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All persons listed were interviewed by NTSB personnel:

The following is a summary of conversation:

DEPUTY MCLAIN

Deputy McClain stated that there was no smell of fuel once and he could not see anything on the ground. He could hear fuel sloshing in the tanks when he moved the wings.

JEAN (GIL) HARRISON

With regard to Cable...I (perhaps foolishly) did not manually check the tanks prior to my departure. The tanks had been filled upon my arrival there, 48 hours earlier. To make a potentially bad situation worse...I also did not manually check the tanks prior to my departure in Havasu, due to my (perhaps false) sense of security that I had in the high level of accuracy that I had experienced with my Fuel Scan 450.

To my understanding at the time: I had departed Cable with full tanks. I had used 13.1 gallons of fuel on my way to Havasu. Granted...some fuel had dripped from the left wing tank vent while the aircraft had been parked at Cable...but I don't see how an excess of 20 gallons of fuel could have dripped from the fuel tank vent during that time. Ultimately, I realize that I may have caused my own problem, by not checking the tanks manually. My own negligence in manually checking the tanks may indeed be the problem here. But if so...where did over 20 gallons of fuel go??

With regard to the boost pump: I received my flight training I Cessna 152's, 172's 177's and 177 RG's. From the time that I started receiving flight training in 1979, I cannot ever remember receiving any instruction whatsoever, on the fuel boost pump. To my recollection, it was always considered as something that was on the dash...but, something that no one ever used. I remember turning it on a time of two (by accident) while turning on the Master switch. When I had turned it on accidentally, I heard it working. prior to starting the engine.

I didn't fly for 39 years before attending an AOPA Rusty Pilot seminar. About a year later, I was signed off as being current in my little C177. I'm fully aware that ignorance is no excuse whatsoever...but I can't remember any emphasis being made on the Fuel Boost system at all. Yes...I read the POH for the airplane, and saw it's recommendations for the Fuel Boost system....however, I'm afraid that I gave it little importance, other than during possible use during takeoffs during super-cold weather.

I am befuddled about the foolish mistakes that I made during my descent and crash. I don't know how...but I even forgot to lower the flaps on the aircraft, prior to crashing. I feel like such an idiot. And ultimately...if I forgot to lower the flaps (which is something that I do each and every time I normally landed the aircraft)...I find it very easy to understand why I also forgot to turn on the Boost Pump, after 43 years of never having to turn one on.

I always fueled N2994X on the evening before a flight, or on the morning of a flight.

NOTE: The following dates are accurate and logged. However, the times and exact amounts of fuel used are approximations, as they are being recalled from my memory, and were not written down at the time.

I had planned on flying from KHII (Havasut) to KSEZ (Sedona) after church on Sunday, November 6, 2022, so I had the airplane fuel topped off by Desert Skies FBO (please see Desert Skies Executive Air KHII Invoice 027465) with approximately 16.3 gallons of fuel. However, it was too windy that afternoon, so we decided not to go. The aircraft fuel tanks were full...between 48 & 49 gallons, total. Whenever I entered a refueling on the EDM-830 or Fuel Scan 450, I always used the "Full" value of 48 gallons, in spite of the fact that the tanks could actually hold another gallon of fuel when filled to the lip of the fuel opening. I always felt that this actually gave me another gallon of fuel in reserve, in the event that the tanks were filled past the "Full Line" which was located about an inch below the lip of the fuel tank opening.

On Friday, November 18, 2022, I flew three touch and go's, for a total of 8/10ths of one hour. The EDM-830 and the Fuel Scan 450 both indicated that I had used 3.9 gallons of fuel, leaving 44.1 gallons remaining in the tanks (indicated) at that time.

One the morning of Wednesday, November 23, 2022, I had flown from KHII (Havasut) to KCCB (Cable). I logged the flight as 1.7 hours. The aircraft consumed an additional 12.3 gallons of fuel, leaving 31.8 gallons remaining, as verified by both the EDM-830 and the Fuel Scan 450.

Upon arriving at Cable (KCCB) on Wednesday, November 23, 2022, I called for the fuel truck to top off N2994X. I normally did not top off the fuel in the aircraft until shortly before departure, but that particular time, I decided to top off the tanks upon arrival at KCCB, in hopes that they would waive their overnight parking fees. KCCB did not waive the fees (2 nights). The fuel truck placed 17.3 gallons of fuel into N2994X (please see Cable Airport Invoice 09631) topping off the tanks at an actual value of 49.1 gallons combined/total. This was not uncommon for N2994X, but I still used a full tank value of only 48 gallons. The amount of fuel added to fill the tanks verifies the accuracy of the Fuel Scan 450 and the EDM-830.

