

NATIONAL TRANSPORTATION SAFETY BOARD

Office of Research and Engineering
Materials Laboratory Division
Washington, D.C. 20594



August 19, 2019

MATERIALS LABORATORY FACTUAL REPORT

Report No. 18-102

A. ACCIDENT INFORMATION

Place : Sauk Centre, MN
Date : 1/24/2018
Vehicle : Wittman W-10
NTSB No. : CEN18FA083
Investigator : Alexander Lemishko

B. COMPONENTS EXAMINED

Left and right elevators (figure 1)

C. DETAILS OF THE EXAMINATION

The left and right elevators were submitted for examination. The right elevator was missing the control horn on the inboard end (figure 2). The control horn would have been welded to the elevator's tubular frame in the area that is missing in figure 2. A portion of the tubular frame was cut so that examination of the fracture could be performed (figure 3). Examination of the fracture surface using a stereo microscope revealed fracture features consistent with an overstress fracture. The hinges on the right elevator exhibited evidence of overtravel in both the up and down directions. This evidence was missing paint on the hinge and displacement of the elevator's skin where the components meet (figures 4, 5).

While the left elevator still had the control horn attached, there was a fracture of the tubular frame at the location of the control horn (figure 6). This fracture was consistent with an overstress fracture. Examination of the hinges for the left elevator revealed less evidence of overtravel than the right elevator and only in the downward direction.

Joseph Panagiotou
Fire Protection Engineer

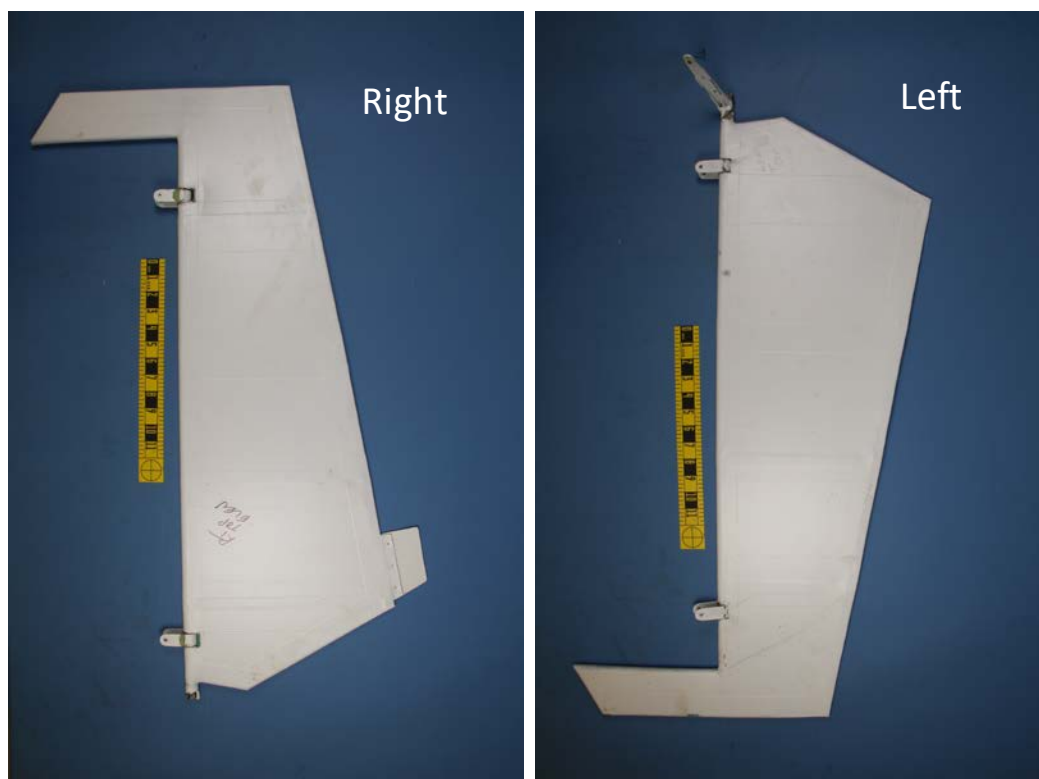


Figure 1: Right and left elevators as received.

