

National Transportation Safety Board

Office of Research and Engineering

Washington, DC 20594



WPR25LA080

MATERIALS LABORATORY

Factual Report 25-059

October 8, 2025

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A. ACCIDENT INFORMATION

Location: Round Mountain, NV
Date: January 2, 2025
Vehicle: Piper PA-32-300, N4151R
Investigator: Stephen Stein

B. COMPONENTS EXAMINED

Three portions of flight control cable (Figure 1)

C. EXAMINATION PARTICIPANTS

Specialist Joseph Panagiotou
National Transportation Safety Board
Washington, DC

D. DETAILS OF THE EXAMINATION

Three portions of control cable were submitted for examination. In this report they will be referred to as portions "A", "B", and "C" as depicted in Figure 1.

Control cable portion "A" had a ball end fitting on one end and a fracture on the other end (Figure 2). Along its length, cable portion "A" also exhibited various kinks and abrasions (Figure 3). The fractured end of control cable portion "A" exhibited splayed out strands and wires (Figure 4). Examination of the fractured wires using a stereo microscope revealed a reduction of the diameter of the wires at the fracture points and cup and cone fracture features (Figures 5, 6). These fracture features are consistent with overstress.

Control cable portion "B" had a ball end fitting on one end and a fracture on the other end (Figure 7). Cable portion "B" exhibited a few kinks along its length but no abrasions. The fractured end of control cable portion "B" had all the strands and wires tightly wound together. Examination of the fractured end of control cable portion "B" revealed abrasions on the strands and wires perpendicular to the length of the control cable (Figure 8). There were areas with these abrasions that also exhibited straw, blue and violet colored thermal discoloration. These features observed on the fractured end of the cable are consistent with the cable having been separated using an abrasive grinder.

Control cable portion "C" had two fractured ends. These ends were labeled C1 and C2 (Figure 9). Cable end C1 had the strands and wires tightly wound and all the wire fractures were at approximately the same location along the cable. Examination of cable end C1 with a stereo microscope revealed chisel shaped fracture features on the ends of the wires (Figure 10). These fracture features were consistent with the

cable having been cut using a shearing tool such as cable cutters. Cable end C2 exhibited strands and wires that were fractured at different lengths along the portion of the cable. Examination of cable end C2 with a stereo microscope revealed necking down and cup and cone features on the ends of the wires (Figure 11). These fracture features were consistent with overload.

Submitted by:

Joseph Panagiotou
Fire Protection Engineer

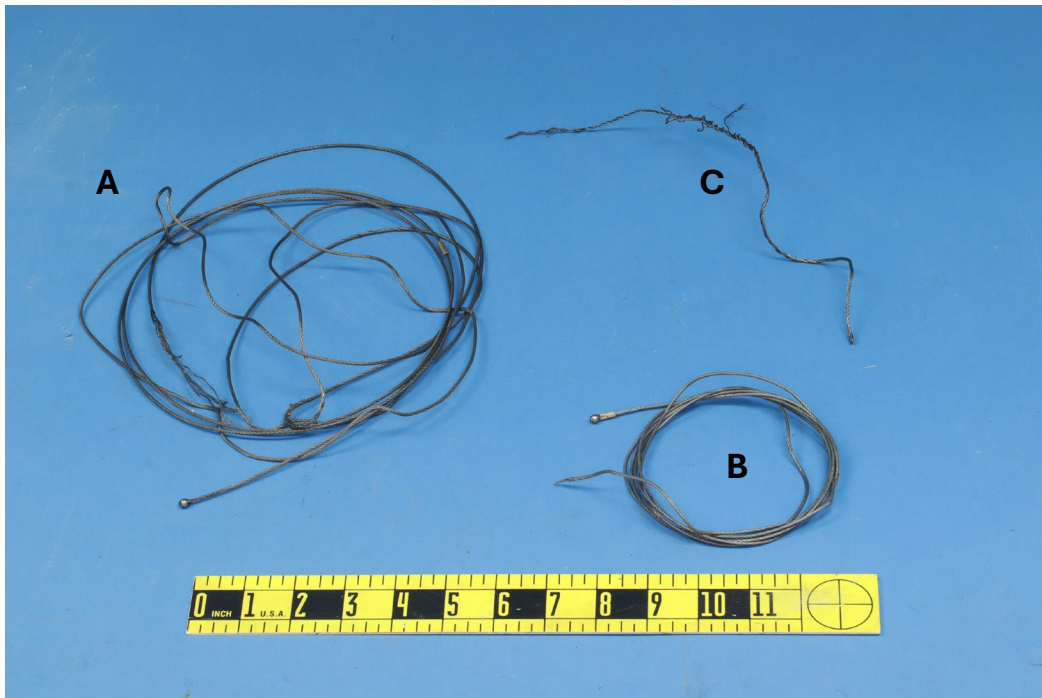


Figure 1. Three portions of flight control cable as received.