NOTE: The time stamp on the Cable Airport fuel receipt is incorrect. We arrived at Cable around 12:00 PST, on Wednesday, November 23, 2022 as I recall. The fuel truck showed up shortly before 1300 PST, and sent a copy of the receipt to my email address. The emailed receipt arrived at my email at 2:06 pm MST that same day.

The next day was Thanksgiving Day, Thursday November 24, 2022. The aircraft remained in transient parking, and was not started or flown until our departure from KCCB on Friday, November 25, 2022, at approximately 12:00 noon, PST.

When I returned to N2994X on Friday, November 25, 2022, I noticed that the transient parking area was not quite level. The aircraft had been sitting with its left wingtip a few inches lower than its right wingtip. There was a fuel stain on the asphalt below the fuel drain on the left (lower) wingtip of the aircraft. The fuel stain left a somewhat large circle of fuel stain on the asphalt, but had not formed any kind of stream, running away from the aircraft. Due to the size of the fuel spill circle on the asphalt, I estimated that the aircraft might possibly have lost as much as 2 gallons of fuel, through its wingtip fuel vent. There was nothing to indicate any greater fuel loss than a gallon or two.

In the event that the size of the fuel stain on the asphalt at KCCB is important to your investigation, I will gladly meet with you at KCCB, and point out the parking spot and the stain, as it is most likely still there.

Upon startup at Cable (KCCB) I reset the Fuel Scan 450 to its full 48 gallon setting. When The EDM-830 flashed "Refuel?", I pressed the upper right button, to indicate that I had refueled the aircraft. Moving on through my startup checklist, I failed to realize that I had failed to press the upper left "Save" button on the EDM-830. When I glanced back at the EDM-830, it still showed a refueled value of 48 gallons. However, when I changed my focus to other things in the aircraft, the EDM-830 must have gone to "Step" mode, and reverted to the previous value of 31.8 gallons, which had been the previous remaining fuel value before refueling at Cable.

At approximately 12:00 noon PST, on 25 November, 2022, N2994X departed cable (KCCB), and returned to Havasu, (KHII). I realized upon climbout, that the EDM-830 was displaying an incorrect fuel quantity, which was the result of my failing to press the "Save" button after pressing the "Refuel?" button at startup. I had only recently had this feature added to the EDM-830, and I did not know how to correct it in flight. Besides, I still had the Fuel Scan 450, which had always proven to be extremely accurate. Therefore, I disregarded the fuel quantity value shown on the EDM-830, as it did not reflect the topping-off of the fuel tanks that had been done at Cable.

The trip from Cable (KCCB) to Havasu (KHII) logged 1.8 hours, and consumed approximately 13 gallons of fuel, leaving a total of 35 gallons of fuel remaining in the tanks. I believe that the actual reading on the Fuel Scan 450 was 35.1 gallons of fuel remaining.

The aircraft remained at its tie-down in Havasu on Saturday, November 26, 2022.

On Sunday, November 27, 2022, my wife and I decided to fly from Havasu (KHII) to Sedona (KSEZ) for lunch, after church. Being as fuel prices were over fifty cents per gallon cheaper in Sedona, I knew that I would need about 25 or 26 gallons of fuel when I got to Sedona, so I opted not to top off the tanks in Havasu, in favor of topping them off when we arrived in Sedona. We had flown to Sedona quite a few times, and a one-way trip had always used between 12 and 13 gallons of fuel.

I knew that the tanks had been topped off at Cable, 48 hours earlier, and that the aircraft had used approximately 13 gallons of fuel to fly back to Havasu. I also knew that the Fuel Scan showed 35.1 gallons of fuel remaining in the aircraft, and I would

only need approximately 13 gallons of fuel to get to Sedona, which would leave 22 gallons (almost half of the total fuel capacity of the aircraft) remaining, when we reached Sedona. I also remembered that some fuel had dripped from the left wingtip fuel vent, while the aircraft had been parked at Cable. The size of the stain on the asphalt at Cable (from the fuel vent drip) could not have been more than two gallons. However, if the fuel vent drip had been larger than I had estimated...three, four, or even five gallons...it would still leave 17 gallons of fuel remaining in the tanks. That amount of fuel would even be enough to fly an additional return trip from Sedona to Havasu, and still leave an excess of ten percent in fuel reserve, although I definitely planned to top-off the tanks in Sedona.

