



**NATIONAL TRANSPORTATION SAFETY BOARD**  
Office of Aviation Safety

**Onscene and Wreckage Examination Group Field Notes**

June 30, 2022

**A. ACCIDENT      WPR22FA235**

Location:            Vancouver, Washington  
Date:                 June 28, 2022  
Time:                 0740 PT  
Operator:            Private  
Aircraft:             Beechcraft V35B  
Registration:        N444PM

**B. PARTICIPANTS or GROUP NAME:**

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**C. SUMMARY**

On June 28, 2022, about 0740 Pacific daylight time, a Beechcraft V35B, N444PM, was destroyed when it was involved in an accident near Vancouver, Washington. The pilot was fatally injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

According to Federal Aviation Administration automatic dependent surveillance-broadcast (ADS-B) data, the airplane departed Pearson Municipal Airport (VUO), Vancouver, Washington at 0723 on an easterly heading and was in contact with air traffic control. At 0926, the pilot informed air traffic control that he was going to “circle back” due to clouds. When the controller asked for the pilot’s intentions, the pilot stated that he was going to fly to Vancouver Lake and

lose some altitude and “see it this clears.” For the next 2-3 minutes the pilot and air traffic controller attempted to troubleshoot a transponder issue with the accident airplane as the pilot’s discrete code (squawk code) did not show up for the controller. During this time the pilot continued to fly northwest. At 0730 the controller asked the pilot to update him on his intentions and the pilot responded that he thought it he was “wondering about the weather...thought it was 4,000 ft, but it’s a lot lower than that.” The controller then asked the pilot to update him with his intentions when he was able to. The pilot then asked the controller for the cloud cover, and the controller offered to send him to approach control for more information. After the pilot accepted his offer, the controller provided the radio frequency for approach control and then gave him a report of another aircraft in his area. The pilot replied to the controller that he was looking for the aircraft.

At 0734, the controller discovered the pilot was not in contact with approach control and contacted the pilot and informed him that he was still with Portland tower. During this time, the pilot was tracking southbound over Vancouver Lake, approximately 4nm from Pearson Airfield. The pilot then informed the controller that he was going to return to his departure airport. The controller asked if he had the airport in sight. Immediately after the pilot acknowledged that the airport was in sight, the controller stated that radar services were terminated and instructed the pilot to squawk VFR and change to the airport’s common traffic advisory frequency (CTAF).

At 0735, the pilot announced that he was entering the downwind leg of the airport traffic pattern for Pearson Airfield on the airport’s radio frequency. Approximately 1 minute later the pilot announced that he was on the downwind leg, which was his final radio transmission. The airplane turned onto the base leg of the airport traffic pattern about 0736 and maintained a southerly heading.

Surveillance video captured the airplane’s final three seconds of flight before its initial impact with the ground. The airplane came into view in a slight right wing low attitude. In the two seconds that followed the airplane’s right bank angle increased as it descended rapidly towards the ground. The airplane’s right wing impacted the ground first in a near 90° attitude immediately followed by the nose as it burst into flames. The airplane slid inverted for several seconds along the displaced threshold to runway 26 and came to rest about 120 ft from the runway numbers.



*Figure 1: Base turn to final with graphics excerpted from surveillance video*

The airplane came to rest inverted on a heading of about 038° magnetic. All four corners of the airplane were accounted for at the accident site.



*Photograph 1: Accident site from the northeast*

## **D. DETAILS OF THE INVESTIGATION**

### **D.1 Onscene Examination**

The first point of impact (FPI) was marked by a 20 inch long depression about 270 ft northeast of the main wreckage and adjacent to the displaced threshold for runway 26. A second ground scar was observed adjacent to taxiway A2 about 10 ft forward of the FPI and measured 30 inches long. The second ground scar was collocated with a broken airport taxi light. Burned grass was observed to the right of the displaced threshold. A debris field was oriented on a heading of 255° magnetic and was comprised of plexiglass and fragments of airframe skin. The right wingtip was located in the debris field about 90 ft from the main wreckage.

