NATIONAL TRANSPORTATION SAFETY BOARD
Office of Research and Engineering
Materials Laboratory Division
Washington, D.C. 20594

June 2, 2015

MATERIALS LABORATORY FACTUAL REPORT Report No. 15-061

A. ACCIDENT INFORMATION

Place	:	Philadelphia, Pennsylvania
Date	:	May 12, 2015
Vehicle	:	Train 188, Passenger Coach 81528
Operator	:	Amtrak
NTSB No.	:	DCA15MR010
Investigator	:	Dana Sanzo, RPH-40

B. COMPONENTS EXAMINED

Seat pedestal with fractured studs.

C. DETAILS OF THE EXAMINATION

A seat pedestal was submitted to the NTSB Materials Laboratory for examination. The pedestal, as it was received, is shown in figure 1. The pedestal had two studs along its bottom face with the purpose of anchoring the seat to the floor of the rail car. For convenience, the two studs were labelled as “Stud 1” and “Stud 2”, as indicated in figure 1. Both studs were fractured. Longitudinal and side view images of Stud 1 are shown in figures 2a and 2b, respectively. Similarly, longitudinal and side view images of Stud 2 are shown in figures 3a and 3b, respectively.

Each stud’s flange was fractured on one side adjacent to the shank of the stud. There was an additional crack in the flange of Stud 2 approximately 180° from the fracture, also adjacent to the shank. The fracture surfaces were examined and each fracture surface exhibited parallel smear lines consistent with a shear overstress fracture of each flange.

