

NATIONAL TRANSPORTATION SAFETY BOARD

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



12/6/2016

MATERIALS LABORATORY FACTUAL REPORT

Report No. 16-104

A. ACCIDENT INFORMATION

Place : Somerville, TN
Date : July 14, 2016
Vehicle : Pitts S-1, N4714H
NTSB No. : ERA16LA260
Investigator : Bob Gretz

B. COMPONENTS EXAMINED

A portion of a landing gear strut (figure 1).

C. DETAILS OF THE EXAMINATION

The fracture on the landing gear strut occurred in a solid cylindrical portion of the strut. The cylindrical portion of the strut exhibited plastic deformation in the direction consistent with the fracture direction (figure 2). The fracture surface exhibited a small thumbnail like fatigue region (approximately 0.017 inch deep) followed by an overstress region (figures 3, 4). Hardness measurements were made on a section of material cut approximately 1 inch below the fracture. The average hardness measured was 45.9 on the Rockwell C scale.

Joseph Panagiotou
Fire Protection Engineer

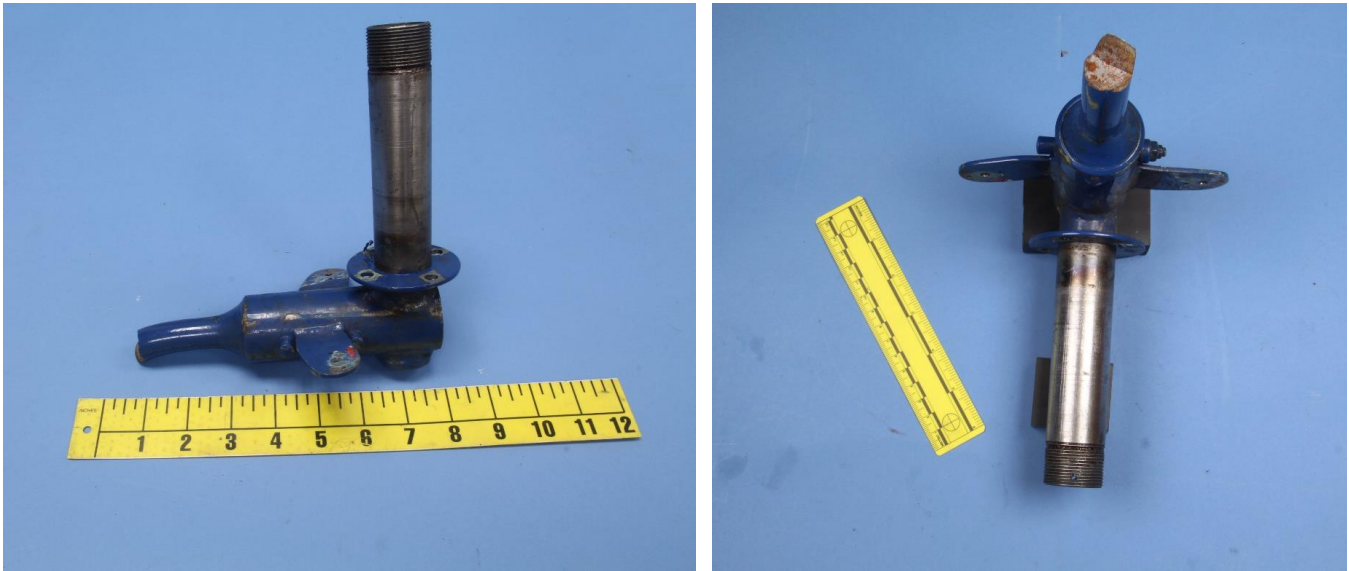


Figure 1: Two views of the landing gear strut as received.