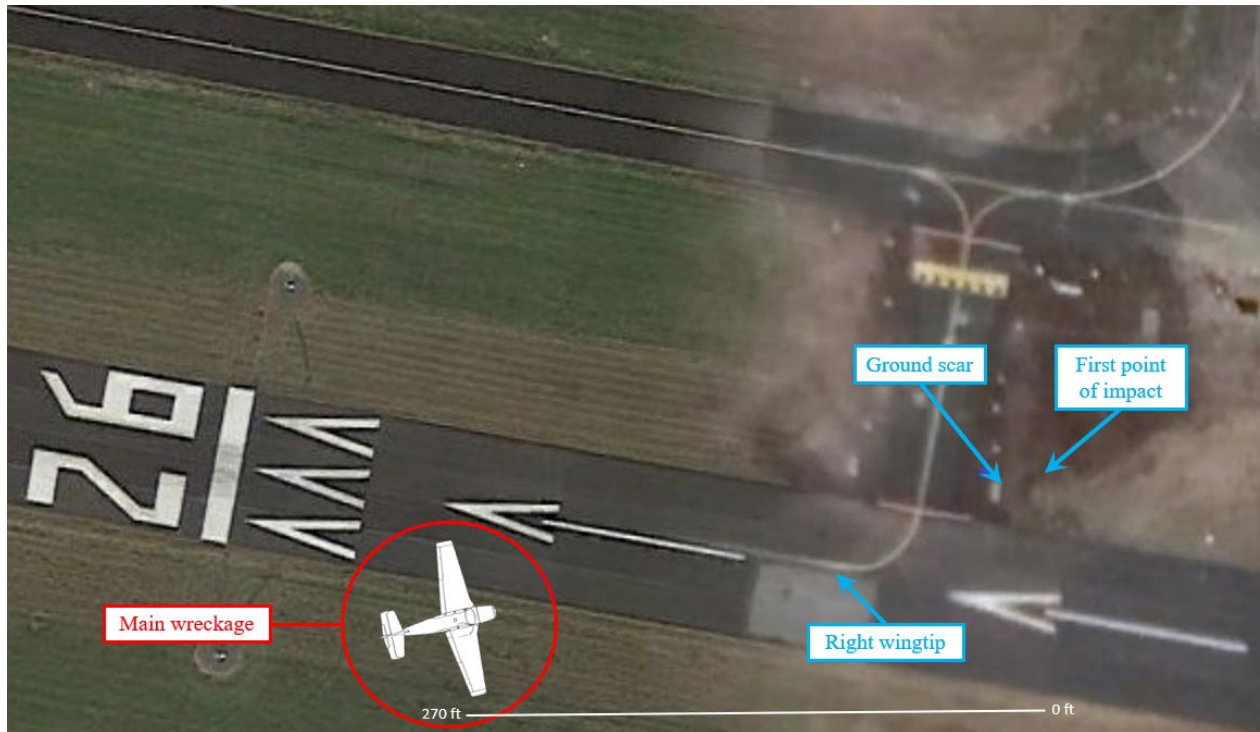


Figure 2: Debris path and main wreckage

### D.1.1 Wings

#### Left Wing

The outboard section of the left wing was bent downwards and the left wing leading edge was crushed. Both the wing flap and aileron remained attached to the wing at their mounts and the aileron push pull tube remained attached at the bellcrank. The left main landing gear was in the extended position.



*Photograph 2: View of left wing at accident site*

## Right Wing

The right wing was mostly destroyed by postcrash fire outboard of the left main landing gear, which remained attached to the forward and rear wing spars and was in the extended position.

