

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



CEN22FA331

AIRWORTHINESS

Group Chair's Factual Report - Addendum

December 12, 2023

A. ACCIDENT

Location: North Fork, Idaho
Date: July 21, 2022
Time: 1644 mountain daylight time
Helicopter: Columbia Helicopters CH-47D, registration N388RA

B. AIRWORTHINESS GROUP

Group Chair	Chihoon Shin National Transportation Safety Board Washington, District of Columbia
Group Member	Ian Hansen Federal Aviation Administration Boise, Idaho
Group Member	Robert Roedts Columbia Helicopters Aurora, Oregon
Group Member	Ely Woods ROTAK Helicopter Services Anchorage, Alaska
Group Member	Jeffrey Hutchinson Boeing Ridley Park, Pennsylvania
Group Member	Jennifer McDuffie Honeywell Phoenix, Arizona
Group Member	Robert Van Horn United States Forest Service Ogden, Utah

C. SUMMARY

On July 21, 2022, about 1644 mountain daylight time, a Columbia Helicopters CH-47D, N388RA, was destroyed after it impacted the Salmon River and its riverbank near North Fork, Idaho. The pilot and copilot were the only occupants on board and were fatally injured. The helicopter was operated as a public use firefighting flight.

The operator, ROTAK Helicopter Services (ROTAK), was working under contract for the United States Forest Service (USFS) for the Moose Fire and had relocated the helicopter to the area on July 19, 2022; firefighting flights began on July 20, 2022. On the day of the accident, the pilots had completed about 1.5 flight hours and multiple bucket loads via a water bucket attached to the helicopter at the end of a 200-foot long line attached to the helicopter's cargo hook.

The yaw integrated lower control actuator (ILCA) from the accident helicopter was examined and disassembled by the Airworthiness Group on March 21, 2023.¹ The filter for the No. 2 electrohydraulic valve (EHV) as well as white-colored material found within the yaw ILCA were retained for analysis by the National Transportation Safety Board (NTSB) Materials Laboratory in Washington, DC.

D. ADDITIONAL INFORMATION

1.0 Yaw ILCA Debris Analysis

During the teardown examination of the yaw ILCA, white-colored material was observed within the outer sleeve (of the control valve) and the center housing and was retained for further analysis at the NTSB Materials Laboratory. Fourier Transform Infrared (FTIR) spectrum of the white-colored material was consistent with a straight-chained aliphatic (paraffin) hydrocarbon with the presence of an amine and a carboxy/carbonyl material. The spectra for each sample were not an exact match to each other, but were strong matches to one another. A spectral comparison library search was performed against the spectra of the white-colored material. While there was no exact spectral match, the spectra [of the white-colored material] closely matched the spectra of lubricants and anti-corrosion products such as MIL-H-6083, used for preservation of hydraulic systems.

Examination of the No. 2 extensible link EHV filter found no anomalous material on the filter surfaces.

Submitted by:

Chihoon Shin
Aerospace Engineer - Helicopters

¹ Additional details of the yaw ILCA teardown examination can be found in the Airworthiness Group Chair's Factual Report in the docket for this investigation.