Donald Kramer, Ph.D.
Sr. Materials Engineer

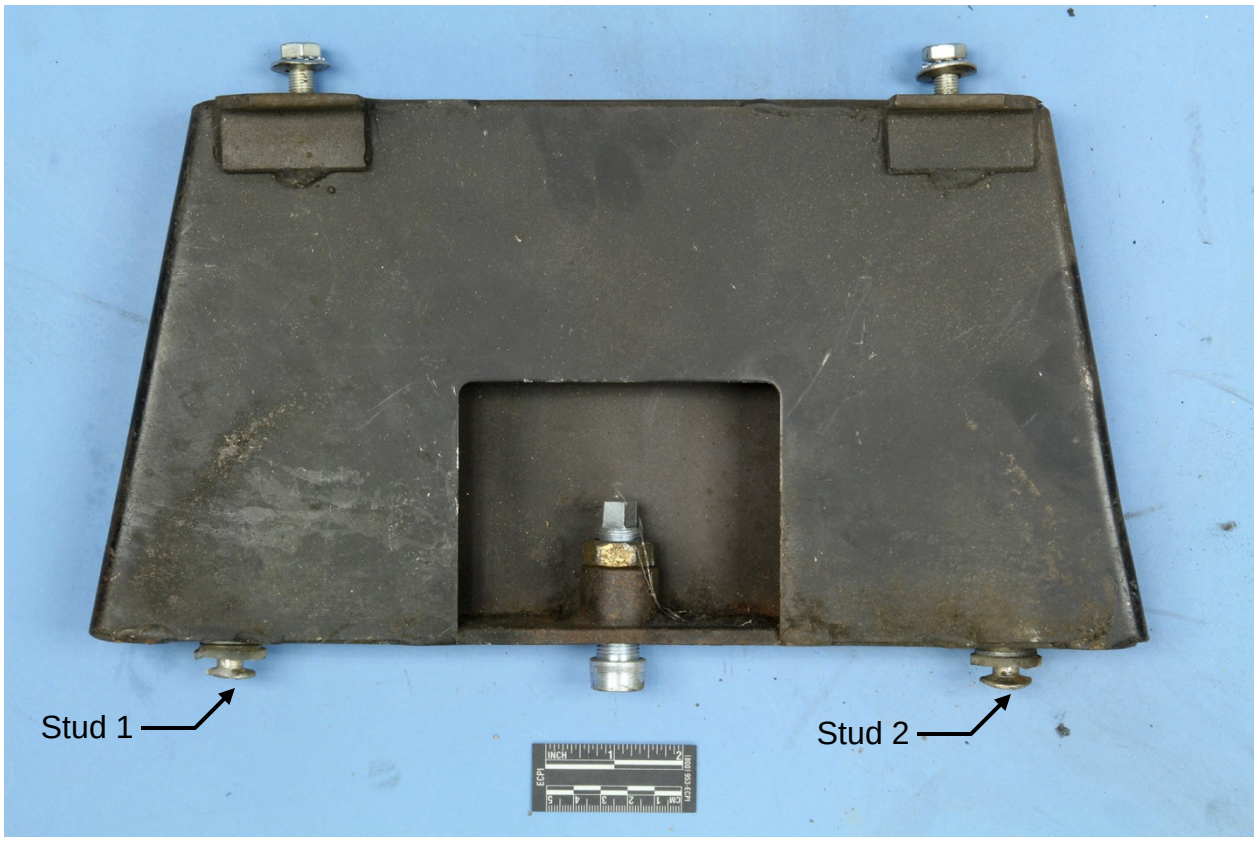
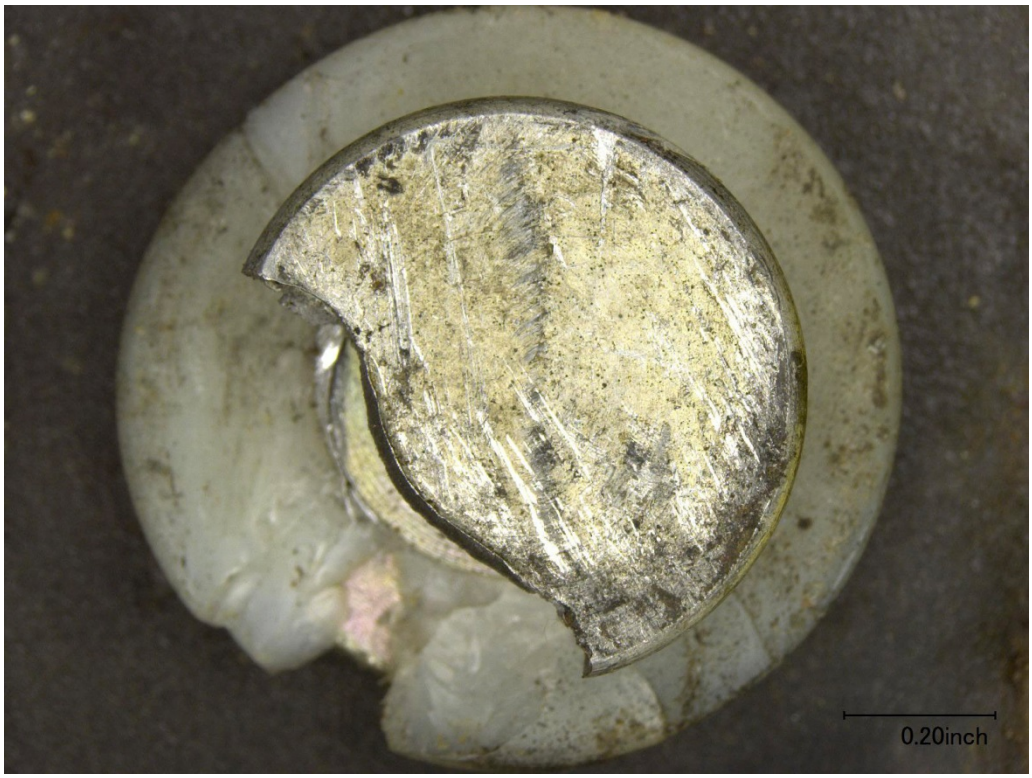


Figure 1: Image of the seat pedestal with fractured studs at the bottom of the image. For convenience, the studs were labelled “Stud 1” and “Stud 2”.

a)



b)

