Memorandum For Record

Timothy W. Monville
Sr. Air Safety Investigator
Eastern Region

Date: 7/31/2023
NTSB Accident Number: ERA23FA033

As part of the investigation thermally fractured sections of aileron control cable (Figures 1 and 2) were sent on December 15, 2022 by UPS Ground 1ZA3978T0393235578 to the NTSB Materials Laboratory for examination. It was received on December 22, 2022.

According to the NTSB Materials Engineer, "The macro profile of the cable was consistent with separation due to tensile overstress. Melted debris was observed on the separated ends of the cable (Figure 3). One end of the cable was sectioned and then cleaned using sodium hydroxide. After cleaning, the separated cable end showed the strands remained bundled (Figure 4), but the wires within each strand had melted together. The fracture surfaces of the individual wires had melt damage that obscured any finer features. The still bundled strands indicated the tensile overstress of the cable likely occurred due to the presence of the melted debris, which resulted in localized heating and subsequent weakening of the strength of the cable."

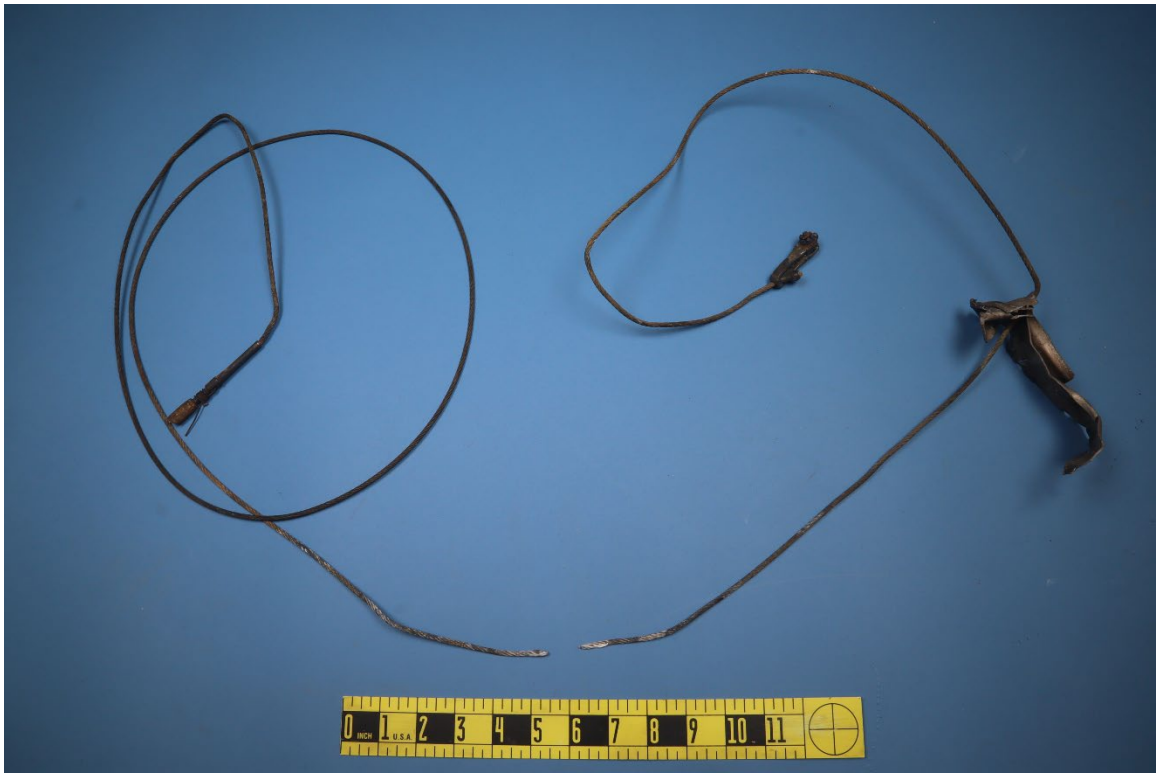

Figure 1: NTSB Materials Laboratory Photograph of Aileron Cable Assembly Received. The Fractured Section is Seen in the Lower portion of the Photograph adjacent to the ruler.


Figure 2: NTSB Materials Laboratory Photograph of Aileron Cable Assembly Received Showing the Fractured Section in Question.

Figure 3: NTSB Materials Laboratory Photograph of One End of the "Debris End" of The Fractured Aileron Cable Assembly with the Profile Rotated 90°. View at 20X magnification.

Figure 4: NTSB Materials Laboratory Photograph of the Fitting End of the Fractured Aileron Cable Assembly After Cleaning. View at 40X magnification.