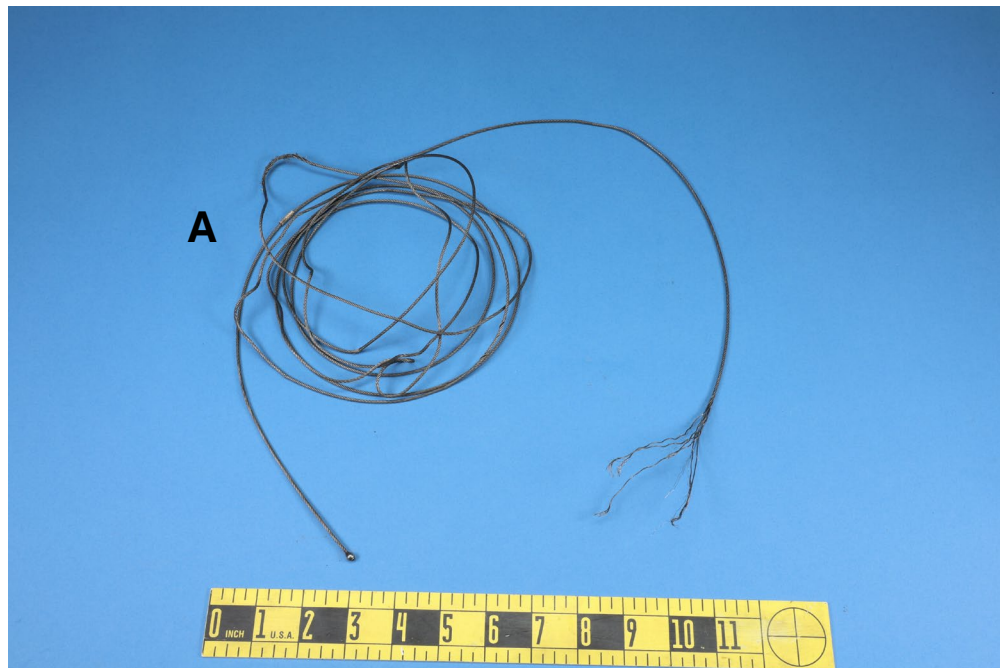


Figure 2. Control cable portion "A".

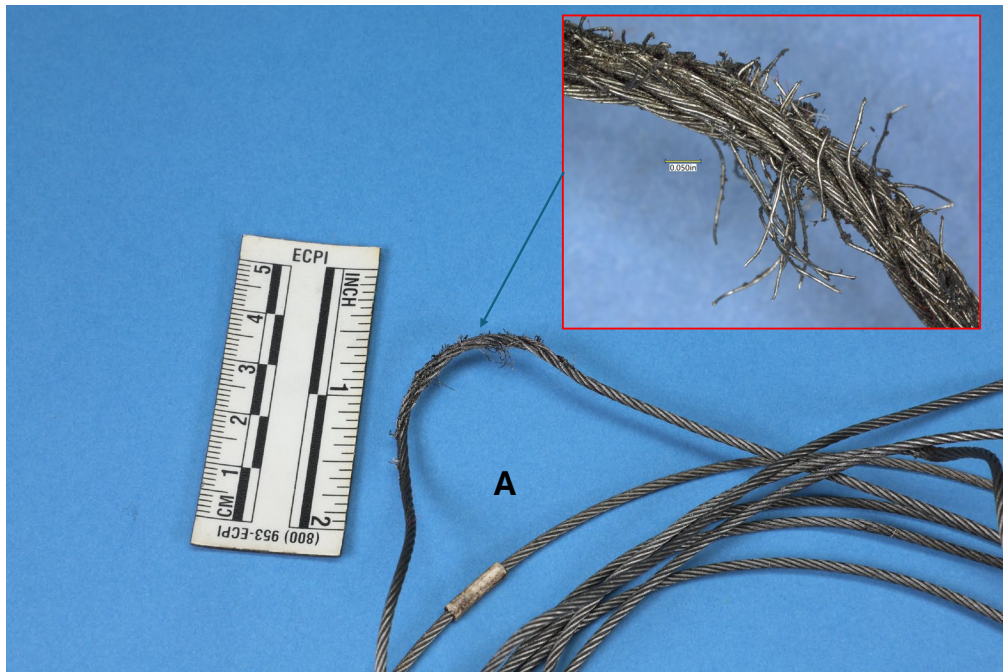


Figure 3. Abrasion along cable portion "A".

