

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



WPR23LA192

WRECKAGE EXAMINATION SUMMARY REPORT

June 18, 2024

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A. ACCIDENT

Location: Half Moon Bay, California
Date: May 20, 2023
Time: 1400 Pacific Daylight Time

Airplane: Viking Air DHC-6-400 (Twin Otter)

B. PARTICIPANTS

IIC	Andrew Swick NTSB AS-WPR Phoenix, Arizona
Air Safety Investigator	Dennis Pollard De Havilland Aircraft Calgary, Alberta, Canada
Air Safety Investigator	Colin Vollrath De Havilland Aircraft Mississauga, Ontario, Canada
Adjuster/Surveyor	Jordan B Sherrill Arnold & Arnold Phoenix, Arizona

C. SUMMARY

The airplane wreckage was relocated to Air Transport in Phoenix, Arizona. The right wing was positioned off the floor on support stands. The 400-bladder was contained in a 55-gallon barrel and the nose landing gear remained intact. The wing had damaged areas consistent with tiedown cables and straps during recovery efforts.

D. DETAILS OF THE EXAMINATION

1.0 Right Wing

The right wing remained intact and had impact damage throughout. The engine separated from the engine mount and nacelle. The oil cooler assembly remained attached to the firewall. The lower cowling remained attached to the engine. The wing tip fairing remained partially attached to the wing and the wing tip fuel distribution components remained attached to the tip rib. The tip tank was

compressed on both the top and bottom surfaces and the tank cap was not secured to the tank port. The cap was removed and was unremarkable. The cap was resecured to the tank port. Leading edge crush damage was observed from wing station (WS) 335 to WS 260. The wing fence was deformed inboard and remained attached to the wing. A 5-inch hole was observed on the lower side of the leading edge between WS 210 and 197. The nacelle assembly was distorted to the inboard side with crush damage on the top and inboard side.



Figure 1-Right wing inverted.

The aileron and the outboard foreflap remained attached and moved freely by on the hinge arms. The aileron had wrinkling and distortion of the trailing edge. The aileron trim tab was intact and was damaged. Aileron trim settings were undetermined. The inboard foreflap remained partially attached to the wing. The root end of the foreflap was damaged and the hinge arm was missing. The inboard trailing flap remained attached to the wing and was missing a section from WS 97 inboard.

Various wiring separated at the root area.

The wing support strut remained attached to the wing attach point and separated from the fuselage attach point. The wing support strut fuselage attach

point aft lug fracture separated and the forward lug was intact. The lower attachment bolt was not found. The internal fuel line was present in the support strut and separated at the fuel tank transfer pipe. The fuel line was attached to the fuel filter assembly in the nacelle area.



Figure 2-Right wing.

The aft wing spar was distorted and damaged from WS 60 to 35. And the rear wing attach fitting was torn from the spar and bent outboard with the inboard attachment lug missing. The wing root rib forward section to the front wing attach adapter was missing and the forward wing attach fitting was missing. The forward attach adapter bolt section remained attached to the wing adapter. The bolt appeared to have necking signatures consistent with tension overload.

The flap control rod was present and bent aft and upward. The aileron cables showed broomstrawing consistent with overload at the wing root area. The lower aileron cable remained attached at the bellcrank. The upper aileron cable separated from the bellcrank and the swagged end was still intact. The aileron bellcrank inboard side was deformed at the upper cable attach point.

The inboard fuel vent line separated near the inboard wing access panel. Pneumatic air pressure was attached to the vent line and was heard exiting from the wing vent port.

2.0 Nose Landing Gear

The nose landing gear upper attach lug was fracture separated. Portions of the fuselage attachment remained attached to the nose landing gear. The centering pin was engaged in the collar and the nose wheel was centered.



Figure 3-Nose landing gear and bladder shipping barrel.

3.0 Fuel Bladder

The 400-gallon fuel bladder was removed from the shipping barrel and plastic bag. Jet fuel was present during the examination. The flat tube and cap were attached to the bladder and were undamaged. The top plate was damaged on one side between fasteners. No leaks of the bladder was noted. The outlet fitting attached to the top plate was undamaged and uncapped. The three longitudinal strap loops were damaged, and the straps were missing. The five tie-down lift points remained attached to the bladder on one side. Both forward and aft center tie-down lift points separated. Two tie-down lift points on the other side separated with the one remaining attached. The fuel cap was removed from the filler neck and sand was present in the flat tube. The top plate was removed from the bladder and the inside

of the bladder had a presents of fuel and was clear of debris. The outlet fitting was unobstructed.



Figure 4-Fuel bladder.

Submitted by:

Andrew Swick
Aviation Accident Investigator