

NATIONAL TRANSPORTATION SAFETY BOARD

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



3/20/2015

MATERIALS LABORATORY FACTUAL REPORT

Report No. 15-033

A. ACCIDENT INFORMATION

Place : Hoosick Falls, NY
Date : April 28, 2013
Vehicle : Aeronca 11AC
NTSB No. : ERA13LA221
Investigator : Shawn Etcher

B. COMPONENTS EXAMINED

Both aft wing attach brackets for the left and right wings (figure 1)

C. DETAILS OF THE EXAMINATION

The aft wing attachment brackets were examined to determine the mode in which they failed. The aft right wing attachment bracket depicted in figure 2 was sent in as an exemplar and did not contain any fractures. The aft right wing attachment bracket depicted in figure 3 consisted of two plates which would have been parallel to each other and held in position by two short cross members welded in between them. One of the cross members separated from both plates and was not recovered. The other cross member remained attached to only one of the plates. Examination of the fracture surfaces revealed that the fractures were consistent with overstress. Additionally, The welds connecting the cross members to the plates appeared to lack full penetration into the base material.

The aft left wing attachment brackets both exhibited fractures. The bracket shown in figure 4 consisted primarily of a welded cluster of tubing. One of the tubes was bent out of position and a corresponding fracture occurred at the location where it joined the other tubes in the cluster. This fracture is consistent with bending overstress. The second aft left wing attachment bracket was of the parallel plate type with two cross members in between (figure 5). The cross members had separated from the plates leaving one attached to each plate. The deformation to the plates and appearance of the fracture surfaces (figures 6 & 7) is consistent with bending overstress. Additionally, The welds connecting the cross members to the plates appeared to lack full penetration into the base material.

Joseph Panagiotou
Fire & Explosion Investigator



Figure 1: Accident parts as received.



Figure 2: Aft right attachment bracket (exemplar)



Figure 3: Right wing aft attachment bracket



Figure 4: Left wing aft attachment bracket with fracture at the weld



Figure 5: Left aft wing attachment bracket



Figure 6: Plate from left aft wing attachment bracket



Figure 7: Plate from left aft wing attachment bracket