

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



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ACCIDENT SITE AND WRECKAGE EXAMINATION- FACTUAL REPORT

Factual Report

June 5, 2025

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A. ACCIDENT

Location: Novato, California
Date: August 31, 2024
Time: 1550 Pacific Daylight Time
Airplane: Aero Commander 200D (N2912T)

B. PARTICIPANTS

NTSB-IIC	Andrew Swick NTSB AS-WPR Phoenix, Arizona
FAA-IIC	Benjamin G. Brillo FAA-FSDO Oakland, California

C. DETAILS OF THE ACCIDENT SITE EXAMINATION

1.0 Accident Site

The accident site involved runway tire marks, runway safety area (RSA) terrain marking, and damage to an end hangar on the northwest side of Gness Field Airport (DVO), Novato, California. From the first tire marks near the approach end of runway 31 to the main wreckage was about 1/4 mile long and on a heading of about 318°. The rubber marks veered off the left side of the runway about 285ft from the runway threshold. The tire marks continued through the runway safety area (RSA) and exited about 480ft from where they entered at a heading of about 320°. The next tire marks were found through terrain near taxiway C in the north end of the RSA dividing taxiway 13-31 and the parking ramp. A taxiway light separated from its ground attachment and was found on taxiway C. The airplane impacted a hangar about 300 ft from the last ground marks on a heading of about 319°. (See figure 1)

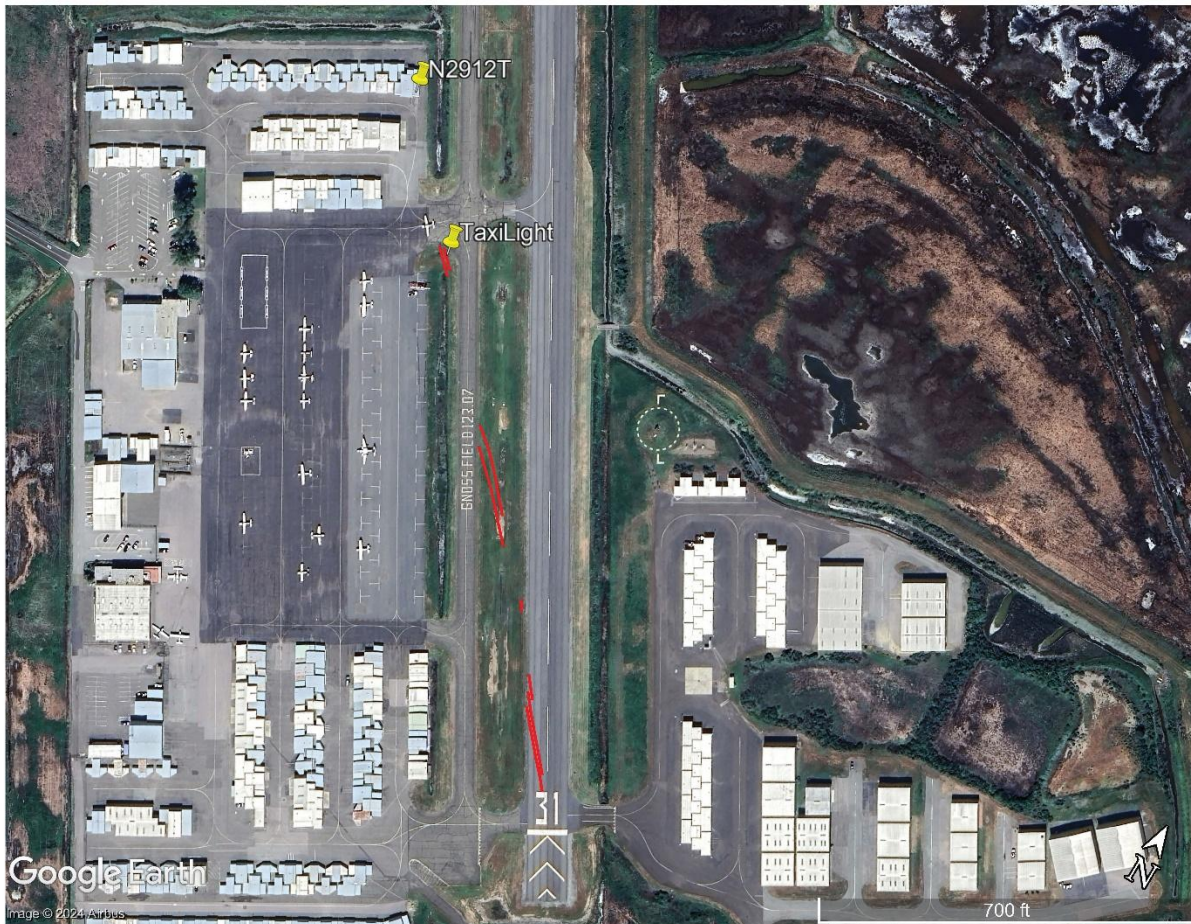


Figure 1-Gross Field Airport, ground marks.

