

NATIONAL TRANSPORTATION SAFETY BOARD

Vehicle Recorder Division
Washington, D.C. 20594

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Cockpit Displays – Recorded Flight Data Replay

Specialist's Study Report
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1. EVENT SUMMARY

Location: Ketchikan, Alaska
Date: June 25, 2015
Aircraft: de Havilland DHC-3
Registration: N270PA
Operator: Promech Air, Inc.
NTSB Number: ANC15MA041

On June 25, 2015, about 1215 Alaska daylight time (AKDT), a single-engine, turbine-powered, float-equipped de Havilland DHC-3 (Otter) airplane, N270PA, sustained substantial damage when it impacted mountainous tree-covered terrain, about 24 miles northeast of Ketchikan, Alaska. The airplane was being operated under the provisions of 14 *Code of Federal Regulations* Part 135, as an on-demand visual flight rules (VFR) sightseeing flight when the accident occurred. The airplane was owned by Pantechon Aviation, of Minden, Nevada, and operated by Promech Air, Inc., of Ketchikan. The commercial pilot and eight passengers were fatally injured. Marginal visual meteorological conditions were reported in the area at the time of the accident. The flight departed a floating dock located in Rudyerd Bay about 44 miles northeast of Ketchikan about 1200 for a tour through Misty Fjords National Monument Wilderness. A company VFR flight plan was in effect. At the time of the accident, the flight was returning to the operator's base at the Ketchikan Harbor Seaplane Base, Ketchikan.

2. RECORDED FLIGHT DATA GROUP

A recorded flight data group was not convened.

3. DETAILS OF STUDY

The Specialist's Factual Report of Cockpit Displays documents the recovery of two Chelton Integrated Display Units (IDUs) (see the public docket for this accident for the report). In order to better visualize the parametric data recorded by the Chelton IDUs, the recorded flight data from the accident, as recorded by IDU serial number 36519, was replayed through Chelton proprietary software to a PC and screen captured as a video. The video replay is attachment 1 to this report.

4. LIMITATIONS OF REPLAY

The Chelton unit records parametric data once every second; however, IDU settings are only recorded when settings change or when power is removed from the unit (also known as a snapshot). For this unit, it was determined a snapshot occurred at the end of the

flight, likely as a result of the accident. Furthermore, the Chelton proprietary replay software did not allow certain settings to be changed. The combination of setting snapshots and the replay software limitations creates the following limitations for the replay in attachment 1:

- TAWS alerting was *not* inhibited in the replay (alerts were displayed), though evidence from the investigation indicates the accident airplane had inhibited TAWS alerts.
- The synthetic vision display (the left IDU in the replay) may have been different from what the pilot was actually seeing.
- The altimeter setting may be different; however, review of indicated altitude and density altitude suggests the altimeter setting was the same as used on the accident flight.
- The configuration of the moving map in the replay (the right IDU in the replay)—such as range, compass, overlaid information—may be different from the accident plane.
- Settings may have changed multiple times during the accident flight (such as, zoom on the right IDU or synthetic vision display on/off on the left display) and are not reflected in the replay.

These limitations should be considered when interpreting the replay.