

Summary of Examination

Date of Accident: July 22, 2014

NTSB Accident No.: CEN14LA473

Aircraft Registration/Make-Model: N6113C ~ Air Tractor AT502-B



Summary and Factual Information from Examination:

The post-accident metallurgical examination revealed that the compressor turbine blade airfoils were fractured from their roots to approximately one-half span. All of the blades displayed gouges, battering, and burning. The blade at position No. 41 was fractured near the root, and the fracture surface displayed smooth features, from the trailing edge to approximately one-half chord, followed by coarse dendritic features.

Further examination determined that blade No. 41 was fractured due to fatigue initiating from the airfoil trailing edge area, approximately 0.072 inches above the blade platform extending to approximately 0.390 inches, followed by fracture in tensile overload. The majority of the fracture surface was obscured by corrosion products and metal splatter resulting from deposits that accumulated during the event. Metallographic examination of the trailing edge revealed no material anomalies. The blade material and airfoil trailing edge thickness were within drawing requirements. The remainder of the blades were determined to be fractured in overload.

Sectioning of a sample blade for microstructure evaluation showed characteristics of exposure to elevated temperatures consistent with the blade separation event. Sulfidation was found on the platform edges of blade No. 20. There were no indications of the compressor turbine blades being locked by the sulfidation debris. The compressor turbine guide vane ring and all adjacent and downstream components displayed extensive mechanical damage consistent with contact from the separated compressor turbine blade debris and vibratory loads.

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