

N4134E Accident Report

Background: Owner, Mr. Pierce, very recently purchased subject aircraft from, I believe, Kansas City MO. He engaged a ferry pilot to bring the plane to NC but a cylinder failure occurred near 2M0 and repairs were made there. Ferry pilot returned to his home base and did not continue flight. Owner had previously contacted me about tailwheel training in my Decathlon but his 255 lb weight precluded use of my plane. I told him if he found a plane in which to do such training give me a call. He called and I offered to provide dual training while relocating the aircraft back to his home field 6A5. Tailwheel endorsement training would not be done during the relocation flights; just in-air familiarization. I would act as sole PIC during takeoffs and landings.

Planning Activities:

Paperwork: At my request Mr. Pierce sent maintenance logbook entries showing annual inspections on engine and airframe were completed in October 2020. I requested weight & balance data for N4134E and created a spreadsheet to do "what-if" analyses regarding aux fuel, main fuel, baggage, and crew weights. Since no POH exists for the 1946 Aeronca Chief I did extensive internet searches for 11CC performance data; specifically, stall speeds, fuel burn, cruise speed, climb rate, maneuvering speed, etc. My plan was to verify the performance data was accurate for N4134E on the first legs of the flight to 6A5.

Flight Planning: I divided the trip into 6 legs; 2m0 -> KBWG -> KEKQ -> OVG -> KGEV -> 6A5. None of the legs were over 1.7 hours at 70kts. The first leg was just over an hour and would give a good read on fuel burn and handling. Foreflight was used for all planning.

Early weather planning indicated that 6/22/2021 would be an ideal day for the trip. Perfect VFR weather and light winds across the route. This forecast turned out to be spot on.

Leg 1 2M0 to KBWG:

Preflight: I personally did a walk around. No airworthiness issues were found. I had planned for no fuel in the Aux tank for W&B reasons and looked into the tank to verify. I had been told that the tank had been filled earlier but no fuel was visible although the tank was dark and I could not actually see the bottom of the tank. We filled the main tank to its 15 gal capacity. The air worthiness certificate was clearly visible on the shelf behind the seat back and I had a copy of the W&B with me. Another copy was in said to be in the aircraft however I did not attempt to locate it since I had a photocopy. Mr. Pierce stated he had the Bill of Sale with him. There is no AFM for this 1946 aircraft. At my request the mechanic briefed me on the operation of the Aux tank. There is a valve to the left of the pilot that opens a line from the Aux to Main tank. It is a gravity feed system. He advised that when open it's possible for main tank fuel to flow to the Aux tank. I verified the Aux tank valve was closed.

Start-up and Taxi: N4134E does not have an electrical system and must be hand propped. I remained in the cockpit to operate mags and throttle while Mr. Pierce propped. We had no success and the

mechanic came out to help. He had me open the Aux tank valve while he pulled the prop through repeatedly for about 5 minutes. The engine started and I closed the Aux tank valve.

I had been cautioned by a pilot who had recently flown this plane (Health Carlton) that the brakes were “sensitive” and he had to apply them simultaneously (not sure what he meant by that). I tested the brakes during taxi and did not see any issues. That said, the plane was very difficult to keep on a straight track; requiring almost full rudder inputs to alter direction even at slow speeds. The brakes worked for pivot turns but I don’t use them during normal taxi. In hindsight I can’t help but wonder if the tailwheel detent was worn and “breaking out” under very light load. At the time I chalked it up to normal operation for a 1940s design.

Takeoff Run: Directional stability during the takeoff run was marginal but manageable both before and after lifting the tail. Liftoff was uneventful.

Cruise: Plane handled nicely; however, it had a tendency to fly a little bit heavy in the right wing. At the time, I attributed this to a slight miss-rig as I have a Decathlon that had a similar issue but was corrected by shimming the spade. In hindsight, regarding N4134E I’m thinking it was the mismatch in weights between the left seat occupant (me at 170 lbs) and the right seat occupant (255 lbs).

Landing: 3 point landing. While it wasn’t greased on I would not describe it as a hard landing. Mr. Pierce complemented it as nice (I think his standards might be lower than mine). Rollout stability was marginal with a constant pull to the left. I’m used to slight to moderate pulsed rudder inputs for directional stability control but found I needed full rudder pulses at times to keep us tracking straight. Flight time was a little more than an hour with 6.3 gallons consumed.

Leg 2 KBWG to KEKQ:

Preflight: The walk-around was not as thorough as the first leg in that there was no need to check documents nor get a brief on the Aux tank operation. Otherwise, it was a normal inspection with no airworthiness issues found. The main tank was refueled and I looked at the weather on Foreflight.

