



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Western Pacific Region

January 20, 2022

AIRFRAME AND ENGINE EXAMINATION SUMMARY

WPR21LA326

This document contains 2 embedded photos.

A. ACCIDENT

Location:	Del Mar, California
Date:	August 24, 2021
Aircraft:	N2843T, Piper PA-32-300
NTSB IIC	Albert Nixon

B. PARTICIPANTS

Albert Nixon
Senior Aviation Accident Investigator
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C. SUMMARY

Examination of the wreckage was conducted at the facilities of Bulldog Towing Services, in Chula Vista, California. The postaccident examination of the airframe and engine revealed no preimpact anomalies or malfunctions that would have precluded normal operation.

D. DETAILS OF THE INVESTIGATION

1.0 Airframe Examination

The airplane wreckage was stored at a parking lot with the fuselage set on the top of wood planks and covered by a tarp. The airframe sustained damage to the bottom of fuselage. The wings had been removed from the fuselage for recovery. The wings and horizontal stabilizers, were laid next to the fuselage. Both wings sustained leading edge impact damage. The left wing's aileron and flap were attached. The aileron control cables were disconnected at the turnbuckles. The left main fuel tank cap was not attached, and the sump drain was closed. Examination of the drain and fuel line between the left main fuel tank and wing root revealed no anomalies. The right wing was separated about mid-span and the outboard half was laid next to the fuselage.

The vertical stabilizer and rudder were relatively intact, and the rudder was attached. The stabilator was removed from the empennage and was laid next to the fuselage. The stabilator sustained damage to the right tip. The trim barrel had been removed from its mount and examination revealed about 1 ½ inch of extension from the barrel, which correlated to a partial nose up trim.



Figure 1 – Airplane wreckage as viewed from the front right side.

In the cabin, the forward and center seats had been removed from their respective anchoring points. In addition, the floor panel in the center of the cabin had been removed. The flap handle was in the retracted position. The fuel selector handle was positioned to the left tip tank and the fuel selector arm was also in this position. Movement of the fuel selector handle revealed that each selected position detent could be selected, with no binding was noted. The sump handle covered had been previously removed. Fuel sumped from the fuel selector bowl had no contaminants and was consistent in odor and color with 100LL fuel. The fuel tested negative for water. All fuel line b-nuts were attached to the fuel selector however, the fuel line to the right tip tank was not present. The fuel selector screen and fuel bowl were free of debris. The fuel selector was tested with low pressure air and no obstructions were noted at all the selected positions. The electric pump had the appropriate fuel lines attached and activated when electrical power was applied to its wiring. The fuel line from the electric pump to the engine had been disconnected at the wing spar carry through.

The right wing sustained a large circular impact with compression damage about mid-span. The right wing also sustained leading edge impact damage about 4 ft outboard to the wing tip. The right flap and aileron were attached. The right flap sustained impact damage about 1 ft inboard and was bent upwards. The left wing had leading edge damage on the inboard portion and the left wing tip tank sustained crushing damage to its leading edge.

2.0 Engine Examination

The Lycoming IO-520-K1A5 engine, (serial number L-12098-48) was attached to the fuselage and the engine mount assembly sustained damage to the bottom mounts that were bent upward. A “Corona Cylinder and Engine Overhaul” tag was attached to the crankshaft. The upper engine cowling was found to be not secured by screws or latches and the lower cowling remained attached and secured and had sustained impact damage near the area of the collapsed nose landing gear.



Figure 2: Engine as viewed from the top left side.

The upper and lower engine cowlings were removed, and the engine mounts were observed to have sustained impact damage near area of the collapsed nose landing gear. No other damage or anomalies were noted during the exterior examination of the engine. All of the engine fuel line b-nut fittings were secure and engine control continuity was established. The mixture control was noted not to have its full travel due to impact damage to the engine mounting structure near the mixture linkage.

Rotational continuity was established through hand rotation of the propeller and cylinder thumb compression was obtained on all cylinders. During crankshaft rotation, spark was obtained on all

ignition leads. The upper spark plugs were removed, and examination revealed that the electrodes were undamaged and exhibited no wear, consistent with newly installed sparkplugs. All the cylinders were examined with a lighted borescope and revealed no piston heads were undamaged and a exhibited a normal amount of combustion deposits. The valve heads were not damaged and exhibited a normal amount of combustion deposits. The magnetos were secured on their mounts. Their drives produced spark at all leads during rotation.

The alternator drive belt remained attached to the crankshaft pulley and the alternator drive rotated appropriately during crankshaft rotation. Examination of the alternator hardware revealed no anomalies. The induction air box was opened and examined. The filter was undamaged and clear of debris.

The fuel system spider valve was disassembled, and the internal diaphragm was not damaged. No fuel was noted in the valve. The inlet and return fuel lines were removed and no fuel was noted in the lines. The fuel flow transducer was removed, and no debris or contaminants were noted. The fuel flow transducer's internal impeller spun freely when low pressure air was blown into it. All the fuel injectors were removed and examined; no anomalies were noted. A thread sealant was noted on the fitting on either side of the fuel flow transducer.

The oil reservoir was not breached. The oil dipstick indicated 12 quarts of clear oil. The borescope was inserted into the oil dip stick tube and examination of the upper internal engine surfaces revealed no damage and that they were covered in a clear oil residue.

The spinner exhibited impact damage and the three-bladed propeller was attached to the crankcase. One propeller blade was undamaged, one blade exhibited a dent at the tip, and one blade was bent aft about midspan. No blades exhibited chordwise scarping or leading-edge damage.

Submitted by Albert Nixon