



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety Alaska Region

Airframe and Engine Examination Summary

April 26, 2017

Above Alaska Aviation, Talkeetna AK

A. Accident

NTSB Number: ANC17LA020

Location: Willow, Alaska

Date: April 15, 2017

Aircraft: Cessna 182E, N9362X, S/N 18253768, TT 5016.95

Engine: Continental O-470R, S/N 900508-OH, SMOH 389.15

B. Background

On April 15, 2017, about 1611 Alaska daylight time, a Cessna 182E airplane, N9362X, sustained substantial damage following impact with power lines during an emergency landing on the George Parks Highway about 20 miles north of Willow, Alaska. The private pilot, who was the sole occupant received minor injuries. The flight departed Big Lake Airport, Big Lake, Alaska, at about 1547 and was destined for Talkeetna Airport, Talkeetna, Alaska.

The pilot stated in his NTSB Form 6120 that while flying north at 800 ft about 4 miles from the highway, he observed unusual engine performance. The fuel quantity was indicating $\frac{1}{4}$ tank on each side, corresponding to about 16 gallons. He turned on the carburetor heat and climbed to 1,200 ft. The

engine started running “very rough” and he made an emergency landing approach to the highway. As the airplane descended to the highway, the pilot observed power lines across his flight path and the airplane impacted them and pitched over to the asphalt. The airplane came to rest in a vertical nose-down attitude and the pilot egressed and was transported to a local hospital for treatment.

On April 18, the airplane was recovered and transported to Talkeetna on a flatbed trailer using straps and ropes. The wings were disconnected at the attachment bolts and the flap and aileron control cables were cut. On April 26, the airplane was moved inside the hangar at Above Alaska Aviation for a detailed examination.

C. Participants in Detailed Examination

NTSB Investigator-in-Charge (IIC)
FAA Aviation Safety Inspector
Continental Motors ASI

Noreen Price
James Grogan
Mike Council

D. Detailed Engine Examination

Initial examination revealed that engine mounts were in tact and all accessories, fuel and oil lines secure, except as noted. See figure 1. The right forward and aft engine case mounts were fractured and displaced near the base. The engine case vent tube was disconnected and slightly ajar at the clamp. The lower cowling had impact scrapes and compression from fore to aft through the entire cowling. The air intake and filter were buckled with imbedded dirt and debris. The right cowl flap was open slightly and the left cowl flap was closed and exhibited impact impressions. The exhaust pipe was buckled and bent aft. The total time indicated on the cockpit tachometer gage was 1830.65 hours.



Figure 1. Continental O-470R

The engine carburetor and propeller controls and cable linkages were verified as continuous and fully controllable.

All upper spark plugs (Champion RHM40E) were removed and examined. All indicated dry and medium grey in color and when compared with the Champion Aviation "Check A Plug" chart indicated "normal worn out" condition. All bottom sparkplugs appeared normal in wear and coloration, except for the sparkplugs from cylinders 5 and 6 which were oil contaminated. This oil contamination could have been a result of the engine being in a nose down position for three days prior to the wreckage being recovered.

The cylinders were ECI stamped. Each cylinder and intake and exhaust valves were examined with a lighted boroscope. The piston domes and valves revealed normal combustion signatures. Thumb compression on cylinders 1 through 6 were successful.

Differential compression test on cylinders 1-6 resulted in :

Cyl 1	Cyl 2	Cyl 3	Cyl 4	Cyl 5	Cyl 6
79/80 psi	66/80 psi	79/80 psi	78/80 psi	72/80 psi	79/80 psi

Rocker box covers were removed and rocker arms were noted to move appropriately when the engine was manually rotated.

Both magnetos produced spark at individual ignition leads when the engine was manually rotated. Impulse couplers were heard to snap as the magnetos rotated. Ignition timing was confirmed at 22 degrees (plus or minus 1) for each magneto. Left magneto: Bendix P/N 10-79020-10, S/N 898254. Right magneto: Bendix P/N 10-79020-10, S/N 8141018

The carburetor (Marvel Schebler-Borg Warner corp. P/N 10-4893-1, S/N 8D-23-7576) was removed and inspected. The fuel inlet finger screen was uncontaminated. The accelerator pump operated normally when the throttle arm was actuated. The float assembly appeared normal and operated the needle correctly. The float chamber had fuel present and no contamination. The main jet and master orifice was removed and found to be uncontaminated.

The oil filter (Tempest P/N AA48110-2) was removed, cut open and the paper filter media examined. A small amount of carbon was discovered and a very small sampling of metal shavings were present. The metal shavings that were observed were found to match the shavings from the cutting tool. No other contamination of the oil filter was noted. The oil sump was undamaged and the drain plug and valve were intact and secure. The engine oil was dark in color and the oil level indicated 8 quarts. The oil cooler appeared undamaged but had dirt contamination on the exterior.

The induction system was removed and inspected for cracks or indications of leaks. The forward balance tube assembly had slight impact damage. The intake connecting hoses between the forward

balance tube and the cylinders 5 and 6 intake tube elbows were slightly displaced due to impact forces. All gaskets appeared normal.

The muffler was removed and inspected. It exhibited an area of compression impact damage. The heat shroud was removed and the muffler appeared in an almost new condition. The flame cone was intact and the muffler exhaust path was unrestricted. The muffler/exhaust pipe bale was intact.

E. Propeller Examination

The propeller was a McCauley two bladed, constant speed propeller. The hub was identified as a model 2A36C20AEG, serial number 611500. The spinner was significantly crushed around the circumference forward of the blade attachment points. See figure 2. The propeller was rotated by hand and moved freely.

- Propeller blade A revealed torsional S bending from about 10 inches from blade butt out to the tip. Significant chordwise scratches at the midspan section on the cambered face. Multiple leading edge nicks and impact marks through the span of the blade.
- Propeller blade B revealed similar signatures as blade A. There was torsional twisting along its blade length beginning approximately 8 inches outboard of the blade root with scoring and scratching of the cambered face and leading edge at the blade tip. Blade B was loose and could be rotated within the hub.
- The propeller governor (McCauley M/N 2A36C29AEG, S/N 611500) did not exhibit damage. The propeller control cable was intact and the propeller control arm articulated properly.



Figure 2. Propeller spinner and blades

F. Airframe Examination



Figure 3. N9362X on trailer at examination hangar

Flight control continuity was established from the cockpit flight controls to all flight surfaces, through cable cuts that were made during recovery. The flight control surfaces exhibited full movement except for the rudder which had control cables impinged upon during impact.

The airframe gascolator fuel strainer was intact and the glass bowl was removed and inspected. The fuel in the strainer bowl was light blue in color and exhibited the look and smell of 100 low-lead aviation fuel. The filter neck had dirt particles ground into it. A small amount of material was noted at the bottom of the fuel strainer bowl.

Wing fuel caps were secure and some fuel was present in the wing tanks.

G. Summary

There was no evidence observed at the examination of any preexisting engine, propeller or airframe discrepancies that would have resulted in a rough running engine. The impact damage noted was consistent with the airplane striking power lines and impacting the road surface.