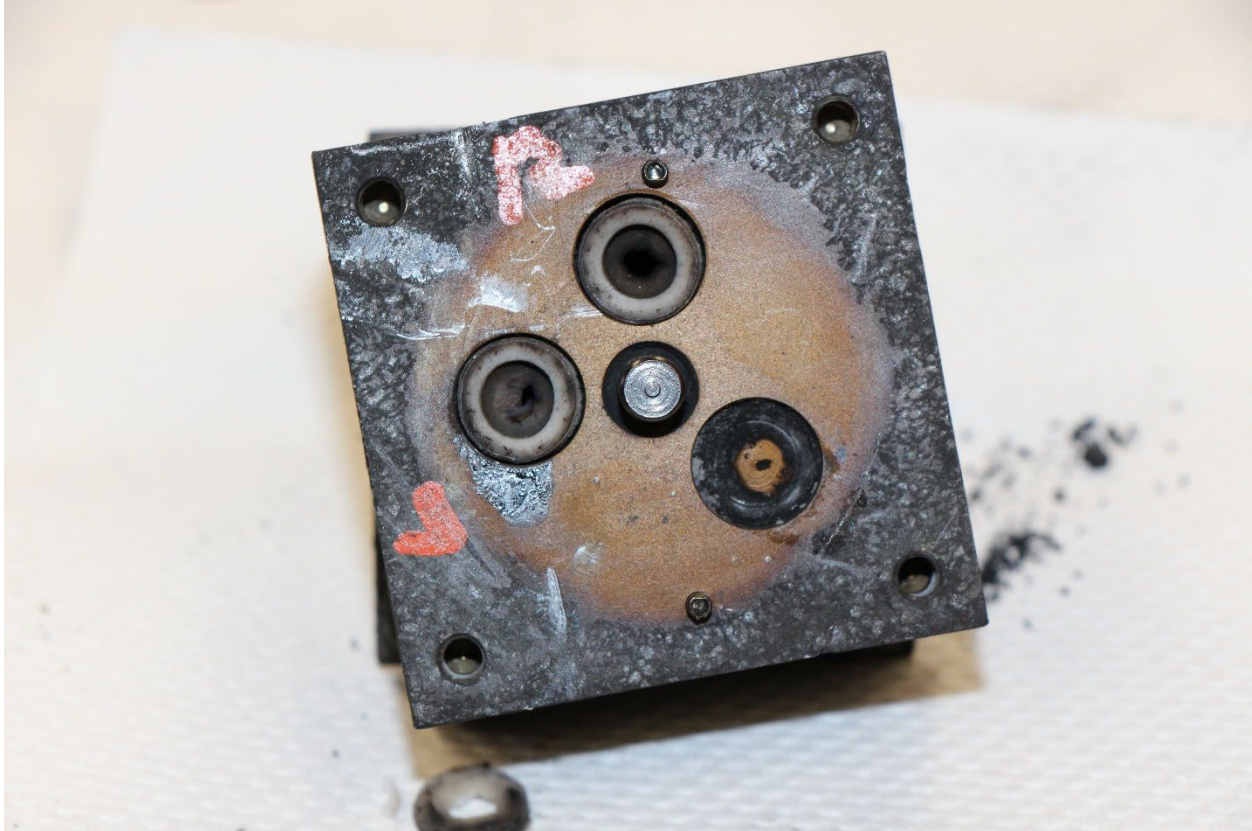
### D.1.2 Fuselage

The fuselage was destroyed by postcrash fire. Several instruments remained attached at the instrument panel. However, none of the instrument readings from any of the instruments found in the wreckage were discernible due to thermal damage.

#### D.1.2.1 Fuel System

The right wing fuel tank was breached and the left wing was intact with some fuel staining observed near the pitot tube.

The fuel selector was in the OFF position and rotated normal from the OFF, LEFT, and RIGHT detents. Plastic white inserts were observed within the OFF, LEFT, and RIGHT ports of the selector case and all three inserts had partially melted.



*Photograph 3: Fuel selector case and plastic inserts*

#### D.1.2.2 Landing Gear

The nose gear and right and left main landing gear were found in the extended position, consistent with the gear motor, which was found in the forward position.