2.0 Wreckage Examination

The airplane wreckage was found in a hangar located on the end of a row of hangars. The metal hangar had impact and thermal damage and contained a motorcycle, two vehicles and a Cessna 340 multiengine aircraft which were damaged from postimpact fire. The accident airplane's empennage separated from the fuselage steel structure and remained near its relative position with the main wreckage. The vertical and horizontal stabilizers, rudder and elevators had thermal discoloration. The right wing was mostly destroyed by postimpact fire. The main wreckage was found on top of a motorcycle and that was located in the hangar. The motorcycle had thermal and impact damage and the frame and engine were all that remained intact. A section of the right wing tank and the remains of the right wing tank were all that was identifiable with the outboard right wing. The left wing remained attached to the center wing attach fittings. The left wing tank was breached and contained about 2 gallons of blue colored fuel. The center wing steel structure remained attached to the cabin area. The cabin area was mostly consumed by postimpact fire and only the steel structure and steel components remained. The

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engine and propeller assembly remained attached to the firewall and had excessive thermal damage. All three blades were melted down to near the hub.



Figure 2-Accident site, main wreckage.

Flight control cable continuity was established from the rudder to near the mid-cabin area where melted turnbuckles would have been. The rudder cables continued forward to the rudder pedal attach points. The rudder controls and steering control system was destroyed by postimpact fire. The elevator control tube had thermal damage near the aft bellcrank area. The elevator bellcrank and a steel control tube had thermal and impact damage and were found loose in the cabin area. The left flap position was undetermined, and the control linkage had thermal damage. The right flap was not found. The left aileron remained attached to the wing and moved freely when the remaining control tube and bellcrank were moved by hand. Most of the aileron control tube was destroyed by postimpact fire. The right aileron and control assembly were not found. The aileron steel torque tube remained in the cabin area and moved freely by hand. The aileron control yoke pushrod tubes were destroyed by postimpact fire.



Figure 3-Accident site, main wreckage cabin and center wing area.

The engine was removed from the firewall during the recovery process. The engine control cables were found partially attached to the instrument panel area and lever positions were undetermined. The engine control cables had impact damage and separated from the engine. The engine accessory section had excessive thermal damage and most of the attached components separated and were destroyed. The accessory section housing had thermal damage and internal gearing was visible. The upper left accessory drive gear separated and the magnetos had excessive thermal damage. The fuel manifold valve was destroyed by postimpact fire. The induction assembly was destroyed by postimpact fire. The exhaust assembly had impact damage. Spark plugs were removed from cylinders No. 1, 3, 4, 5 and 6. The spark plug electrode areas showed normal deposits and the electrodes showed minimal wear. The No. 2 cylinder had excessive thermal damage. The cylinder's overhead components including the spark plugs were found in melted aluminum beneath the engine. The cylinders were boroscoped and the combustion chambers revealed normal operating conditions.

