

INSPECTOR STATEMENT

Accident: Berkut 540 Cedar Rapids, IA

Registration: N567JS

July 5th, 2023, Aviation Safety Inspectors Michael Newhall, Greg Gobble (airworthiness) and Michael Massell (operations) traveled to the Eastern Iowa Airport (CID) to investigate the accident involving Berkut 540, N567JS serial number 021. An experimental aircraft recently purchased and piloted by Mr. ViJay Pisini. Mr. Pisini along with two other gentlemen, Randy Hartman (finishing builder) and Terrance Scherman (EAA Chapter Representative, Repairman Experimental Aircraft Builder) were there to assist with the evaluation and answer any questions. Mr. Hartman and Mr. Scherman had extensive knowledge of the aircraft. Mr. Hartman had completed the build for the previous owner and Mr. Scherman was assisting Mr. Pisini with performing maintenance and preparing aircraft for the first flight.

Conversations revealed this aircraft had been in a build process for approximately twenty years. During the process of building and prepping for the first flight there had been a series of intermittent wiring issues, ignition faults and timing issues, fuel delivery issues, fuel injector issues, tripped circuit protection with aux/fuel boost pump, cylinder with low CHT/EGT issues (#2 cyl), and propeller control issues. Maintenance log entries indicate some of these issues were solved (propeller, fuel flow and manifold pressure indication) however no definitive information was recorded on most issues reported. Mr. Pisini and Mr. Scherman stated they felt most issues were corrected and ground power runs along with high-speed taxi did not indicate any further issues. No vibrations monitored, temperatures and pressures within limits, no power reductions indicated. Note: Engine was overhauled by Performance Aero Engines Inc ([REDACTED]) in July 2001.

Following the accident, the aircraft was secured in "T" hanger on the east side of CID. Initial assessment of the aircraft was conducted. The wings were sheared off just outside the main fuel tanks, nose and left gear were separated from the aircraft. The left canard, nose, and right forward fuselage showed impact damage. Instrument panel showed impact damage. Cockpit and passenger compartment sustained minor damaged. The engine was twisted to the left about 1/2 to 1 inch out of alignment with the fuselage. All four propeller blades sustained impact damage and were sheared off about 5 to 8 inches from hub.

The focus of investigation was engine and related systems. Following removal of engine cowl and propeller spinner it was noted that 3T and 4T ignition leads were separated from the electronic ignition box (coil packs) connection towers and laying down alongside the engine mount. Ignition leads 6T, 2T, 1T, and 2B appeared to be loose and not fully engaged with the respective connection towers. Pilot stated he felt the disconnections were caused by accident. There did not appear to be evidence the ignition leads were dislodged during impact. Spark plugs were removed and checked, number 1- and 2-cylinder plugs appeared normal the remaining plugs exhibited a sooty fouled appearance. CD Electronic Ignition system was tested and both coil packs test fired normally. There was oil present under the cowl and in engine compartment. Observed a fractured oil line between the two oil coolers and fractured elbow to engine case breather tube. The engine firewall and mount appeared to be intact, mount was slightly bent to the left, did not appear to be broken and engine was securely attached. Engine was rotated with propeller and all cylinders had compression and vacuum when thumb placed over spark plug hole. Engine controls were found attached and working properly. While checking fuel lines for continuity the supply line from the engine driven fuel pump to the fuel servo was found to be leaking and finger tight. A fuel stain was noted on the firewall. The air inlet rubber interconnect hose to the fuel servo was found deformed with the top lip of hose mis-aligned. The clamp securing the hose to the servo was tight, but the hose was not properly seated around the fuel servo inlet, suspect misalignment during installation and not caused by accident impact. The fuel boost pump was found to be inoperative due to tripped circuit protection. The electrical system indication within the Garmin [REDACTED] unit stated the boost pump fault was caused by over current issue. The system was reset, and fuel boost pump was operated for a short time then failed again due to over current issue. The cure date noted on fuel boost pump was 4Q97, typical time between overhaul for this type of pump is 10 years. Ground wire (size #4) located at engine accessory was found pulled out of terminal clamp. Movement of mount during accident probably caused separation of wire from terminal, crimp on terminal appeared to be inadequate to properly hold the wire.

Mr. Pisini stated the engine went into overspeed during the landing (crash) sequence, We believed this was due to the propeller blades being sheared off while the engine was still running. The engine may have been in a flooded condition causing the low power and subsequence forced landing. Mr. Pisini stated when he turned the fuel boost pump "On" he lost all engine power.

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