National Transportation Safety Board
Office of Research and Engineering
Washington, DC 20594

WPR22FA235

MATERIALS LABORATORY

Factual Report 22-098

December 7, 2022

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A. ACCIDENT INFORMATION

Location: Vancouver, Washington
Date: June 28, 2022
Vehicle: Beech V35B, N444PM
Investigator: Stephen Stein, AS-WPR

B. COMPONENTS EXAMINED

Control rod assembly pieces for the left and right ruddervators.

C. EXAMINATION PARTICIPANTS

Specialist — Matthew R. Fox, Ph.D.
NTSB
Washington, DC

D. DETAILS OF THE EXAMINATION

An overall view of the submitted control rod assembly pieces from the ruddervator control system are shown in figure 1. The assemblies in figure 1 are shown arbitrarily labeled A and B for reference in this report. Control rod A was fractured approximately 6 inches from the rod end fitting attachment location, and control rod B fractured at the end fitting attachment location. The clamp nut and smaller piece of the fractured control rod B had been separated from the end fitting on scene before they were sent to the NTSB Materials Laboratory.

The cross section in control rod A was collapsed adjacent to the fracture consistent with a ductile overstress fracture with bending deformation. The fracture surfaces on control rod B were on slant planes, also consistent with ductile overstress fracture. The separated end fitting was bent consistent with a bending overload as shown in figure 2. Threads for the separated end fitting and mating control rod piece were intact.

Submitted by:

Matthew R. Fox, Ph.D.
Chief Technical Advisor - Materials

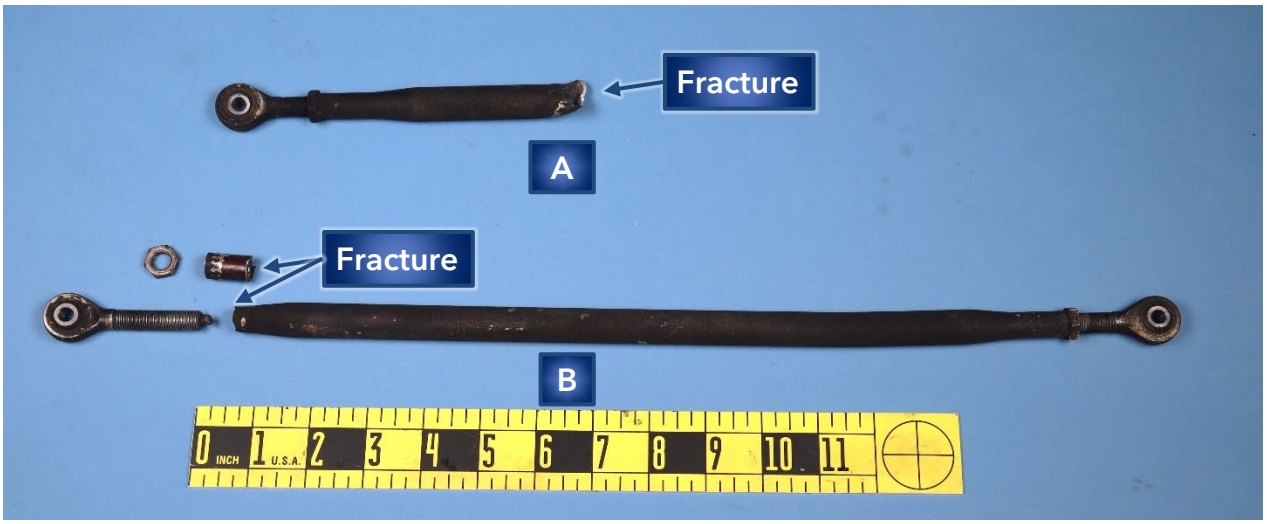

Figure 1. Overall view of the submitted ruddervator control rod assembly pieces.

Figure 2. Bent control rod end fitting from the fractured end of the ruddervator control rod assembly B.