Start-up and Taxi: The engine came alive on first prop pull-through. Taxi characteristics were as stated for first leg.

Takeoff Run: As with the last leg directional stability during the takeoff run was marginal but manageable both before and after lifting the tail. Liftoff was uneventful.

Cruise: Same as previous leg.

Landing: 3 point landing. Again, while it wasn’t greased on I would not describe it as a hard landing. Rollout stability was marginal with a constant pull to the left. Again I needed full rudder pulses at times to keep us tracking straight. Flight time was a little more than an hour with 6.3 gallons consumed.

Leg 3 KEKQ to OVG:

Preflight: The walk-around was as per the previous leg. The main tank was refueled and I looked at the weather on Foreflight.

Start-up and Taxi: The engine came alive on first prop pull-through. Taxi characteristics were as stated for first leg.

Takeoff Run: As with the last leg directional stability during the takeoff run was marginal but manageable both before and after lifting the tail. Liftoff was uneventful.

Cruise: Same as previous leg.

Landing: 3 point landing. During rollout I was unable to control the left turning tendency with normal rudder inputs. We departed the runway onto grass momentarily while I applied aggressive rudder inputs to the right. End result was a ground loop to the right onto the runway. After taxiing in, a careful inspection could find no damage. When discussing the event with the gentlemen at the front desk he informed me that he currently owned an Aeronca Chief and had himself ground looped it there. We discussed Chief handling characteristics and I decided our ground loop was landing technique induced and could be avoided in the future. That said, I gave the Mr. Pierce the option to stop the trip at OVG if he was not comfortable continuing. Flight time was a little more than an hour with a little over 6 gallons consumed.

Leg 4 OVG to KGEV:

Preflight: There was a detailed inspection during the walk-around to ensure no damage during the ground loop. The main tank was refueled and I looked at the weather on Foreflight.

Start-up and Taxi: The engine came alive on first prop pull-through. Taxi characteristics were as stated for first leg.

Takeoff Run: As with the last leg directional stability during the takeoff run was marginal but manageable both before and after lifting the tail. Liftoff was uneventful.

Cruise: Same as previous leg.

Landing: I circled the field to get a good read on the winds by observing the sock. It was showing a direct to quartering crosswind from the South at about 6kts. I decided a wheel landing would be best as the instability I experienced during 3 pt landings after the tailwheel came down would be exacerbated by the crosswind and I could delay tailwheel touchdown to a lower speed than with 3 pt. Because of high terrain to the West and the shallow glide of N4134E I elected a high right base leg and final leg with touchdown about 1/3 to 1/2 the way down the runway. That left more than ample room to safely complete the landing. The intent was to avoid terrain on the approach and avoid building structure induced turbulence just past the approach end of the runway. I aggressively slipped the aircraft down to roundout altitude, aligned the plane with the runway, stopped all side drift with right wing low. I was

stable and expected a decent landing. As soon the right main touched down the airplane veered sharply to the left. I immediately applied full power for the go-around but could not regain flying speed in time to avoid the scrub brush and sapling trees on the left side of the runway. I think but am not positive we were airborne when contacting the vegetation.

Post Crash: The airplane came to rest in the vegetation at about a 45 degree nose down angle. It was not touching the ground. The deceleration was not traumatic as even though we only had lap belts neither of us sustained any injuries due to impact with the panel or yokes. The engine was still running but the prop was not turning. I turned off the mags and fuel. Mr. Pierce and I confirmed with each other that each was physically uninjured, then climbed out of the plane. I retrieved my headsets, intercom, and overnight bag from the plane. Mr. Pierce found my iPad and gave it to me. I believe no one witnessed the accident as no one showed up at the scene. I walked to the FBO and could find no one (it was closed). I did find an elderly couple who were very helpful in giving us a ride back and forth to the plane. (Mr. Pierce was still retrieving stuff from the plane and it was not a short walk.) The elderly man used to be employed by the FBO. The aircraft clearly met the definition for substantial damage so I found the NTSB Ops Center phone number and reported the accident.

Commentary:

For the next hours after an accident one (or at least I) spends a lot of brainpower trying to answer the question why? The puzzle for me is why the plane was so unstable toward the left on landing. My experience in teaching in conventional gear aircraft is that ground loop tendencies are equally likely in either direction. This plane had a strong left ground loop tendency and almost nothing to the right. Can this be a lateral CG issue related to the side-by-side configuration with severely lopsided loading? I weigh 170 lbs. Mr. Pierce weighs 255 lbs. Also, the right wing low would exacerbate the condition with any fuel in the Aux tank. This is my first actual ground loop event in several decades of flying.