

FAA Inspector Statement

On July 21, 2019 at approximately 0700 eastern, an Ayres Thrush S2R-G10 aircraft, N766BF, registered to and operated by a Commercial Applicator Service, received substantial damage during a forced landing shortly after takeoff from a private airstrip 4 miles north of Breckenridge, Michigan. Visual meteorological conditions and light winds prevailed at the time of the accident. The Commercial Application flight was being conducted under the provisions of Title 14 Code of Federal Regulations (CFR) Part 137 without a flight plan. The pilot was not injured. The accident flight was the second loaded flight of the day.

According to the pilot the takeoff appeared normal as he departed from the 2500 foot grass strip. At approximately 100 feet above ground level the pilot stated he noticed the Exhaust Gas Temperature (EGT) spike to red line, he attempted to reduce power and immediately the engine lost all power. The pilot further stated he turned the ignitor switch on and was able to lower the flaps prior to impact in a field of standing corn. Once the aircraft came to rest the pilot shut down all electrical and made egress unassisted.

The aircraft sets in a field of 6-8 foot standing corn on a heading of 220 degrees, 1400 feet from the runway end, in an upright position. Measured distance from first indication of impact with corn to final location is 70 feet. The cockpit and tail fuselage remain intact. Both wings remain connected to the fuselage with leading edge and skin damage due to impact. The flaps are in the full down position. Both main landing gear are collapsed and folded under each respective wing. Control continuity was established to all control surfaces. The upper half of the hopper was undamaged but the hopper gate and all associated spray equipment was damaged by ground impact. The engine cowl shows compression damage. All four propeller blades remained attached and bent aft around the engine cowl. All blades show minor signs of cord wise scratching. Engine and propeller Controls were functioned and remained attached to respective points. There is no evidence of a post-crash fire.

Weather report at KAMN airport at the approximate time of the accident was: wind 340 degrees at 4 knots, visibility 10 statute miles, clear, temp 21 dew point 20 and altimeter 29.95.

The aircraft and engine have been secured pending further investigation by NTSB and Honeywell representatives.

Engine electronic data shows a sudden loss of oil pressure just prior to the rapid increase in turbine temperature. During engine removal no oil was found in engine oil reservoir and only 1/3 quart was found in the oil cooler and associated lines. All lines were found tight but the oil cooler was cracked so it cannot be determined if oil loss was pre or post impact.

Michael W. Matthews
Principal Maintenance Inspector
General Aviation Airworthiness

Inspectors Statement**06/04/2020**

Statement in reference to telephone conversation with Todd Fox (NTSB), Harald Reichel (NTSB), Jennifer McDuffie (Honeywell), and myself concerning the accident of N766BF on 07/22/2019 near Breckenridge, Michigan.

During our conversation and review of photographs taken by myself at the accident site, I have come to the conclusion there was an unknown amount of oil covering the engine, exhaust, and associated areas of the airframe. This conclusion was also agreed upon by all in the conversation. It is however unclear in the photographs, where the oil escaped from the engine (oil cooler or associated hoses and fittings) and at what phase of the accident sequence.

During my prior observations of the accident and associated photographs, it was my belief the wet areas inside the engine cowl and on the engine were the result of spilled fungicide from the aircraft hopper during the accident.

I also confirmed the day of the accident the mechanic stated there was still oil in the engine reservoir post impact, but I personally did not see him check it. Additionally, the day I assisted the Honeywell representatives to remove the engine and crate it for shipping, there was no oil found in the reservoir, the oil cooler was breached by impact forces, and all associated hoses and fittings were found tight and intact.

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Michael W. Matthews

Principal Maintenance Inspector

GRR FSDO GL-09

RECORD OF CONVERSATION

05/21/2020

Telephone conversation with Patrick J. McCarty (A&P [REDACTED] IA) in reference the aircraft accident involving N766BF, Thrush S2R-G10 on 07/21/2019 near Breckenridge, Michigan.

On this date I made telephone contact with Mr. Patrick J McCarty (A&P IA), principal mechanic for Al's Air Service, and whose signature appears in the aircraft maintenance records for N766BF. I told Mr. McCarty of the findings from Honeywell and NTSB, that no anomalies were detected during the formal teardown and run inspection of the engine. He stated he had received this information prior to our conversation and could not understand the cause of the oil pressure loss and high EGT temperature prior to the loss of power and subsequent accident. He believes if there was a loss of oil prior to engine shutdown the internal engine bearings and gears would show some form of damage.

Mr. McCarty also reiterated what he had told me at the accident site, that there was oil still in the sump shortly after the accident. He feels the oil loss was caused by the impact crack in the oil cooler which allowed the oil to slowly drain from the sump during and following aircraft recovery from the field. Additionally, the aircraft had been test run and flown following the replacement of the oil cooler and no leaks were detected prior to the accident flight. Mr. McCarty also stated (and I can confirm), there was no oil on the outside aircraft surfaces. However, with 300 gallons of fungicide spilled at the accident site, it would be almost impossible to detect engine oil on the underside of the aircraft or in the soil.

Finally, Mr. McCarty believes the loss of oil pressure, high EGT, and subsequent loss of power was caused by a failure of the Thrust Sensor Bearing internal to the engine, but also stated it was only his belief and could not prove this statement.

Mr. McCarty was friendly, cooperative, and forthright with all information given to questions asked. He also stated if I had additional questions to just give him a call.

END_____

Michael W. Matthews

Principal Maintenance Inspector

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