

Mitchell Gallo
Senior Aerospace Engineer
Aviation Safety - Central Region

Date: June 6, 2023
Subject: CEN23FA204, Record of Conversation
Contact: Joe Strauss, [REDACTED]

Joe Strauss said that he was a professional pilot and held 10 type ratings, flew helicopters and seaplanes, held a mechanic certificate with airframe and powerplant ratings, held inspection authorization, he was a check airman, and was a designated airworthiness representative. He accumulated about 22,000 hours of flight time and has not been involved in an aviation accident and/or incident and never received a warning letter. He said he was not an engineer.

In 2014, Joe Strauss ordered plans from Earl Luce and built a Luce Whittman Buttercup. Joe Strauss said before he built a Luce Whittman Buttercup, he was concerned with the strength of the rear wing spar based upon "looking at it." The Luce Whittman Buttercup was the fourth airplane he built. He said that he was not going to build the Luce Whittman Buttercup unless he used laminated wood wing spars, which he purchased from Skybolt Biplanes in Florida. He said the laminated wood wing spars were about 25% stronger. The Luce Whittman Buttercup rear wing spar would "droop," was like "a fishing pole," and "something was not right". He became concerned and went to the Experimental Aviation Association (EAA) Museum, Oshkosh, Wisconsin, and said that a Whittman Buttercup that Steve Whittman built was in an EAA hangar. He asked EAA personnel if he could shake the wing of the Whittman Buttercup and when he did, he found that the wings were "stiff," and there was no "fishing pole rear spar droop." He was "confused" by his findings. He sold his Luce Whittman Buttercup about three years ago, and the airplane is now in a hangar next to Earl Luce's hangar.

On May 7, 2023, Earl Luce drove to Minnesota to see and fish with Joe Strauss for about a week. Joe Strauss gave Earl Luce the wings that Joe Strauss had built, which were uncovered, and were a lot stronger. Earl Luce transported the wings back to his home with a trailer. He said the original wing spar of the Luce Whittman Buttercup was 1 in x 3 in, and it seemed "like it didn't have the strength," and the wing that Joe Strauss built had a spar that was 1 ¼ in x 3 ½ in, and it used a Piper SuperCub airfoil instead of the Luce Whittman Buttercup airfoil.

Joe Strauss said that Earl Luce did not install the wings, which were built by Joe Strauss, onto N18263. The wings he gave Earl Luce were uncovered and did not have ailerons installed; the wings which are now in Earl Luce's hangar, resting on a trailer. Joe Strauss has never seen N18263. Earl Luce has flown Joe Strauss's Buttercup a few times and Earl Luce said it flew a lot better than Earl Luce's Buttercup. Earl Luce said that the ailerons on Earl Luce's Buttercup were "really stiff" in comparison to Joe Strauss's Luce Whittman Buttercup. Joe Strauss's Luce Whittman Buttercup had a different aileron to wing tip configuration that had a 3/8-in square trailing edge made of tubing and Earl Luce's Whittman Buttercup had a sharp trailing edge made of sheet metal.

Joe Strauss said he used Earl Luce's plans when he built his Luce Whittman Buttercup, N656JS. When asked by the IIC if there was a difference in plans between the Whittman Buttercup and the Luce Whittman Buttercup, he said Steve Whittman did not have plans. Earl Luce went to the EAA museum and looked and measured the Whittman Buttercup and had somebody draw plans. Joe Strauss said he did not know why there was a difference in wing stiffness between the Whittman Buttercup and the Luce Whittman Buttercup. Joe Strauss said that he did not know if the Whittman Buttercup had inspection covers from which you could measure its rear wing spar. Joe Strauss did not install the wings he built onto N656JS and gave them to Earl Luce. Joe Strauss suspected that there is a weak aspect of the rear wing spar where the two 5/16-inch bolts attach the wing strut to the wing spar attachment fitting on the rear spar, which according to the plans is 3 in deep. Joe Strauss said the wing droops on the Luce Whittman Buttercup that Joe Strauss built about an inch and if you shake the wing at the wing tip, it is like a "wave" going through the wing. While the airplane is at rest, the wing would droop about 1 inch.

Joe Strauss said that within the Earl Luce's Whittman Buttercup plans, literature, and website, the Vne speed for the Luce Whittman Buttercup was listed as 145 mph and also as 150 mph. On Earl Luce's Facebook page, there was a July 2, 2019, picture of N18263 in flight showing the airspeed indicator at 124 mph with a yellow line from 135 - 170 mph with a red line at 170 mph. The green arc was about 53 - 135 mph and

the white arc was about 49 - 95 mph, with the airplane equipped with the previous engine and propeller.

Joe Strauss said that when Earl Luce installed a different engine and propeller onto N18263, he initially had problems with oil blowing out of the crankshaft and had to disassemble the engine and install a different crankshaft and worked on the engine for about a year. It was a Lycoming O-290 engine.

Joe Strauss said he thought Earl Luce was a "great guy."

