and clear both right wings air vents due to the air lock issue reported on the flight of 19 February 2020 specifically on the right-wing fuel tank vent which to my satisfaction was not being corrected yet.

Between 29 April and 10 June, 2020, fuel tanks were emptied cleaned, fuel senders installed (Calibration was conducted by Christopher Roman) and in conversation with the mechanic in charge of cleaning the fuel tanks and clearing the fuel vent lines, he reported the following:

1. Monarch Fuel Caps flange that is connected to the wing was found without sealant and he ensured that was properly sealed. (No water was ever drained from the fuel tanks, below the pilot's seat strainer and engine strainer again)
2. Both fuel tanks were dirty and cleaned.
3. Insects blown trough the vent right wing fuel vent line, being this the second time after 20 February 2020.

Note: The right wing Fuel Tank, after June 10, 2020 and the period from 2 and 10 July 2020, had to be emptied again, cleaned and fuel vent lines open, segment by segment and air blown through all the way to the right wing fuel tank.

Fuel vent lines and drain valve for the right wing when previously inspected suggested to remain obstructed. Subsequently, seal material was found around right-wing fuel drain valve.

I HERBY CERTIFY THAT THE ABOVE INFORMATION IS COMPLETE AND ACCURATE TO THE BEST OF MY KNOWLEDGE

Eric J. Rivera Llorens

Pilot/Owner N1813Q