#### D.1.3 Empennage

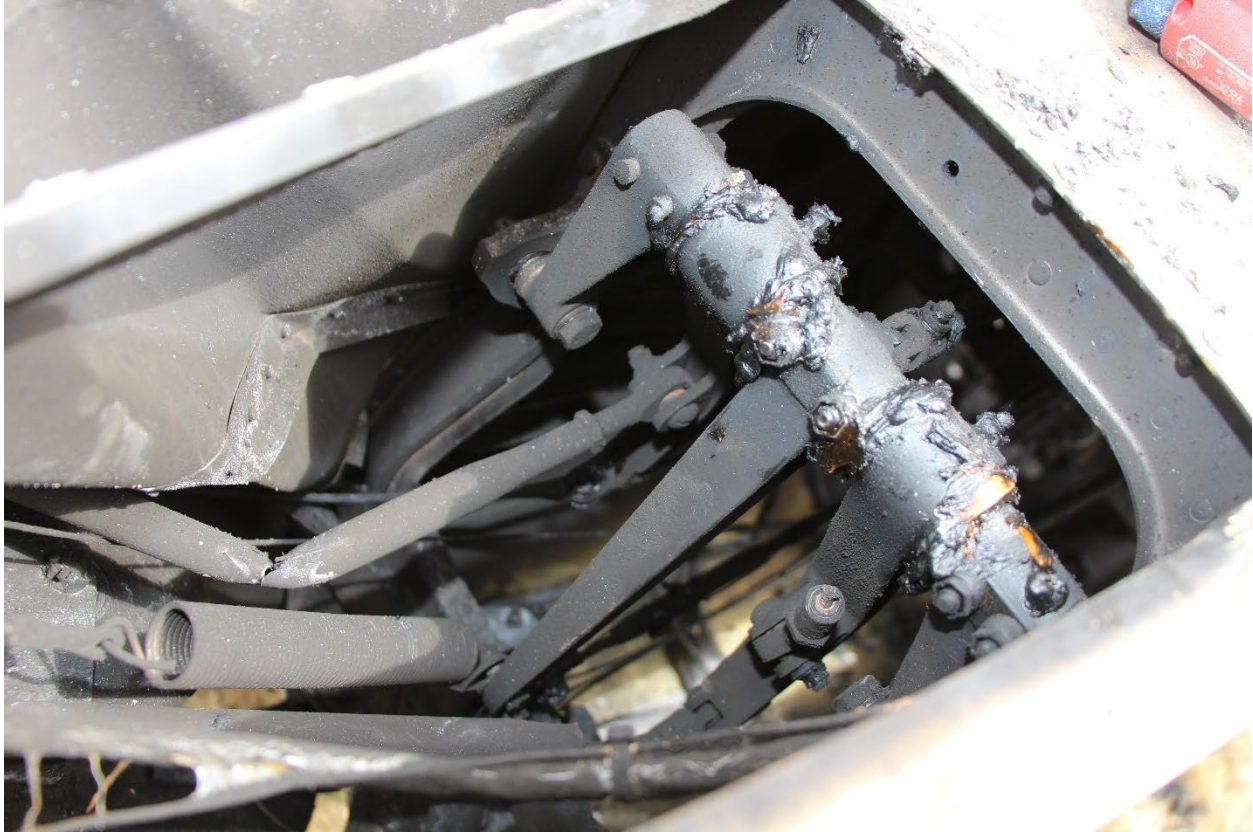
The empennage was damaged by postcrash fire. Both rudder/elevator control surfaces remained attached to the empennage and were covered in soot from postcrash fire. The stabilizer cuffs were installed at the empennage for both stabilizers. The left rudder/elevator control surface and left stabilizer were damaged at their outboard ends. Both elevator trim tabs remained attached to the right and left rudder/elevator control surfaces.

#### D.1.4 Flight Controls

Flight control continuity of the right and left aileron and rudder/elevator control surfaces were traced from their control surfaces to the cockpit controls. The rudder/elevator differential bellcrank was intact; however, the left differential tail control rod separated at the differential mechanism and the right tail control rod partially separated about midspan. Both rudder/elevator control surface top and bottom stops were intact. The rudder/elevator control cables were continuous from the differential mechanism to the cockpit controls.



*Photograph 4: Differential tail control rod attachments to rudder/elevators torque fittings*



*Photograph 5: Differential mechanism and differential tail control rods*

The elevator trim control cables were continuous from the cockpit to the trim actuator in the empennage, which measured 13/16", consistent with a trim neutral position. The trim wheel in the cockpit was destroyed by postcrash fire.