Joe Strauss said that he did not know what kind of propeller was installed onto N18263 at the time of the accident. Earl Luce tried to use a Sensenich 74DM6, but he had a vibration from about 2,150 - 2,500 rpm. Joe Strauss said he asked Earl Luce to bring the propeller during their fishing trip from May 7-13, 2023. Joe Strauss dimensionally checked the propeller, and everything looked "good," but it had two divots on the back of the propeller located about 8 in and 14 in from the propeller center. The divots were about 1 ½ in long, ½ in wide, and 0.050 in deep. Joe Strauss told Earl Luce that the propeller should be disposed of. Earl Luce went home and called Joe Strauss asking if he could drill a hole and put steel in the hole, Joe Strauss told him no, and it needed to be disposed of. Joe Strauss told Earl Luce that the airplane needed a Sensenich 74DM6 because of the "power pulses" from the Lycoming engine.

Earl Luce installed a Prince propeller, and Joe Strauss told him that he had to keep checking the propeller bolt torque and Earl Luce said that was hard to do because he did not have lugs in the propeller extension where he could screw a bolt into, so he went to the hardware store and bought grade A bolts. Earl Luce told Joe Strauss, he had to remove the engine cowl and put a wrench on the nut on the back side of the propeller to check the torque. Joe Strauss did not think he installed drive lugs in the propeller and the bolts that Earl Luce used were probably coarse cut threads and not rolled threads and did not think Earl Luce used drive lugs. Earl Luce told him that the propeller was so fast that he would not have to "open the plane up" to attain 150 mph.

Joe Strauss said the passenger on the accident flight had six speed records flying a Mooney and Joe Strauss could "envision" Earl Luce was showing him how fast N18263 could fly during the accident flight.

Joe Strauss said during the fishing trip on May 7, 2023, Earl Luce had sciatica and could hardly walk. Earl Luce called his daughter's doctor, who was the passenger on the accident flight, and the doctor said that Earl Luce had to get narcotics to get relief and be able to sleep, and it would take about 12 weeks for Earl Luce to recover.

While Earl Luce drove home, he had to get a wheelchair while he stayed at his cousin's home in Chicago. Joe Strauss talked to Earl Luce when he arrived home and Earl Luce sounded as if he was under the effects of narcotics.

When the IIC asked what glue the Luce Whittman Buttercup plans called for, he said there was no manual with the plans, and everyone has been using T88.

He said Steve Whitman did not create plans for the airplane but only for the Whittman Tailwind. Joe Strauss said Earl Luce went to the EAA museum about 23 years ago and asked them if he could look at the Buttercup because he wanted to build a replica. There are about 25 Luce Whittman Buttercups built.

When the IIC asked how Earl Luce determined that a Lycoming O-290 engine could be installed onto N18263, Joe Strauss said Earl Luce probably looked at N656JS, which was equipped with a Lycoming O-320 engine. When Joe Strauss was asked how he determined that a Lycoming O-320 could be installed onto N656JS, he said the original Whittman Buttercup was equipped with a 50 hp to an 85 hp engine then it was equipped with a Continental O-200. In Earl Luce's plans, there were drawings for a Continental 85 hp or a Continental O-200. Since the airplane was experimental, Joe Strauss decided to install a Lycoming O-320 engine because it was the same weight as a Continental O-200, but it had 160 hp instead of 100 hp and that is how Joe Strauss got his airplane certified by a DAR and have an airworthiness certificate issued.

When Joe Strauss told Earl Luce that he did not like the wing and it was like a fishing pole, there was no comment from Earl Luce. Joe Strauss said he flew N656JS about 120 hours and sold the airplane about three years ago to Jeffrey LaChausse, which is kept in a hangar that is one hangar down from Earl Luce's hangar.

When asked if he saw a vibration during flight in N656JS, Joe Strauss said no but Michael Mattes built the first Luce Whittman Buttercup and experienced aileron flutter at 125 mph. Michael Mattes solved the aileron flutter problem by putting a balance weight on the inside of the fuselage at the end of the torque tube of the aileron. Michael Mattes has flown his Luce Whittman Buttercup about 300 hrs since and now has about 500 hrs on it. Michael Mattes's phone number is [REDACTED].

Joe Strauss said that he doesn't know why N18263's airspeed indicator had a Vne of 170 mph. Joe Strauss said the gross weight of the Luce Whittman Buttercup is 1,320 lbs, and he is certain that the accident airplane was a couple hundred pounds overweight during the accident flight.

Joe Strauss said Earl Luce produced a video on how to build a Buttercup and did welding using oxyacetylene gas and tack welded something on a wing strut fitting, during which the wing must have caught fire because you could see a black charcoal spot the size of a deck of cards on the side of the wing spar.

Jim Clement, Baraboo, Wisconsin, built about ten Whittman Tailwinds, and Jim Clement thought it was odd all four wing spars, the ends, had the U-channels that should be welded to the fuselage were still attached to the end of wing spars on the accident airplane. Joe Strauss said there is no way to tear off those channels unless the gas weld did not have penetration.