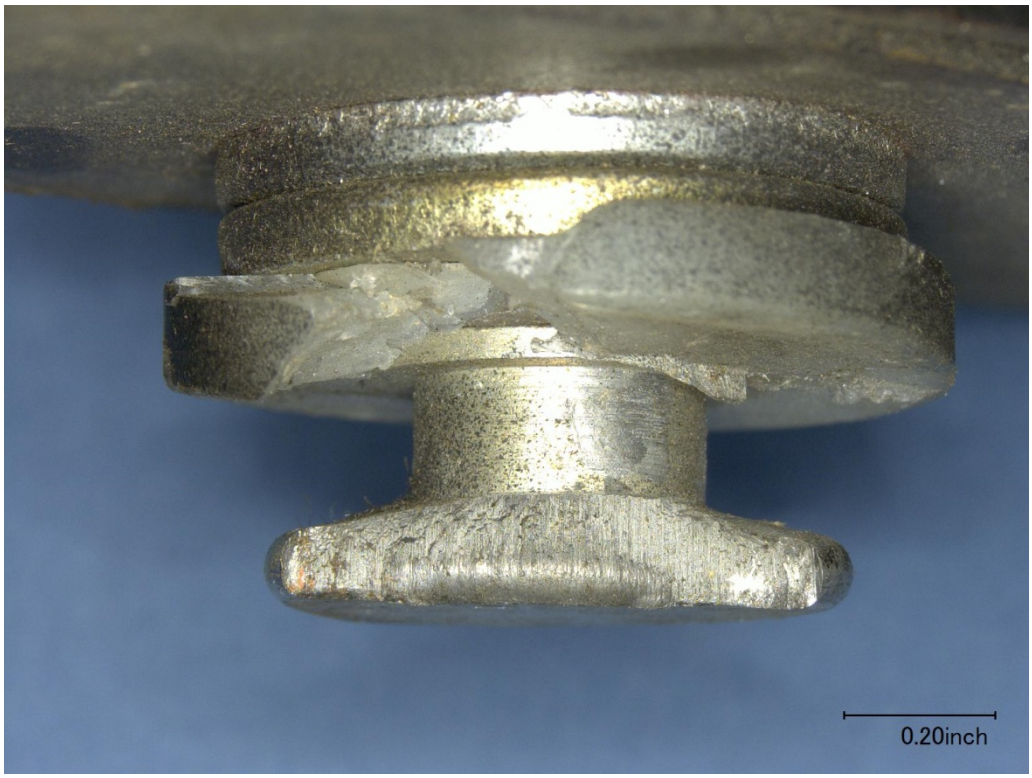
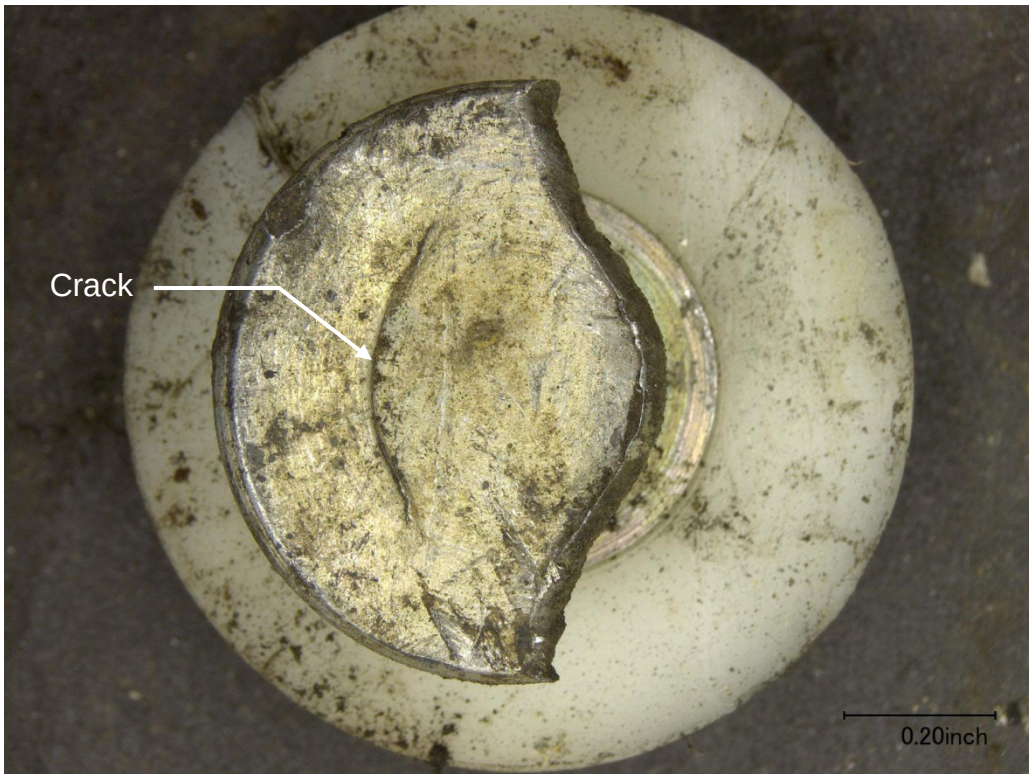


