

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



WPR24FA073

WRECKAGE, AIRFRAME AND ENGINE EXAMINATION

March 10, 2024

A. ACCIDENT

Location: Half Moon Bay, California
Date: January 14, 2024
Time: 1904 Pacific standard time
Airplane: Cozy MK IV, N656TE

B. WRECKAGE, AIRFRAME AND ENGINE EXAMINATION

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C. DETAILS OF THE EXAMINATION

1.0 Accident Site

Examination of the wreckage that washed on shore was conducted on January 17, 2024. The center portion of the fuselage, right wing, various fragments of fiberglass, engine, and propeller had washed ashore about 2,130 ft west of HAF.



Figure 1: View of wreckage and debris washed on shore.

1.1 Airframe

The fuselage was fragmented into multiple pieces. The center section was mostly intact with the exception of the forward part of the fuselage, in the area of the canards. The right wing was fragmented outboard of the center section, but portions of it remained attached, including the right vertical, and a small portion of the right rudder. The right fuel tank cap was intact and secure. No fuel was observed within the fuel tank. The right fuel tank appeared to be intact. The left wing was separated outboard of the center section of the fuselage and was fragmented into multiple pieces. The left fuel tank cap was intact and secure. No fuel was observed within the fuel tank. The left fuel tank appeared to be breached along the trailing edge. Portions of ailerons were observed within the debris; however, the canards and a majority of the rudders were not observed. The nose cone of the airplane was part of recovered debris, and the nose wheel was observed in the retracted position.

Remains of the flight control system were observed; however, numerous separations control linkages were observed. All fractured areas are consistent with overload.

The fuel selector valve was found in the "left" position. All 3 fuel lines remained secured to the selector valve.

3 of the seat restraints were observed in the "buckled" position.

The ELT, Artex ME406, was removed by law enforcement. The switch was found in the "ON" position.

The instrument panel was separated and fragmented into multiple sections. The Garmin G5 remained attached to a section of the instrument panel and exhibited impact damage to the screen. No SD card was found installed.

1.2 Engine

The engine was found upside down, partially embedded within sand and rocks. The engine remained attached to the engine mount, however, the engine mount was separated from the fuselage. A significant amount of rocks and sand was covering the engine. No holes were observed within the crankcase. The induction air box was impact damaged, and the filter element was missing. The fuel supply line from the airframe fuel pump was separated from the engine.



Figure 2: View of engine as found on the shoreline.

The left magneto was separated, and the right magneto remained secured to the engine. The ignition harness impact damaged. The separated magneto was intact, and could be rotated, however, had some resistance, and was covered in sand.

The engine driven fuel pump was disassembled. The internal diaphragm was intact and undamaged. An odor of fuel was present when the pump was disassembled. The throttle body fuel control unit was disassembled. A single strand of safety wire was routed through all 6 screws, with only one small area twisted (tying the safety wire together). The throttle plate and fuel control interconnect was intact and secure. The internal diaphragms were intact and undamaged. The fuel inlet screen was removed and found to be free to debris. The throttle and mixture cables remained secure to their respective control arms.

The fuel flow divider, inlet fuel line, and outlet fuel lines remained attached to the engine, however, it was compressed downward against the crankcase. No evidence of any staining or leaks were observed around the inlet fuel line and outlet fuel lines. An FAA inspector removed the fuel flow divider and associated fuel lines from the engine. He stated that while he was removing the inlet fuel line, it was "loose" when using a wrench to remove the "B" nut. Additionally, the inspector noted that the "B nuts" on the 4 outlet ports were loose when removing them utilizing a wrench. All 4 fuel injector lines were impact damaged. Once removed, the NTSB investigator disassembled the fuel flow divider. The 4 screws were tight and had a single strand of

non-twisted safety wire through them, with only one small area twisted, tying both ends together. The internal diaphragm and spring were intact.



Figure 3: View of the top side of the engine.

The upper spark plug on the number 2 cylinder was removed and was wet, with sand like debris in the electrode area. The fine wire spark plug gap appeared to be normal. The number 2 cylinder contained an abundance of water. The remaining spark plugs were unable to be removed (corrosion). The crankshaft could partially be rotated by hand about 10 to 15 degrees using the propeller. Corresponding movement was observed on the aft accessory gears, through the port where the left magneto would have been mounted.

The remote oil filter was impact damaged and the oil lines appeared to remain attached and secure. The oil filter had the date written on it of 8/2/2023, with a tach time of 818.3 hours.

1.3 Propeller

The propeller remained attached to the crankshaft. 2 propeller blades were separated about 8 inches outboard of the blade root. The areas of separation look to be opposite direction of rotation. The remaining propeller blade was intact and missing a section of trailing edge near the blade tip. A portion of propeller blade was recovered by law enforcement. The separated propeller blade was from about mid

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span (logo of MT) outboard to the tip and had a crack just aft of the leading edge that's spanned outboard to the near the blade tip. The spinner remained attached and had impact damage.

2.0 Recovered Wreckage Examination

Examination of the recovered wreckage was conducted at a Hangar located at the Half Moon Bay Airport on March 5, 2024.



Figure 4: View of the recovered wreckage.

2.1 Recovered Airframe

Examination of the recovered wreckage revealed that the engine and most of the fuselage, and wing structure were recovered. Remains of the ailerons and canards were observed. The fuel selector was removed and air pressure applied to the outlet line in 3 positions (left, right, and both), with air expelling from the left and right ports. Additionally, air pressure was applied to the left and right fuel lines and the sound of flowing air was heard from the fuel filler ports on each fuel tank. No restrictions in the fuel lines were noted. The airframe fuel pump was impact damaged and exhibited varying degrees of corrosion, consistent with saltwater submersion. The HOBBS meter indicated 906.6 hours. The airframe electrical system was fragmented into multiple sections which precluded functional testing.

The recovered instrument panel was fragmented into multiple sections. The Dynon Skyview primary flight display was not recovered. The magneto switch key was

impact damaged; however, a portion of the key remained within the switch assembly and was in the "L" position. The battery master, step, landing light, and electronic ignition switches were separated. The 12V PWR Centers switch was in the off position, the taxi light was in the ON position, and the auto pilot switch was in the OFF position.

The canopy was separated. A majority of the front area of plexi glass was separated from the canopy structure. The right rear window was fractured. The left rear window was intact.

2.2 Recovered Engine

Examination of the recovered engine revealed varying degrees of impact damage and corrosion, consistent with saltwater submersion. The propeller could not be rotated by hand. The upper spark plugs were removed and the internal areas of all 4 cylinders were filled with varying degrees of salt water and sand debris. Holes were drilled in the upper part of the crankcase. The internal areas of the crankcase were examined using a lighted borescope. No evidence of any catastrophic failure was observed internal to the crankcase. An abundance of water and sand was observed inside the crankcase.

The cylinder rocker box covers were removed. All intake and exhaust rocker arms, springs, and cylinder head components were intact.

The left and right magnetos were disassembled and inspected. The internal areas of both magnetos contained a significant amount of sand and exhibited varying degrees of corrosion. Some wear was observed on all electrode posts of the distributor blocks. The spark plugs were impact damaged and contained dirt / sand debris within the electrode area.

The engine was equipped with a G3 electronic ignition system. Impact damage, saltwater submersion, and the airframe electrical system damage precluded functional testing of the ignition system.

The propeller governor was impact damaged and not removed.

Submitted by:

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