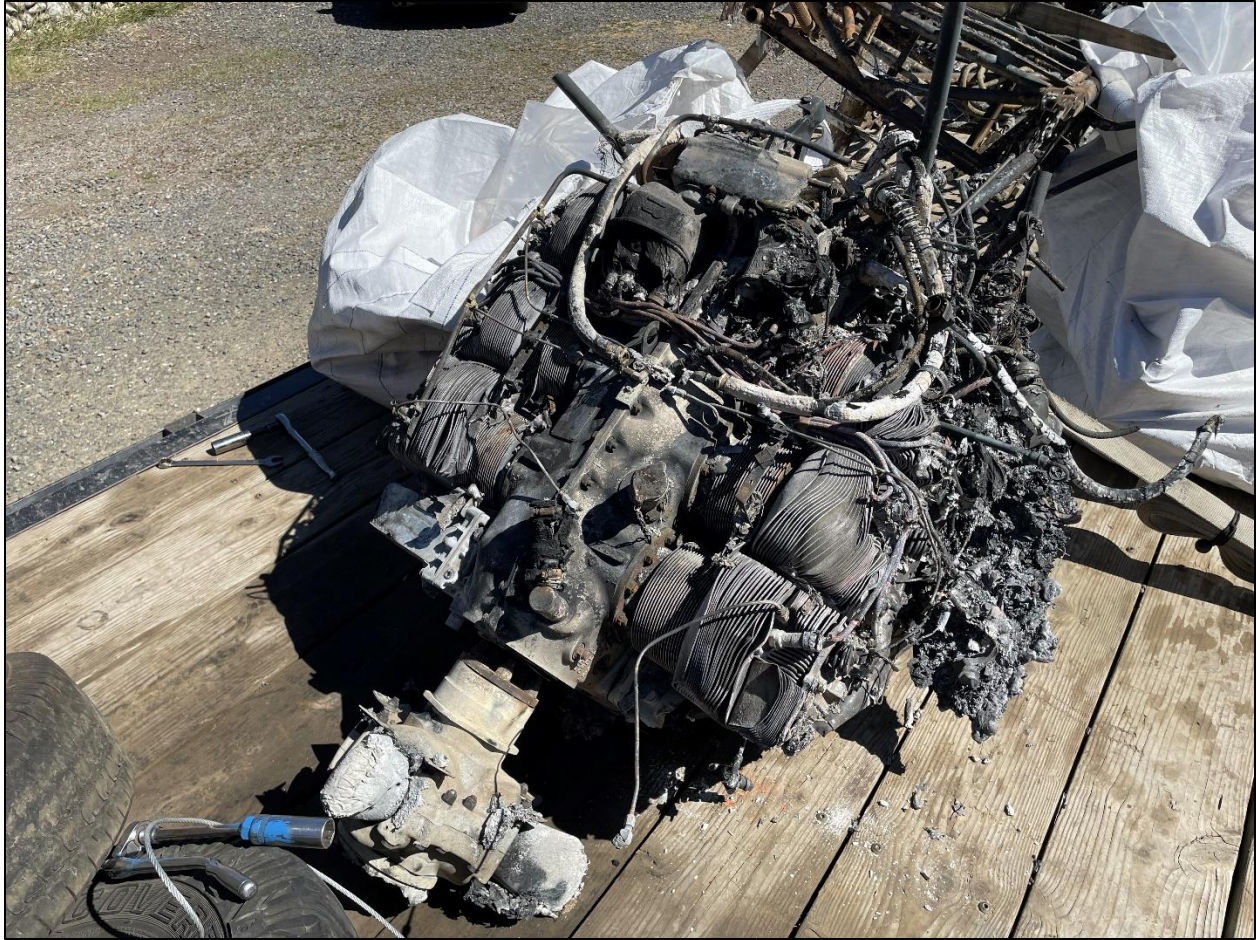


Figure 4-Engine and propeller assembly.

3.0 Follow-up Wreckage Examination

The wreckage was relocated to a secured facility and a follow-up examination was completed. The empennage remained complete with thermal damage to the vertical stabilizer and fuselage area. The rudder control cables were cut during the recovery process and the elevator control tube was thermally separated near the rear bellcrank. Both the rudder and elevator control surfaces moved freely from their cables and control tube, respectively. The elevator trim tabs were found near their neutral position. The trim tab torque tube was thermally damaged and separated near the trim jack screw. The torque tube rotated multiple times around, actuating the jack screw block but was unable to move the connected control cables to the trim tabs. The control cables were complete, properly attached and were covered in corrosion deposits.



Figure 5-Follow-up examination, empennage.

The left wing auxiliary tank remained in the left wing that remained partially attached to the center wing and fuselage section. The tank had thermal deformation and the tank cap remained secured. The cap was removed and had thermal damage. The left wing main tank was not attached to the inboard wing area which had thermal damage and only steel tubular structure remained. The right outboard wing was

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consumed by postimpact fire. The right main tank was not attached to the inboard wing area which had thermal damage and only steel tubular structure remained. Fuel tank remnants were found with the main wreckage. Three fuel tank caps and ports were found with the main wreckage and had thermal damage. The fuel selector was not found during the examination.



Figure 6-Follow-up examination, main wreckage including the left wing.

The few instruments that were found had excessive thermal damage and could not be identified.



Figure 7-Follow-up examination, cabin area.

The Continental Motors TSIO-520-CcM(3), serial No. 501459, engine had excessive postimpact fire damage throughout. The No. 2 cylinder head separated, and its valve train was found loose in the main wreckage. The cylinder barrel remained attached to the crankcase and its piston was positioned about halfway in the barrel. The piston showed thermal damage. The No. 4 and 6 cylinders had excessive thermal damage to their overheads and were missing their pushrods and housings which were later found with the main wreckage. The No. 1, 3 and 5 cylinders had thermal damage and missing their rocker covers. Multiple attached accessories had thermal damage and remained partially attached to the crankcase. The oil pump housing had thermal damage, and its internal drive and driven gears were visible and undamaged. The accessory section idler gear was visible through crankcase thermal damage and the idler gears were undamaged. The induction assembly and oil sump were not found with the engine. The camshaft and interior crankcase surfaces were visible, and no mechanical damage was noted. The exhaust assembly remained partially attached and was crushed upwards at a few stacks. The turbocharger turbine side blades were visible and undamaged. The turbocharger drive shaft was unable to rotate by hand. The turbocharger compressor side was missing and only the drive shaft remained. The wastegate valve housing had thermal damage and the valve was found in the closed position. The exhaust pipe was found

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with the main wreckage. The engine remained attached to the engine mount structure which was cut during the recovery process. Lines, cables and tubes were not found during the examination.



Figure 8-Follow-up examination, engine and propeller assembly.

The propeller hub and portions of each blade remained attached to the crankshaft propeller flange. Most of the blade's lengths had melted-separated and only 4-6 inch portions remained attached to the hub. The hub housing had thermal deformation. The hub cylinder had thermal damage, and the piston was visible in the bore. The piston was found near the front end of the hub.

Remnants from a large antique box was found with the main wreckage. The box had a steel liner that survived the postimpact fire and had impact damage. The liner was measured to about 16 inches by 32 inches. Multiple damaged ceramic parts were found with the main wreckage.

A bundle of burned papers (non-aviation) was found with the main wreckage and most was illegible. No other airplane or pilot documents were found with the main wreckage.

Submitted by:

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