

Incident Report for Flight Design CTLS Tail Number N106SF

April 24th, 2014

On the afternoon of April 24th, 2014 we flew N106SF from Pensacola, FL to Lucedale, MS. We landed on a grass field at Sky Landings (22MS) and left the aircraft with South MS Light Aircraft, Inc. for a scheduled 100 hour inspection of both power plant and airframe. At the time of drop off the Hobbs meter read 1608.1

April 25th, 2014

After discussing the details of the 100 hour inspection we did a preflight inspection, engine warm up and engine run up before departing at approximately 11:30am with a planned stopover destination of Winnsboro, TX (F51) where they sell Mogas, the best fuel type for the CTLS. Our flight route to Colorado was completely dictated by the prevailing winds which were more favorable to the south.

Approximately one half hour before our planned stop in F51 we received a span warning (SPN) on the EGT (Exhaust temperature) gauge on the Dynon EFIS-120 display. The temperatures were in the green but were running between 100 and 150 degrees apart. Maximum span was recorded at 1219 on the left and 1372 on the right. Because of the intermittent span warning we made the decision to stop for fuel early in Gilmer, TX (KJXI).

At Gilmer we made two phone calls to Ronnie Smith at South MS Light Aircraft, Inc. He said that the span we were experiencing was within normal limits and no big deal. He also said that his Rotax motor runs regularly with EGTs in the 1600s. EGTs have been linked to spark plugs so we removed the upper and lower cowls covering the engine and a local mechanic removed and checked the plugs for us. One of the upper right spark plugs was dirty with the presence of what looked like a 1/8" long piece of gray string, which the mechanic stated could possibly have been related to the higher temperature on the right EGT. At that time we sent a photo of one of the plugs to Ronnie Smith via text message. Mr. Smith stated that he thought the plug looked normal. We checked the oil on the aircraft and did not see any evidence of particles or other indicators of a problem. After the plugs had been cleaned and replaced according to specifications (replaced and torqued to 177 inch pounds), we did two separate run ups, both resulting in normal mag checks, not dropping below 100rpms from 4000rpms, there were no irregularities except the variance in EGT. Mr. Smith offered the advice that if we had a piston problem we would hear it rattling and if we had a bearing problem we would hear a squealing noise. His only concern was that Lockwood Aviation had previously set the carburetor clip on the number two position instead of the number three which slightly leans the motor out (this was done along with re-pitching the prop because we live and regularly fly at high elevations). He suggested that with clean plugs we take the aircraft up again to see how it felt. We added 17 gallons of 100LL fuel and sumped the fuel to look for water and particles which came up clean.

We performed a third run up on the taxiway prior to take off at Gilmer, again with no irregularities except EGT variance.

We had a normal take off from Gilmer, TX (F51) all temperatures and gauges were normal with the exception of the 100 plus or minus degree variance in EGTs. The aircraft handled normally through the pattern. We departed the pattern at the end of the downwind leg towards the North.

We watched the gauges closely during the following flight. All temperatures read normal and after approximately 25 minutes the EGTs read equal temperatures. It appeared that the problem had been resolved. Five minutes after the EGTs returned to normal the engine and prop stopped abruptly.

Upon loss of power we immediately established best glide speed of 78 knots and changed our heading to the nearest airport which was Greenville, TX (KGVV). An emergency was declared to the tower frequency at KGVV and we performed math, calculating that it was possible for us to make it to runway 17 at KGVV. We lost power at approximately 5100 feet, approximately 7 miles from KGVV's runway 17. Our rate of descent was 650 feet per minute.

The fuel shut off valve was checked, and the first attempt to restart the motor resulted in the prop turning slowly three times and the motor locking up. The second attempt at restart resulted in no turning whatsoever. Following restart attempts the flaps were adjusted from -6 to 0 and best glide was adjusted to 73 knots. An emergency was declared announcing our tail number and position on 121.5 and we squawked 7700 on the transponder. Four miles from the end of runway 17 at KGVV we were at 2300 feet continuing to descend at 650 fpm and calculations revealed that we did not have enough altitude to make it to the runway. We began looking for a field or other open location to perform an emergency landing. We announced to a pilot that had replied to our emergency declaration that we would not make the airfield.

We saw the Sporting Complex in Greenville and made the choice to land in the open field between use areas. Our intentions were to stay away from the freeway as well as any developments or areas where individuals could be injured.

We touched down at 55-62 knots and had all three wheels down for 30-40 feet before we encountered a decline followed by an incline. When the nose gear impacted the soft, moist ground on the incline the nose wheel was severed from the aircraft. The nose was kept off the ground for an additional distance of around 40 feet before the nose of the craft touched the ground and caused the entire aircraft to flip one and a half times. Available photographs show evidence of this. The aircraft came to rest upside down. The pilot immediately got the passenger out in case of fire, although no fire ensued. Local law enforcement and fire department arrived quickly. Hobbs meter read 1613.2 at last motion.

The pilot and passenger did not sustain major injuries and refused treatment by paramedics. The only injuries to both included whiplash resulting in neck and upper back soreness, scrapes and bruising on shins and four point harness related bruising and pinching. No property was damaged aside of some minor scrapes in the field and total loss of aircraft. Both pilot and passenger remained in Greenville, TX

for two nights until the wreckage of the aircraft had been removed and the debris cleaned up. The pair returned to Colorado via a truck rented from Enterprise rental agency.