The balance cable was attached to both the left and right wing bellcranks. The right aileron control cable was continuous from the bellcrank to the cockpit controls. Continuity of the left wing was confirmed from the cockpit controls to the aileron.

The right wing flap actuator was thermally damaged. The left wing flap actuator measured 1.75" consistent with a flaps up position.

#### D.1.5 Engine

An engine examination was completed after the wreckage was recovered to a facility in Auburn, Washington.

The airplane was equipped with a Continental Motors IO-520-BA (s/n 562396), a 285 hp, horizontally opposed, air cooled, reciprocating engine. The engine sustained thermal damage around cylinders 1 and 3. The engine firewall and lower cowling were both physically and thermally damaged. The propeller hub exhibited aft crush damage at the tip and was fractured. Most of the rocker covers were still attached with exception of box cover no. 5, which was recovered in the debris field at the accident site. Several of the top cooling fins for cylinder 5 were



bent and displayed evidence of scraping. The fin directly above the cylinder 5 top spark plug port was cracked. The cylinder 5 rocker arm was displaced from the valve stem and a portion of the cylinder case was bent over a portion of the spring, which partially inhibited movement of the intake valve for that cylinder. The exhaust and intake tubes for cylinders 2, 4, and 6 all remained attached; however, the exhaust tubes were all crushed about midspan as was the exhaust shroud. The intake tubes to cylinders 1, 3, and 5 were cracked at the engine case and their respective exhaust tubes were crushed.

Each of the 6 top and 6 bottom spark plugs were attached at their spark plug ports and secured in place. The top spark plug leads for cylinders 3 and 5 and bottom lead for cylinder 5 were completely separated. The bottom leads for cylinders 1 and 3 were attached and the top lead for cylinder 4 was partially attached. The top and bottom leads for cylinders 2, 4, and 6 were all attached and secured in place. Both the top spark plugs to cylinder 4 and 6 were canted and the top plug to cylinder 2 and the bottom plugs to cylinder 2, 4, and 6 were all straight. Each of the spark plugs was secured in its respective plug port.



*Photograph 6: Engine compartment at accident site*



*Photograph 7: Hoisted engine prior to examination*

The crankshaft did not rotate smoothly and bound after a few rotations; however mechanical continuity was established throughout the rotating group, valve train and accessory section for cylinders 2, 4, 6, the exhaust to cylinder 1 and intake to cylinder 3 as the crankshaft was manually by hand at the accessory case using a drive tool. Continuity from the piston to the crankshaft for cylinders 1 and 3 were verified using a lighted borescope. Thumb compression was not achieved due to postcrash damage to the engine, but normal valve lift was observed at the intake and exhaust for cylinder 2, 4, and 6 and the cylinder 1 exhaust and cylinder 3 intake. Examination of the cylinders combustion chamber interior components using a lighted borescope revealed normal piston face and valve signatures, and no indications of catastrophic engine failure. Cylinder 6 was physically removed from the engine case and the piston, cylinder walls, and valve faces all exhibited normal wear.

The left and right magnetos were Bendix Corporation model no. S6RN-1225 and were tightly secured at their mounting pads. Magneto to engine timing could not be achieved due to the

