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Subject: ANC21FA065 Engine Examination Summary

On August 30, 2022, the engine from N65698 was examined with a representative from the Federal Aviation Administration and a representative from Lycoming Engines present.

The two bladed constant speed propeller remained attached at the crankshaft flange. The spinner was attached to the propeller. Each blade was missing about 2" of the blade tip and exhibited leading-edge gouging, torsional twisting, chordwise striations across the cambered surface and trailing edge "S" bending.

The carburetor remained undamaged and securely attached at the mounting flange. The throttle/mixture controls were found securely attached at their respective control arms of the carburetor. The castellated nut and cotter pin remained secure and the serrated interface at the throttle arm remained securely mated. The carburetor was opened for examination. The fuel bowl remained free of visible contaminants. The float assembly remained secure at the mounting and free of damage. The float pontoons exhibited no evidence of rubbing against the wall of the bowl. All internal locking tabs and safety devices of the carburetor were in place and properly secured. The fuel inlet screen was found properly installed and free of contamination. The fuel accelerator pump plunger seal remained pliable and intact. No external fuel staining was observed.

The carburetor, induction system and airbox remained free of pre-impact obstruction to airflow. The carburetor "heat valve" was observed to be in the ON/HOT position. The heat valve had been "captured" in this position due to the deformation of the surrounding heat box material due to the absorption of impact energy.

The spark plugs were secure at each position with their respective spark plug lead attached. The spark plugs were removed, examined and photographed. The spark plugs electrodes remained mechanically undamaged.

The oil filter and suction screen was secure at the mounting pad and was not removed for examination. There was no evidence observed of any pre-mishap lubrication system contamination found during the engine disassembly and detailed examination.

The engine remained attached to the airframe by the engine mount. The engine had sustained no significant impact energy damage. The crankshaft flange was bent which impinged the flywheel against the engine case. Impact damage was observed at the carburetor airbox and surrounding exhaust pipes. The engine had been pushed aft which displaced the oil filter attachment pad and right magneto. Visual examination of the engine revealed no evidence of pre-impact catastrophic mechanical malfunction or fire.

Mechanical continuity of the rotating group and internal mechanisms were established visually during the disassembly and examination of the engine. The accessory gears including the crankshaft gear, bolt and dowel were intact and remained undamaged by any pre-impact malfunction. There was no evidence of lubrication deprivation or contamination found. The crankshaft and attached connecting rods remained free of heat distress. There were no signatures or conditions observed consistent with any pre-mishap catastrophic mechanical malfunction. The camshaft was intact and each of the camlobes exhibited their characteristic elliptical shape.

The magnetos were removed for examination. Each magneto produced spark at the end of the respective spark plug lead, during rotation of their respective drive utilizing a power drill. The drives of each magneto remained intact and undamaged.

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