

**NATIONAL TRANSPORTATIONS SAFETY BOARD
Office of Aviation Safety
Washington, DC 20594**

SUMMARY OF AIRPLANE EXAMINATION

-- CEN21FA130 --

A. ACCIDENT

Aircraft: Velocity Vtwin, N13VT

B. PARTICIPANTS

John Brannen
Senior Air Safety Investigator
National Transportation Safety Board
Denver, Colorado

C. ACCIDENT SUMMARY

See factual report

D. DETAILS OF ENGINE EXAMINATION

A post-recovery examination was conducted at Wentworth Aircraft facilities, Lakeville, MN, on June 30, 2021.

E. SUMMARY OF LEFT ENGINE EXAMINATION

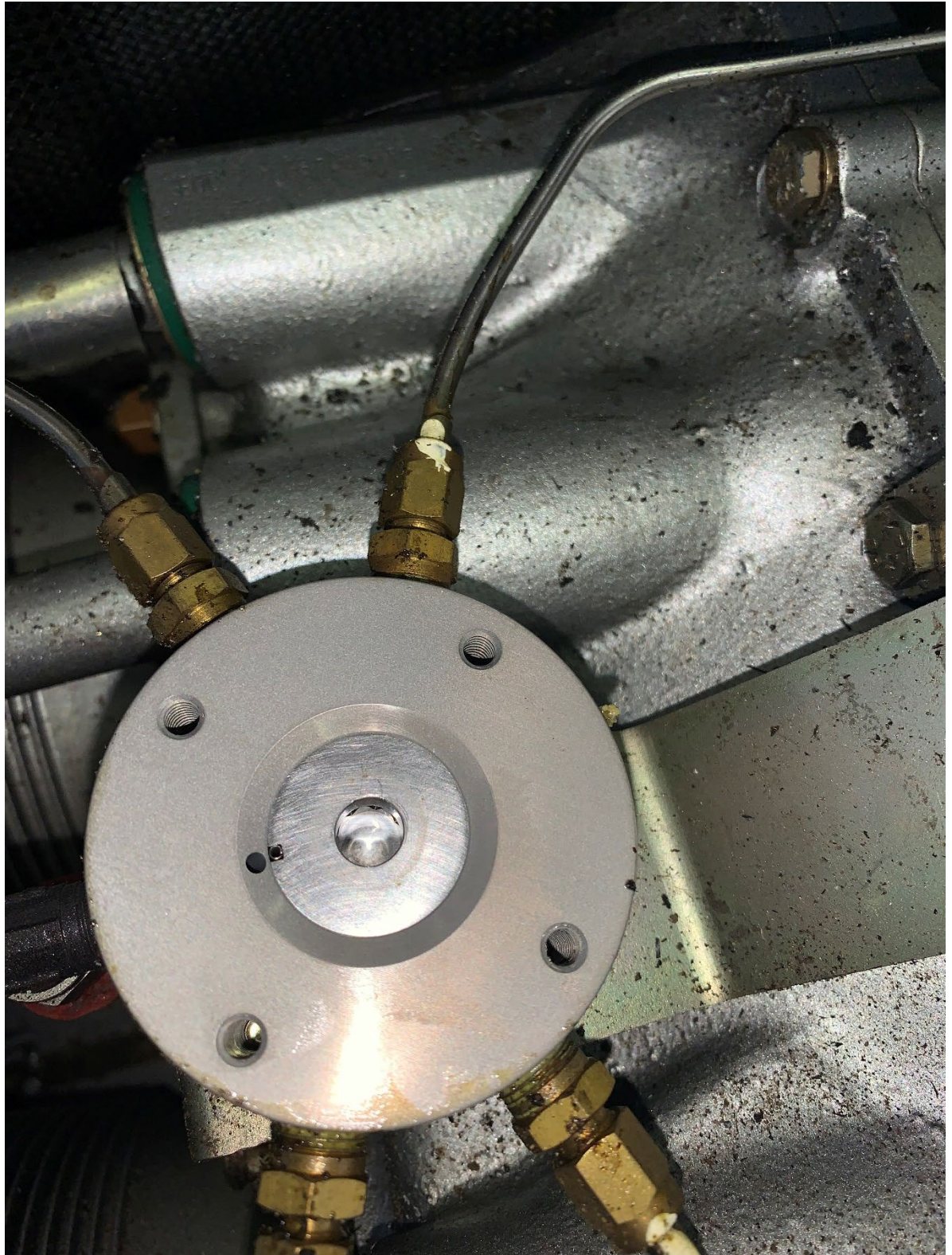
Externally, the left engine appeared intact and remained attached to its engine mount and the airframe structure. The top cooling shroud was removed to access the engine lifting ring and the engine was supported by a chain and forklift. The propeller remained attached and the root portions of all three wooden propeller blades remained attached to the hub.



The top spark plugs were removed. The engine had been stored inverted and the top plugs were wet with oil, debris and water but otherwise appeared normal.



With the top plugs removed, the engine was free to rotate and no anomalies were detected during multiple rotations. A “thumb” compression verified suction and compression on all cylinders. The engine was equipped with one Slick magneto and one Emag electronic ignition. During engine rotation, spark was confirmed on all spark plug leads from the Slick magneto. The EMag ignition was removed for further examination. The cap of the fuel distribution block on the top of the engine was removed and the diaphragm appeared normal. There was a fuel present at the distribution block and it appeared clean with no anomalies noted.



The fuel injection servo was removed from the engine and retained for further examination. The lower studs that mounted the servo to the engine had been partially pulled from the case and the flange on the servo was bent in the area of bolt attachment, consistent with impact damage.



A functional test of the fuel pump was performed by inserting the pickup hose into a bottle of liquid while rotating the engine. Fuel was ejected from the outlet hose of the pump during engine rotation.

