



Chemical Analysis Report

P&WC 11975

GDA # : E19002749

Engine Family : PT6A-67F

Air Line & Operator : Air Spray Airtankers

Sample Description : Debris from hot section (4 locations)

Serial Number : RZ0138

TSN : 559

CSN : 321

Sampling Date : 2019-05-15

Request information : On August 14, 2018, about 1500 Pacific daylight time, an Air Tractor AT802 airplane (Fire Boss), N397AS, was substantially damaged during a forced landing near Northport, Washington. The commercial pilot was seriously injured. The accident flight was a flight of 3, with the accident airplane in the number 2 position. The pilot reported tht he heard a "thud" followed by a bang and the airframe began to shake. HE jettisoned the water and turned away from the other two airplanes. The pilot initially was going to land on an old logging road; however, the landing area was lined with trees on both sides of the road. He opted instead to stall the airplane over the tree tops. After impact with the trees, the airplane came to rest upright at the base of the trees adjacent to the road. The subject engine was then submitted to P&WC SI for detailed examination.

Tests Required : Determine the chemical composition of the debris / contaminants of the 4 samples

Requested by : [REDACTED]

Email : [REDACTED]

Department no : [REDACTED]

Department name : Service Investigation

Extension : [REDACTED]

Date : 2019-05-15

Redacted by : [REDACTED]

Date : 2019-05-16

Sample List

1. Debris from combustion chamber outer liner
2. Debris from combustion chamber inner liner
3. Debris from CT vane ring
4. Debris from PT1 vane ring

Procedure

The debris from all the samples were analyzed by scanning electron microscopy (SEM-EDX).

Results

Sample ID	Analysis
Debris from combustion chamber outer liner S#1	The debris were mainly composed of Silicon with some Aluminum in presence of Oxygen. Traces of Sodium, Potassium, Calcium, Titanium and Iron were also detected.
Debris from combustion chamber inner liner S#2	Idem to sample #1
Debris from CT vane ring S#3	Idem to sample #1, but traces of Magnesium were also detected.
Debris from PT1 vane ring S#4	The debris were mainly composed of Silicon with some Aluminum in presence of Oxygen. Traces of Sodium, Potassium, Calcium, Titanium, Chromium, Iron, Cobalt and Nickel were also detected. In some areas the Nickel is higher, suggesting traces of Nickel alloy; however the alloy identification cannot be determined.

Discussion of the results

The debris were similar to environmental debris (e.g. soil, sand). The shape of the debris could suggest that the debris have seen high temperature.



Picture 1: Debris from combustion chamber outer liner (S#1)



Picture 2: Separate debris from S#1



Picture 3: Debris from combustion chamber inner liner (S#2)



Picture 4: Debris from CT vane ring



Picture 5: Debris from PT1 vane ring

RÉDIGÉ PAR / WRITTEN BY :

VÉRIFIÉ PAR / VERIFIED BY :

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