N2994X departed Havasu (KHII) at approximately 12:45 MST on Sunday, November 27, 2022...headed for Sedona (KSEZ). About 45 minutes into the flight, the aircraft experienced a loss of engine power. We had been flying at 9,500 MSL, which provided us with a varying AGL (due to terrain) of approximately 3,500 feet. I glanced at the Fuel Scan 450, which showed either 23 or 28 gallons remaining...I truly cannot remember which value was shown. At that altitude, the EDM-830 showed a 54% power setting. I had the mixture set just a little rich of peak, running at 2600 rpm's. POH indicates that the engine can be run full throttle (2700 Rpm's at PEAK, at that altitude. I was burning 8.1 gallons per hour. As I do the math (in hindsight...using a good deal more fuel during my climb to altitude) the fuel remaining indication of 23 gallons was probably the correct one, as opposed to a figure of 28 gallons.

Additionally, my remaining distance to Sedona was probably about 60nm. During my last 40nm's or so, en route to a destination...I would typically begin a slow descent, which would often drop my fuel consumption to 3,4 gallons per hour...reinforcing my thought that the remaining fuel quantity was probably 23 gallons, rather than 28 gallons.

I remembered these details, as I have been going over the incident time and time again, trying to figure out what went wrong. I know that there were any number of things that I forgot to do, or did incorrectly.

Whether I am correct or not, remains to be seen. However, I feel so very sure that there was plenty of fuel on board the aircraft when the engine lost power. I sincerely hope this added information helps with your investigation.

We were flying straight & level at 9,500 feet, toward Sedona, from Lake Havasu City. I had just been given some information from ALB CRT when the engine lost power. I immediately richened up the mixture setting, as I had been running just slightly rich of peak, and I thought I might have run the engine too lean, and had somehow starved the engine to the point of a power loss. I believe that the EDM-830 had been showing a power display of 54% prior to the power loss.. I had been running right at 2600 rpm. The

engine gave no warning whatsoever...it simply lost power. It never sputtered or surged...it just completely lost power. The engine did not lock up...the propeller kept windmilling...so I felt that if I could find the right combination of mixture and throttle settings, it would restart. ALB CTR came back on the radio, and asked me if I was still there. I informed him that I was experienced engine trouble. The engine made no attempt to restart. I pushed the throttle setting in, about a halfway...thinking that I might have been asking too much of the engine, and it might restart at a lower power setting. I tried full rich on the mixture. I tried many combinations. During my decent, I saw that the engine was windmilling at about 910 rpms, but that was simply due to the wind forcing the prop to turn...I could never coax any kind of life out of the engine, at all. Once I realized that I was probably not going to be able to get the engine to restart, I spoke to ALB CTR, and declared an engine out emergency...mayday mayday mayday...and skwaked 7700 on the transponder.

I always ran the fuel tank selector on "Both Tanks". Shortly after we bought the plane in 2019, I noticed that one wing tank would drain fuel at a faster rate than the other. I can't remember which side was draining fuel faster. I checked with Mark Nauman; the owner of Arizona Aircraft Maintenance at the the Havasu Airport, who told me that this was common on Cessnas. I asked him specifically, what would happen if one tank went dry while the other tank still had fuel in it...I asked him if the fuel pump would start sucking air. He told me that the Cessnas has some kind of system that prevented air in the fuel line, as long as there was fuel in the other tank...even when "Both Tanks" was selected. After I was told that; I never concerned myself with the fact that one tank was draining fuel faster than the other again. At times...when I would fuel the airplane myself...I would find a four or five gallon difference in how much fuel each tank would take...depending on how much fuel I had used overall.

The Fuel Scan 450 had proven to be quite accurate in our aircraft. If anything, it tended to show just a little more fuel usage, than the actual fuel usage...which I always saw as a good thing. After the crash, and after I was able to get my wife out of the aircraft, I turned the Master switch back on, to double-check the amount of fuel remaining. I honestly can't remember if it read 23 gallons, or 28 gallons...either way, it indicated that there was plenty of fuel remaining on board at the time the engine lost power. The fuel would have been distributed between both of the wing tanks, although the amounts in each tank would probably have been different, due to the unequal fuel drainage from each tank.

When I would top off the tanks, I often noticed that fuel would drip from only one of the wing tank vents at the tip of each wing...not both vents. However, I also noticed that the next time I refueled, fuel had been used from each tank (although not equally). I asked if this was a problem, and was assured that it was not, as long as fuel was draining from both tanks.

I honestly cannot recall if I tried to switch tanks from both to one side or the other. At the time, I was trying to size up a potential landing area, when a different voice came over the radio, and mentioned that there was a private airfield about three miles ahead of me, if I could make it. My wife was being a real trooper. She saw that something was wrong, and she could hear my "mayday" through her headphones. I feel that I was able to maintain my composure, and reassure her that everything would be OK...but my mind was going about a hundred miles an hour, and I truly cannot recall if I tried to switch tanks. According to what I had been told by A&P Mark Nauman, it shouldn't have made any difference anyway.