No preimpact anomalies were detected during the engine examination.

F. SUMMARY OF RIGHT ENGINE EXAMINATION

Externally, the right engine appeared intact and remained attached to its engine mount and the airframe structure. The top cooling shroud was removed to access the engine lifting ring and the engine was supported by a chain and forklift. The propeller remained attached and the root portions of all three wooden propeller blades remained attached to the hub.



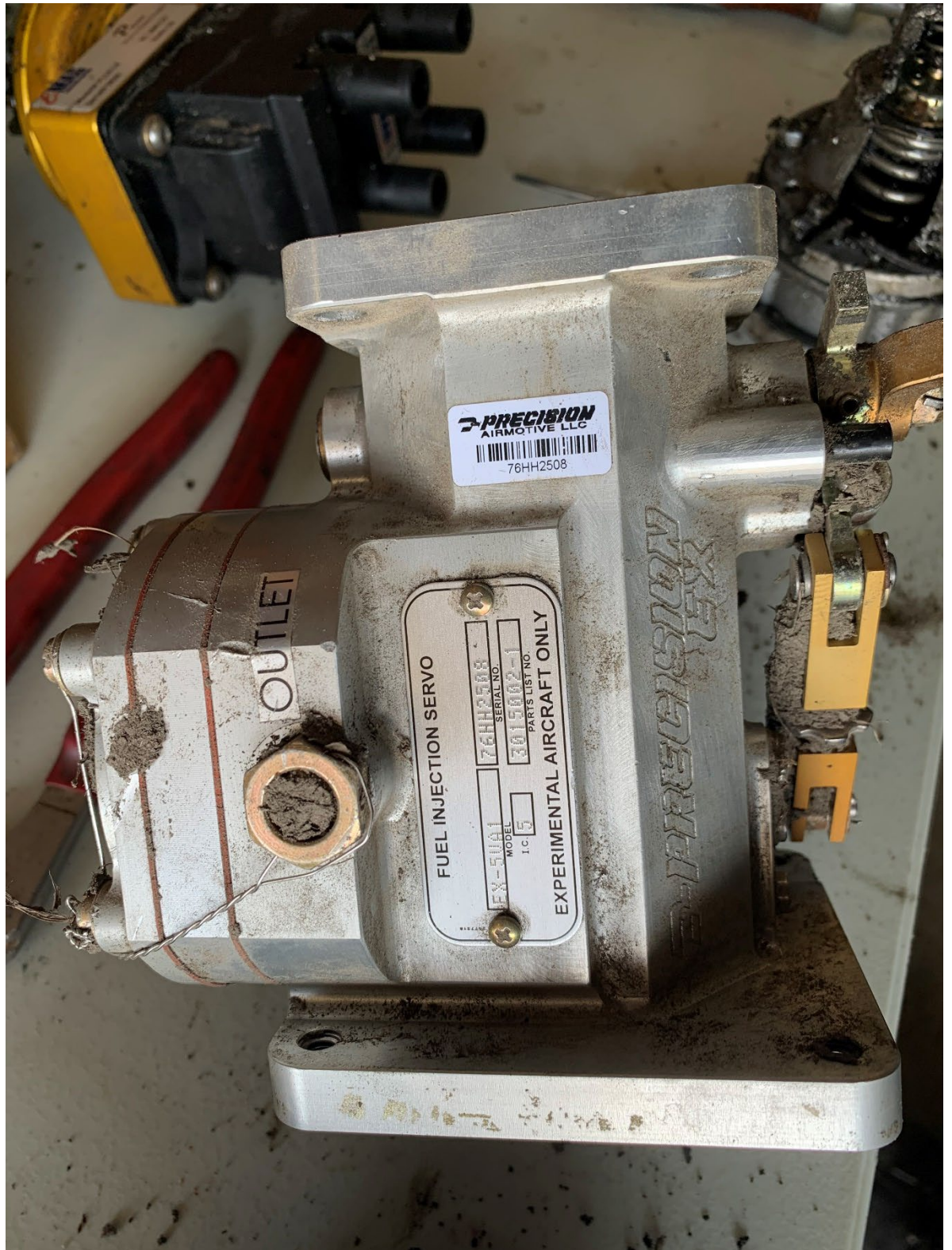
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With the top plugs removed, the engine was free to rotate and no anomalies were detected during multiple rotations. A “thumb” compression verified suction and compression on all cylinders. The engine was equipped with one Slick magneto and one Emag electronic ignition. During engine rotation, spark was confirmed on all spark plug leads from the Slick magneto. The EMag ignition was removed for further examination. The cap of the fuel distribution block on the top of the engine was removed and the diaphragm appeared normal. There was a fuel present at the distribution block and it appeared clean with no anomalies noted.



The fuel injection servo was removed from the engine and retained for further examination.



The fuel pump was impact damaged and a functional test was not possible. The fuel pump was removed and disassembled. No preimpact anomalies were noted during examination of the fuel pump components.

No preimpact anomalies were detected during the engine examination.

G. SUMMARY OF AIRFRAME EXAMINATION

The airframe had been cut in several places to facilitate removal from the accident scene. The fuselage was predominately intact from the forward seats to the wing spar carry thru. The aft fuselage and vertical tail had been cut from the rest of the fuselage.





The airplane's wing had been cut from the fuselage at the juncture with the fuselage. Portions of both wings were identified within the wreckage debris.





The airplane's canard surface had been cut on either side of the fuselage. Remains of the canard elevator were found within the debris.





Examination of the control system was limited but aileron continuity was verified from the cockpit to the pushrods leading to each wing where cuts had been made during recovery. The engine controls were verified to be intact from the cockpit controls to the engine with the exception of a single cut in each cable to facilitate recovery.