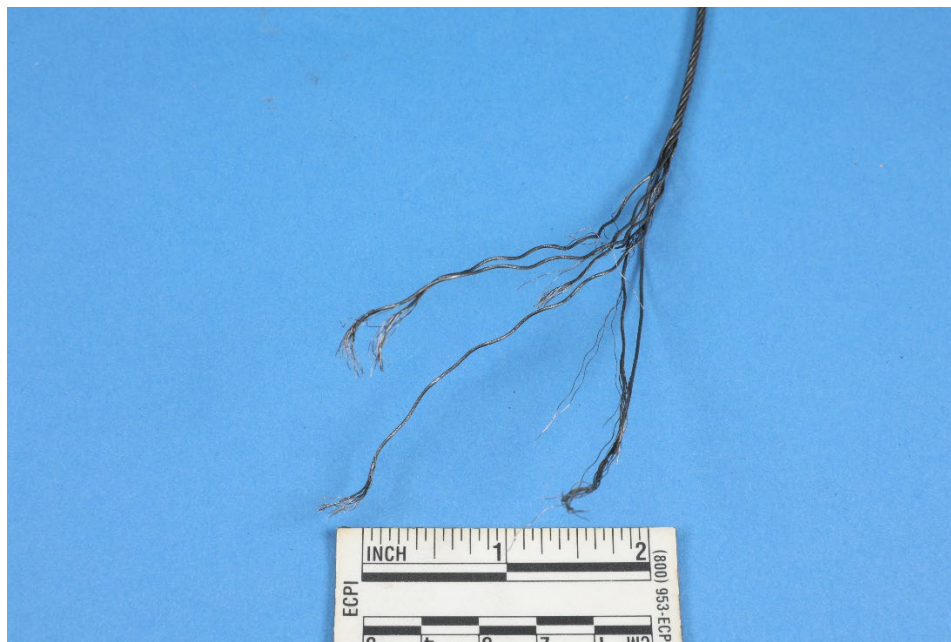


Figure 4. Fractured end of cable portion "A".

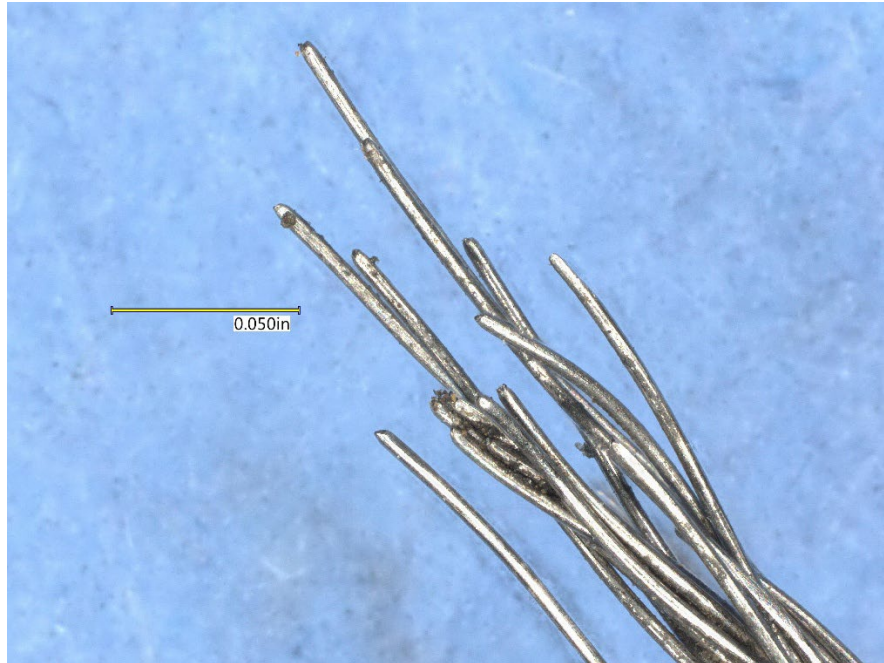


Figure 5. Fractured wires on cable portion "A".



Figure 6. Fractured wires on cable portion "A".