The aircraft had 36.7 hours on it, since completing its Annual.

The engine had 36.7 hours SMOH. However, the company that performed the Annual was Cutter Aviation, Prescott. I asked them to send the prop out for inspection. The Sensenich prop dealer in Tucson informed me that I needed a new propeller. He then ordered a new prop, and Cutter installed it on my aircraft. As it turned out, the pitch on the new propeller was too low (according to STC &337's). This lower pitch allowed my engine to overspeed. I noticed the overspeed at about 13 hours after getting the plane back from its Annual, while breaking in the overhauled engine. Cutter was reluctant to do anything about it, until I filed a complaint with the FSDO in Phoenix.

Investigative Results Report 9-AAE-Reports (FAA). Violation of an order, regulation or standard of the FAA occurred related to a maintenance provider deviated from the instructions of a Supplemental Type Certificate (STC), by installing a propeller with an incorrect pitch on his aircraft, N2994X, and returned it to service. Case # AAE-EHL-20220728-795 Frank Waterhouse Aviation Safety Scottsdale Flight Standards District Office Created on or about 15 Nov, 2022

Cutter Aviation then performed an overspeed inspection, as noted in the engine logbook. Then engine had 36.7 hours on it SMOH...but only 23.6 hours on it, since it's overspeed inspection.

I was trying to establish my best glide angle. Every time the stall warning horn came close to sounding, I knew I was about right. Although I was descending from 9,500 feet, I had no real idea what my AGL was. I was very focused on trying to get into position over the landing area I had selected, while declaring an Engine Out emergency to ALB CTR, "Mayday, Mayday, Mayday", squawking 7700 on my transponder, and trying to keep my wife calm, when another (different) voice came over the radio on the ABL CTR frequency. I don't know if the controller at ALB CTR handed me off to a supervisor, or what. I see in the Flight Tracking Log, that Phoenix TRACON evidently got involved, but I don't remember this person identifying himself.

In any case, this new person on the radio informed me that there was a private landing strip about three miles ahead of my position, if I could make it. It seemed like a good idea, so I told him that I would try for it, in spite of the fact that I could not see it on my Foreflight.

According to the coordinates of the crash, as shown on the Aviation Safety Network, the altitude of the crash site was 5,807 feet. My altitude at that time had already dropped to about 9,000 feet. My best rate of glide was to descend at 1,000 fpm. If I could have maintained a perfect glide ratio, it would have been if-y at best, but I didn't know that at the time. Additionally, with everything that was going on at the time, I feel quite sure that I was not fully successful in maintaining a perfect glide ratio through my entire descent.

I thought that I actually had my thought processes fairly well under control, until the voice on the radio suggested a private landing strip about 3 miles ahead of me. It sounded good, but as I stated earlier, I could not see it on Foreflight, so I was relying on ALB CTR or whoever was on the radio, to guide me to the private landing strip they were talking about. This uncertainty seemed to kick my tension level up a few notches.

Upon realizing that I could not make the private landing strip (I never did see it) I decided to try to land on a dirt road. I was flying parallel to the road, and needed to move a few hundred feet to my right, in order to approach it on a 45 degree angle. I found myself way too low, and way too slow before reaching the road. I saw that there were berms built up on both sides of the road, so I turned parallel to the road, rather than trying to land across it, with its berms. My airspeed had slowed to 65 – 70 kts. I entered a moderate landing flair, and the ground seemed to pass by my window a little bit slower. Unfortunately, I could see through the brush on the ground, that the area was littered with large rocks, and there was large boulder (about 3 feet tall) at a 1 or 2 o'clock position ahead of us. In an effort to blow off remaining airspeed, and to make sure that I missed the boulder, I pulled back a little more on the yoke. Almost simultaneously, the stall warning horn sounded at its loudest, I pulled the yoke as far back as I could, which was probably the dumbest thing I could have done, but that's what I did. We cleared the boulder, but we slammed down to earth just after it. My best guess is that the cabin of the aircraft dropped 6 or 7 feet to the ground.

The next thing I knew, we were upside down, and stopped. My first instinct was to shut off the Master switch. I then opened the seat belt on my 3-point harness, and worked my way out of the aircraft. I walked around the nose of the aircraft, and started work on getting my wife out of the passenger side of the plane.

