



MEMORANDUM FOR RECORD

Michael Hicks

Air Safety Investigator

(GAAID) General Aviation Accident Investigation Division January 10th 2018

NTSB Accident Number: GAA19CA102

Aircraft Registration & Make/Model: N636M, Beech, A36

Accident Location: Sedona, AZ @ (SEZ)

Accident Date: 19DEC2018 @ 1530 (MST)

Subject: Memorandum for Record

In support of the NTSB Air Safety Accident Investigation involving accident airplane N636M, the NTSB Investigator-in-charge (IIC) has provided below, the Operator/Owner Safety Recommendation section of the NTSB Form 6120.1 that is not visible due to .pdf restrictions.

The pilot reported the following:

There is, in retrospect, an obvious chain of errors that led to this outcome. When I had landed and taken off from KSEZ I had used runway 3, which is the preferred runway and has clear flight path approaches on final. I was unable to communicate on CTAF on my return. The aircraft taking the active runway 21 led me to enter a left downwind for 21 which, even as I entered the traffic pattern, gave me significant unease with the rising terrain of a box canyon. I should have broken off the pattern, circled the airport while attempting to communicate on CTAF until verifying that the vicinity was clear of all traffic, and then landed on runway 3. Once I entered the pattern, several illusions prevented me from flying a stable approach. On downwind, the butte made it appear that I was low, when in reality I was high. This height was compounded by my abbreviated turns from base to final that were made out of concern for the rising terrain surrounding the runway 21 approach end. As I turned final on runway 21, the butte combined with the significant downsloping gradient of the runway in this direction again led me to believe that I was lower on the approach than the aircraft's actual position. In retrospect, at 500 AGL as I turned final I should have initiated a go-around. Instead, I continued the approach until 200 AGL, at which point I realized there was no manner in which I could touch down on the fixed distance markers, before initiating my go-around. My lack of familiarity with turbo-normalized aircraft, coupled with the fact that the operation of the engine was radically different from any other piston aircraft I have ever flown--and in some cases completely contrary to everything I had learned flying piston aircraft--led to me nearly failing the engine and believing from that point that if I could not initiate a go-around that I could still land the aircraft and stop it on the remaining runway. In retrospect, I believe the combination of the Aux Fuel pump in the Lo

position, and the advancement of the mixture to full rich at a low power setting led to the stumbling and faltering of the engine due to an over-rich condition. If I had initiated the go-around at a higher altitude, I would have had the confidence to trouble shoot the faltering of the engine by changing the mixture and fuel flow which could have ensured the engine operation for a successful go-around. On the runway, when the aircraft was not slowing appreciably, I should have attempted to engage the parking brake. Blown tires while stopping on the runway would have been preferable to the outcome. In any case, I should have engaged the parking brake before departing the paved surface.

Elements of the turbo-normalized engine that are radically different include: climbing out with Throttle Wide Open, Prop 2700 RPM, Mixture Full Rich, as the mixture is deliberately calibrated to still provide engine performance up to 21,000 feet. At cruise, instead of setting a power setting of Manifold Pressure and RPM, and then leaning for altitude, leaving the Throttle in the Wide Open position, setting the Prop to 2500 RPM, and then pulling Mixture to a desired fuel flow to provide a desired percentage of horsepower. Additionally, the Aux Fuel Pump is to be in the Lo position above 5,000 feet density altitude, and in the Hi position above 10,000 feet density altitude. Management of the Mixture in terms of TIT, engine cooling, and proper power settings had already proven a significant challenge on earlier flights. On a flight a week earlier, as I descended through 10,000 feet over mountainous terrain, I had moved the Aux Fuel switch from Hi to Lo. The engine had sputtered, quit, and windmilled before I regained power by moving the Aux Fuel switch to the Hi position and changing the mixture when I immediately regained the engine. As a result, due to the lack of information in the POH, my understanding of the operation of the turbo-normalization system was limited to my aircraft familiarization of several hours with the previous owner, an 11 page handout that served as a supplement, and my limited hours piloting the aircraft. The Aux Fuel pump is not to be used on takeoff regardless of airport altitude, due to the possibility of over-richening leading to decreased engine performance. However, even now I am confused over operation of the Aux Fuel switch in flight, and specifically in the approach to landing phase. During the approach, Fuel Flow is to be increased by 1-2 gph, but the Mixture then left in that position unless and until initiating a go-around. Instead of leaning to a best power for density altitude on approach and then in a go-around ensuring Prop Full and Throttle Open, in a turbo-normalized aircraft the Mixture is advanced, then the Prop, then the Throttle per the information given to me. Ultimately, my failure to properly understand the operation of this engine and how to initiate a go-around, coupled with a chain of other events and misjudgements that placed me in a situation requiring that go-around, led to the aircraft departing the runway.