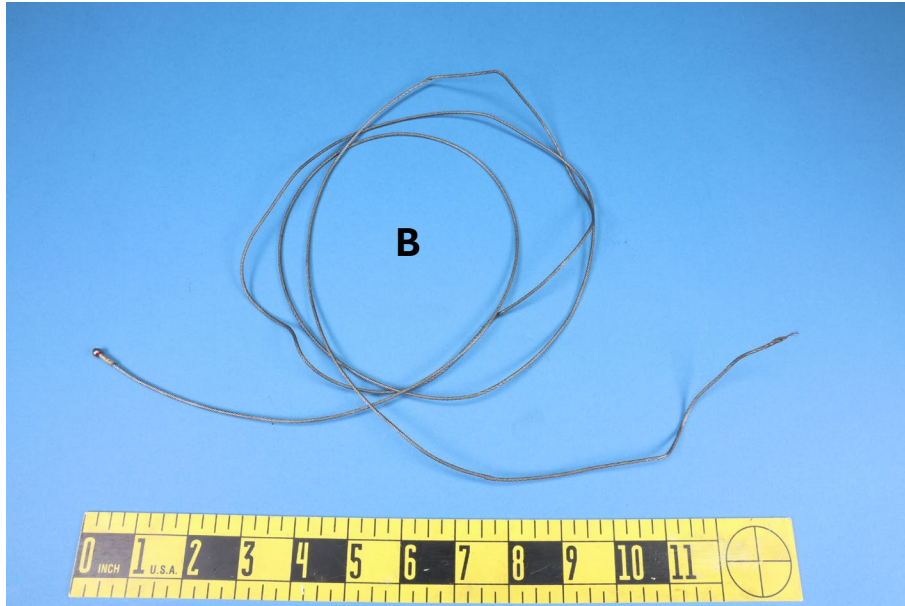


Figure 7. Control cable portion "B".

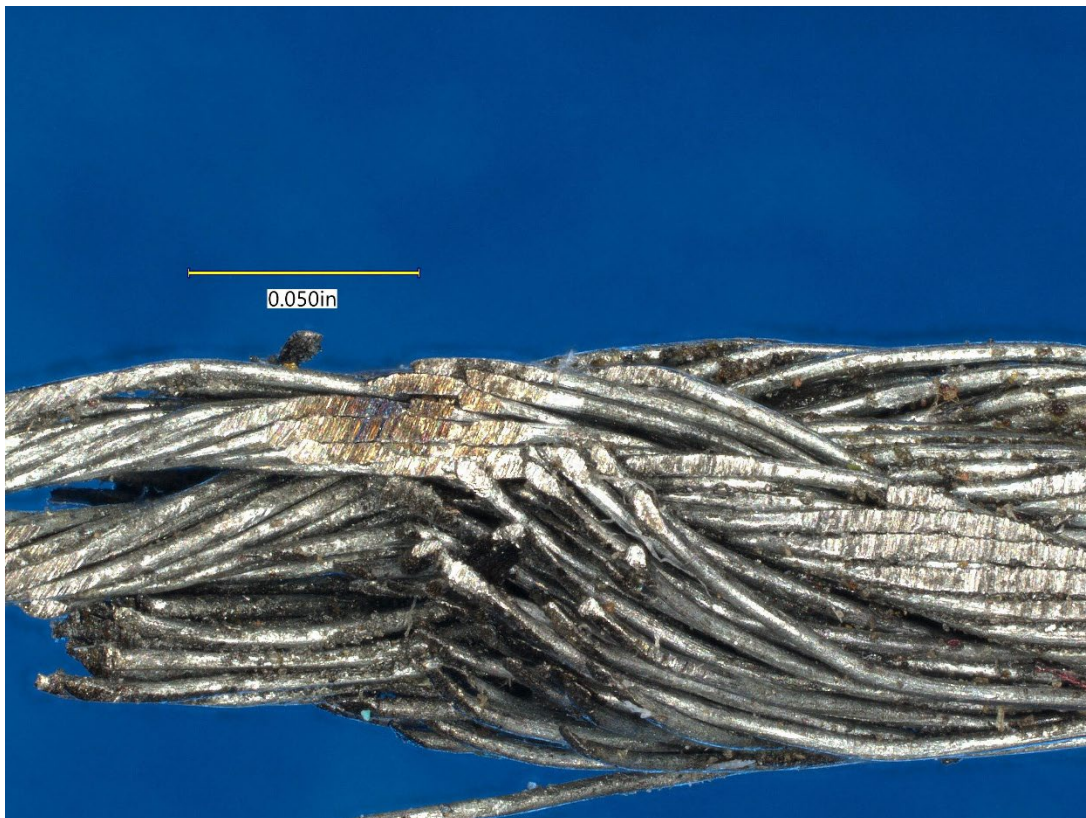


Figure 8. Fractured end of cable portion B.



Figure 9. Control cable portion "C".



Figure 10. C1 end of cable portion "C".



Figure 11. C2 end of cable portion "C".