Figure 2: Images of Stud 1: a) Longitudinal view of the stud and b) side view showing the fracture surface.

a)



b)

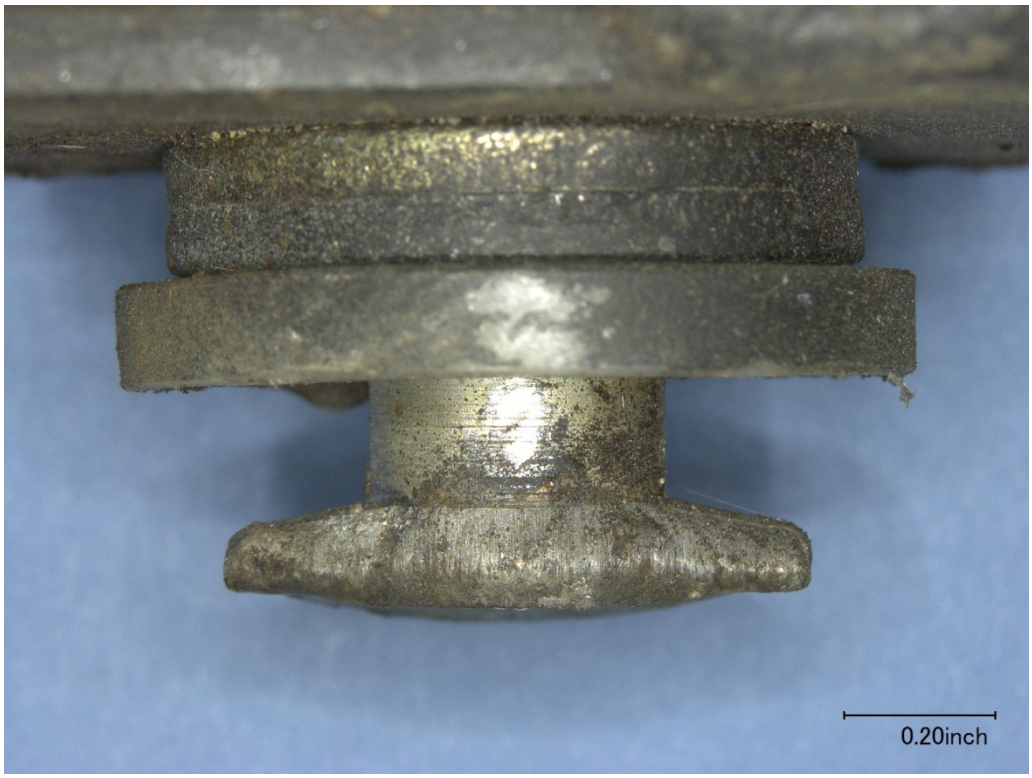


Figure 3: Images of Stud 2: a) Longitudinal view of the stud head and b) side view showing the fracture surface.