



RECORD OF EXAMINATION

Mitchell Gallo
Aviation Accident Investigator
Central Region

NTSB Accident Number: CEN17LA065

Mitchell Gallo; NTSB Investigator-in-Charge
Jordan Paskevich; Rotech Flight Safety, Rotax Aircraft Engines

Narrative:

Examination of the airplane revealed that a black color fuel line to the pressure regulator was ¼ inch in diameter. The absolute pressure sensor was not mounted using a screw through its mounting hole. The absolute pressure sensor, “966 507,” was attached to the engine frame using a black-color substance consistent with sealant in front of and toward the bottom of airplane battery, which was mounted on the right side of the firewall, as viewed from tail-to-nose. The airplane contained useable fuel in the left and right fuel tanks consistent in color with 100 low lead aviation fuel. The left and right wing filler cap vents were unobstructed. The pitot tube was rotated laterally so that the pitot tube inlet was pointed inward toward the fuselage. The airplane engine did not exhibit any leaks of fuel, oil, or coolant. Engine control continuity from the cockpit control to the engine was confirmed. The pressure regulator, “887 130, 16.0280,” exhibited a gouge on the side of the its adjustment screw retaining nut. The fuel selector was in the off position. All of the fuel line shut off valves were in the on position. The Hobbs meter indication was 109.7 hours.

In preparation of an engine run, the oil quantity level was checked by rotating the propeller by hand until a burp was heard from the engine oil reservoir. The engine oil level then rose, and its quantity was at the base of the oil filler neck, which was above the maximum oil capacity for the engine. The excess engine oil was drained and estimated to be about 16 ounces above the maximum oil capacity for the engine. The propeller was removed due to accident damage and replaced for the engine run. The airplane was then tied down and was started after six start attempts over about a 1:00 minute period. The engine was then run for about 5:30 minutes to a full-power setting without power loss. To replicate the accident flight, a second engine run was then performed during which the engine was run at a full power setting and then retarded to 15 inches of manifold pressure. When engine power was retarded to a manifold pressure of 15

inches, with both fuel pumps in the on-position, the engine quit and was unable to be restarted. Fuel lines were examined after the engine run. The black color fuel line, leading to the fuel pressure regulator, contained fuel and exhibited pressure when the fuel pumps were on; the return fuel line contained fuel. The engine was unable to be started after several attempts. The airplane interior was removed to examine the fuel system/lines for leakage/obstruction and none were noted. A transparent-green color fuel return line from the pressure regulator was connected toward the bottom left side of the fuel header tank behind the passenger seat. There was a second transparent-green color line connected to the top of fuel header tank that had a transducer spliced into the line which was connected to the right fuel tank via the wing root. The transducer, of undetermined function, was at a distance midpoint between the top of the header tank and the right wing root. Fuel was present up to the transducer but there was no fuel present in the line above the transducer throughout the examination/engine runs. Black color fuel lines from the left and right wing fuel tanks were connected toward the bottom of the fuel header tank. The fuel pressure regulator fuel return line was disconnected from the pressure regulator's return port, and a fuel hose was connected from pressure regulator's return port and inserted into the right wing filler port. A dual needle pressure gauge was attached to the pressure regulator and induction manifold as per the engine maintenance manual. After several engine start attempts, the engine was started and the fuel pressure needle was about 62.5 inches and the manifold pressure was about 29 inches. When engine power was reduced to about 17 inches of manifold pressure with the fuel pumps on, the engine quit. The pressure regulator screw was turned one turn toward decreasing fuel pressure. The engine was started with less start attempts of shorter duration and was run again. The fuel pressure and manifold pressure had a differential of about 5 inches. The engine was run at full power and then at 15 inches with and without the fuel pump on and there was no loss of engine power. The throttle was cycled between full power and 15 inches with the fuel pumps on and there was no loss of engine power.

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