After getting her out of the plane, I went to the pilot side of the aircraft, and turned the master switch back on. The Fuel Scan showed either 23 or 28 gallons of fuel left (I can't remember which), and the EDM-830 was asking if I had refueled. I have no idea why, but I pressed the YES button on the EDM-830, and then the SAVE button. Perhaps it was to reinforce to myself, that this was what I should have done after the last time we had refueled the airplane at KCCB. Regardless of my reasoning, whatever fuel readings that the EDM-830 might show at this time are incorrect.

About 90 minutes later, a couple of Deputy Sheriffs showed up, with a Fire Battalion Chief. The first Deputy to arrive was also a pilot, and he informed me of two seemingly important things, as he had been in contact with the controller from ALB CTR: (1) He told me that the controller was

"rattled", and (2) he informed me that he had "difficulty" in extracting my position information from the controller. The Deputy stated that the controller was "vague", and it was only after asking him several times, that the controller finally decided to tell the Deputy the general area where I had gone down.

In looking at the wreckage, it was easy to see that the nose wheel of the aircraft had broken off when the nose of the aircraft contacted the ground. This action would have placed the nose cowling of the aircraft on the aircraft on the ground, which would be why it flipped over. Somehow, we did not hit the boulder.

It was only as we were waiting for First Responders to arrive, that I realized I had made two major mistakes during our descent. (1) I don't remember switching fuel tanks. Or, if I did, I didn't leave the selector valve in any one position long enough to do the job...and, (2) I never extended the flaps. Doing so, might have allowed us to make it to the dirt road. I believe that I was able to get our airspeed down to as satisfactory a speed as possible, but I didn't use the flaps...I don't know why.

For informational purposes; I filed a complaint with the FSDO in Phoenix, regarding the fact that the Maintenance Facility that performed my last annual installed the wrong pitch propeller on my aircraft, causing an overspeed.

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The Maintenance Facility performed an overspeed inspection, as noted in the engine logbook.

I have no idea whatsoever, if the work performed on my aircraft might have had anything at all to do with this incident, or not.

NARRATIVE HISTORY OF FLIGHT (addendum)

Additional details of this incident have occurred to me. I fully realize that as Pilot In Command at the time, any and all decisions that were made, rest solely on my shoulders. I am not trying to assign blame to anyone for anything. I am simply relating what happened.

At the time that the engine lost power, I was in communication with ALB CTR. I had been flying a easterly course of 88 degrees. Shortly before the loss of power, I had flown close to (what appeared to be) a cleared patch of land, just south of my course heading. When the engine lost power, I initially tried to restart it. As I could not get the engine to restart, I circled to the southwest, to take another look at the cleared area that I had seen a few minutes earlier. At the same time, I declared an emergency to ALB CTR.

A short time later, as I was gliding back toward the cleared area (still trying to restart the engine) a voice came over the radio, informing that there was a private airport about three miles ahead of me, if I could make it. Any airport seemed preferable to a clearing at the time, so I acknowledged that I would try to make it.

The Flight Aware Flight Track Log shows that somewhere along the line, Phoenix TRACON was also communicating with me, but I was unaware of the handoff at the time...I simply heard a different voice on the radio.

At the time that I was informed that there was a private airport about three miles ahead of me, I was proceeding on a heading of approximately 213 degrees, and was headed in a westerly direction.

I didn't know it at the time, but the cleared area that I had originally chosen for a landing, was Yolo Ranch (33AZ). Yolo Ranch also has a private airport, although I hadn't seen it yet, and was unaware of its existence at the time.

I made the PIC decision to pass on the cleared area, in hopes of finding the private airport that the voice on the radio had told me was about three miles ahead of me. My focus was intently directed on finding the private airport that was suppose to be ahead of me. I did not take time to check out the cleared area that I had previously chosen any further.

I can only guess that whomever it was that told me there was a private airport about three miles ahead of me...was unaware that I had turned away from my earlier course of 88 degrees. In the 213 degree direction that I was currently flying, the closest airport was Bagdad (E51), which was about 16nm from my position, and would have required a course change.

When the Sheriff's Deputies arrived at the crash site, they informed me of the air strip at Yolo Ranch, that I had glided over, about a mile and a half earlier.

Based on my earlier course heading of 88 degrees, there were two private airports, about 5 miles ahead of the point where I turned away from my 88 degree heading. I can only assume that the voice on the radio somehow thought that I was still on an 88 degree heading, but the reality is that I would not have been able to glide the actual distances to either of those airports, if I had maintained that heading.

The clearing that I had originally picked was my absolute best chance of landing safely, although I didn't know it at the time.

Again, I am completely aware of the fact that it was ultimately...my decision alone, to pass on trying to land at the cleared area, and try to make the airport that I had been told was ahead of me.