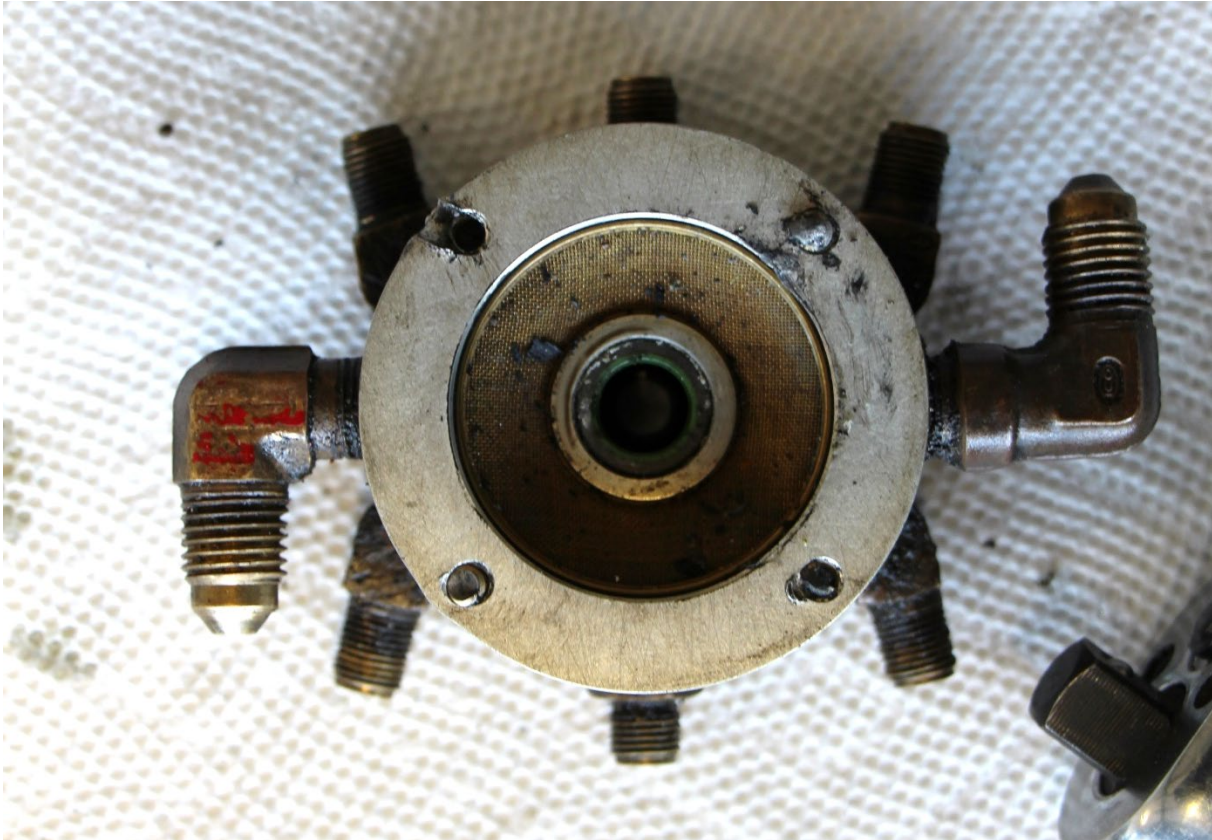
bound crankshaft. Both magnetos were removed and the ignition leads were cut; spark was observed at the cut ends of all 6 ignition harness leads as each magneto was rotated using a power tool. The top spark plugs were manufactured by Champion, and were model REM 32E two prong massive electrode plugs. Both the top plug to cylinder 1 and bottom plug to cylinder 5 were mildly oil fouled and the top plug to cylinder 2 was displayed mild carbon fouling. The top plugs to cylinder 3-6 were all gray in appearance, consistent with normal wear.



*Photograph 8: 6 Top Spark Plugs*

All six fuel injection nozzles remained attached at each cylinder with their respective fuel lines attached. Most of the injection nozzles were free of visible contamination, with exception of the injector from cylinder 4, which had some thermal debris and the injector to cylinder 5, which was bent.

The flow divider remained partially attached to its mount the top of the engine case; the divider filter was free of debris and secured in place. The fuel pump was free of internal mechanical malfunction and obstruction to flow.



*Photograph 9: Fuel flow divider*

The oil filter was disassembled and was mostly free of foreign contamination.

The induction air filter did not display any debris.

The throttle body had separated from its mounting pad; however, both the throttle and mixture controls were still attached at their respective arms and continuous to the cockpit.

The 3 bladed constant speed propeller remained attached to the engine at the crankshaft. Propeller blade A was bent towards the blade face and exhibited tip curling also towards the face. Chordwise striations were observed along the camber side of the blade along with scraping. The other two blades were not bent. Blade B exhibited nicks and gouges along most of the leading edge of the blade.



*Photograph 10: Blade A with striations and tip curling*



*Photograph 11: Blade B nicks and gouges and leading edge*



*Photograph 12: Blade C*

Submitted by:

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