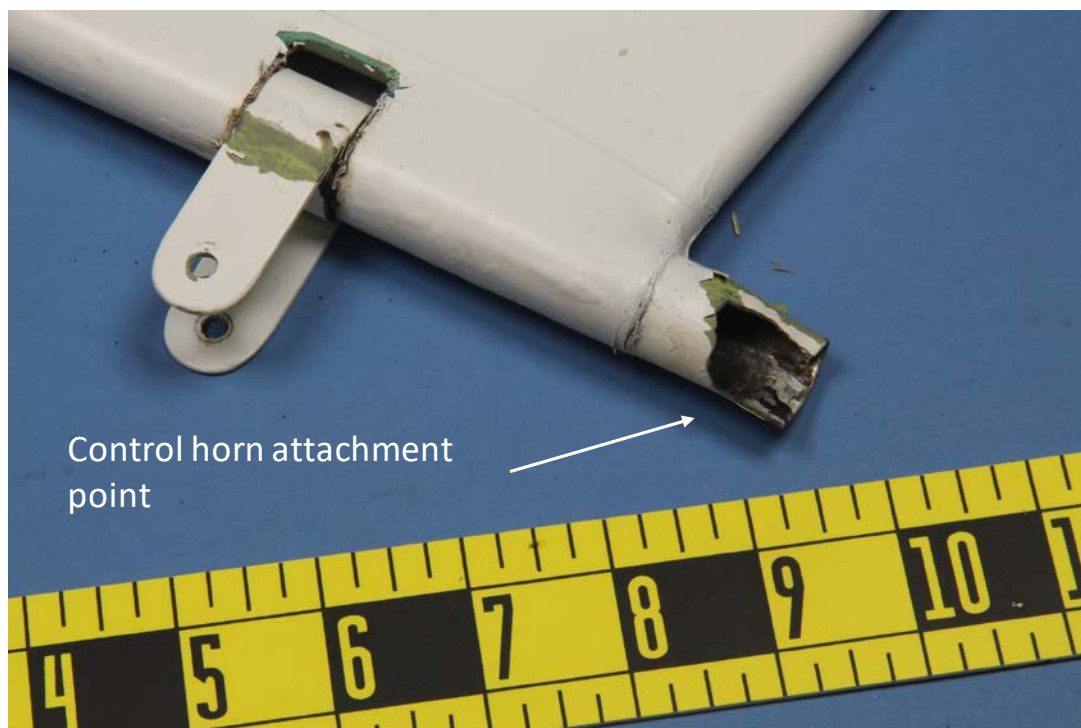


Figure 2: Inboard end of right elevator with missing control horn.



Figure 3: Portion of right elevator's tubular frame with fracture surface.



Figure 4: Top and bottom views of the right elevator outboard hinge.



Figure 5: Top and bottom views of the right elevator inboard hinge.

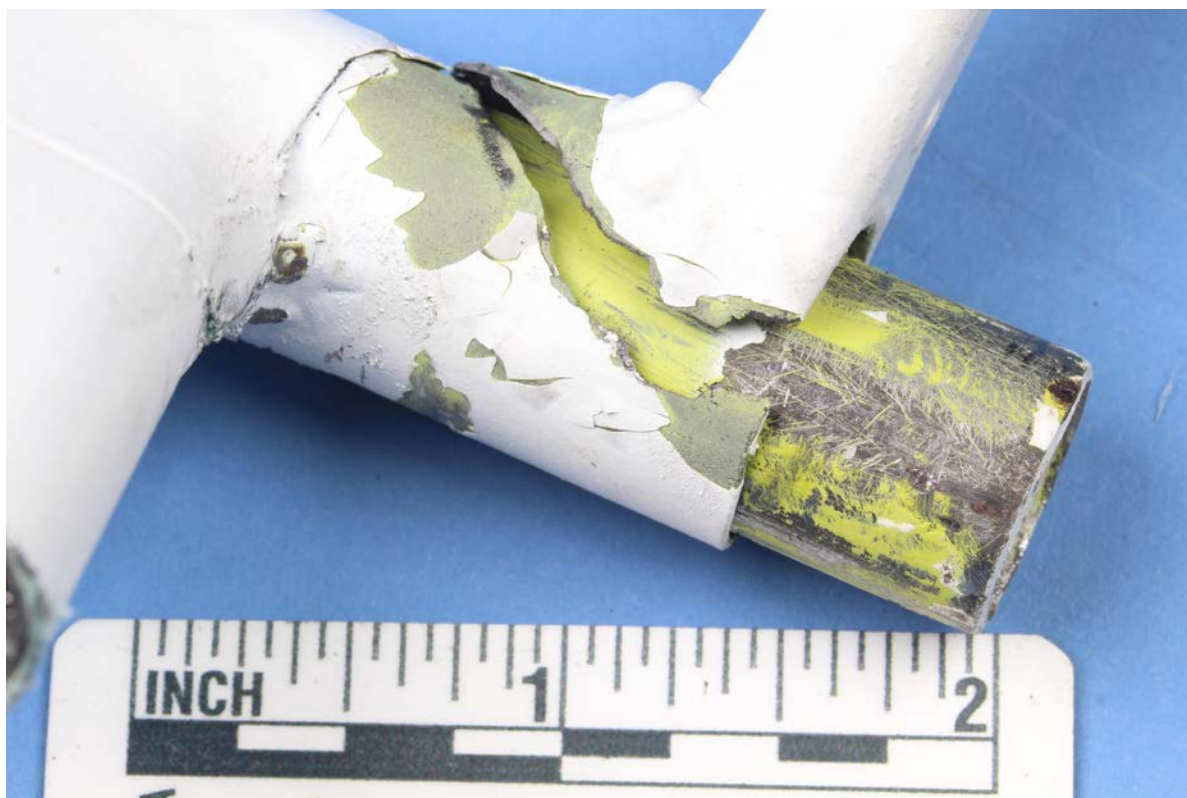


Figure 6: Fracture of left elevator tubing at control horn location.