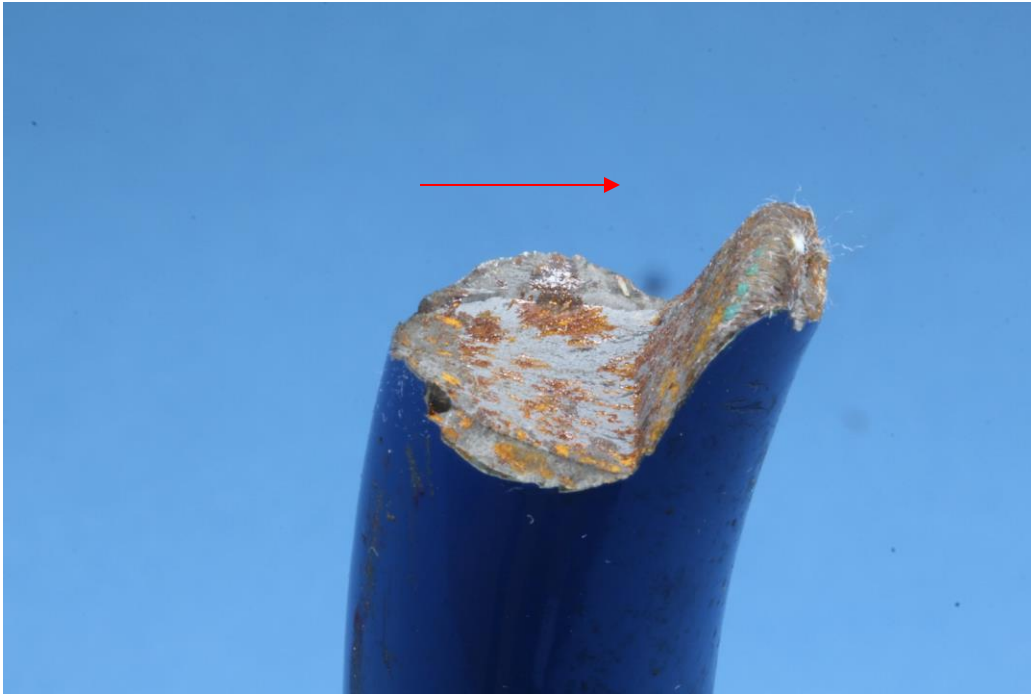


Figure 2: Side view of fracture surface and deformation. Red arrow shows direction of force.

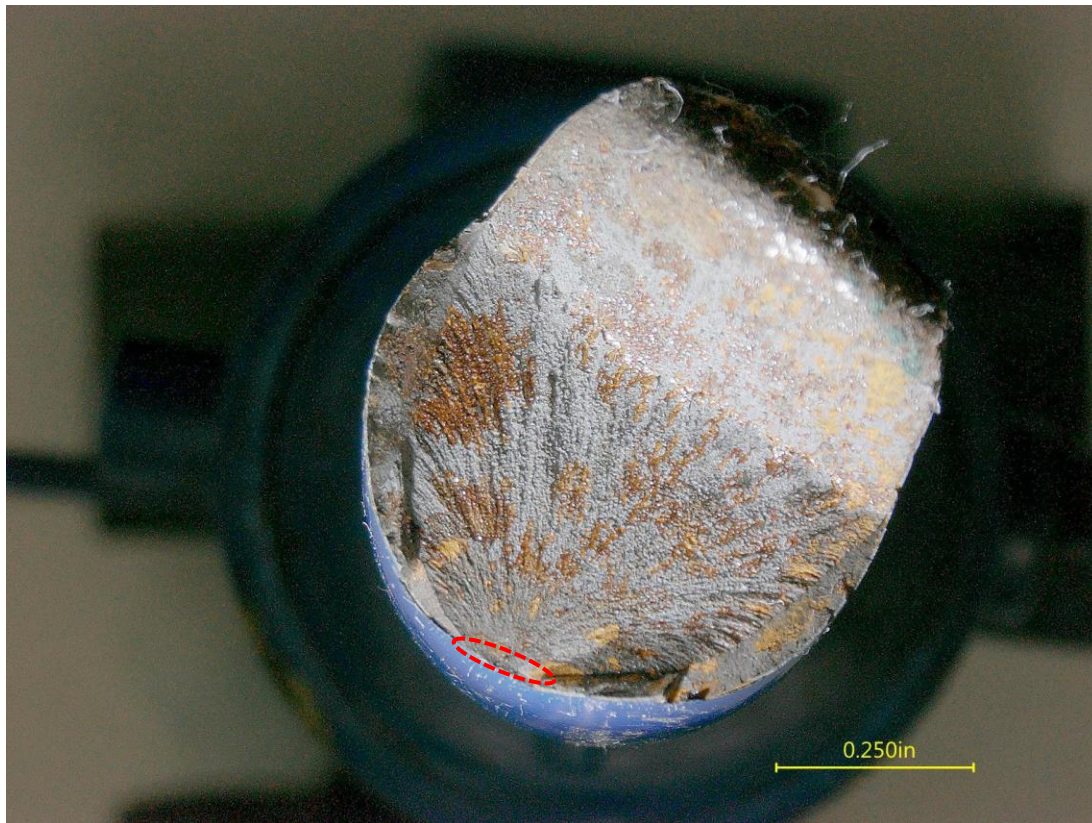


Figure 3: Overview of fracture surface with origin area circled.

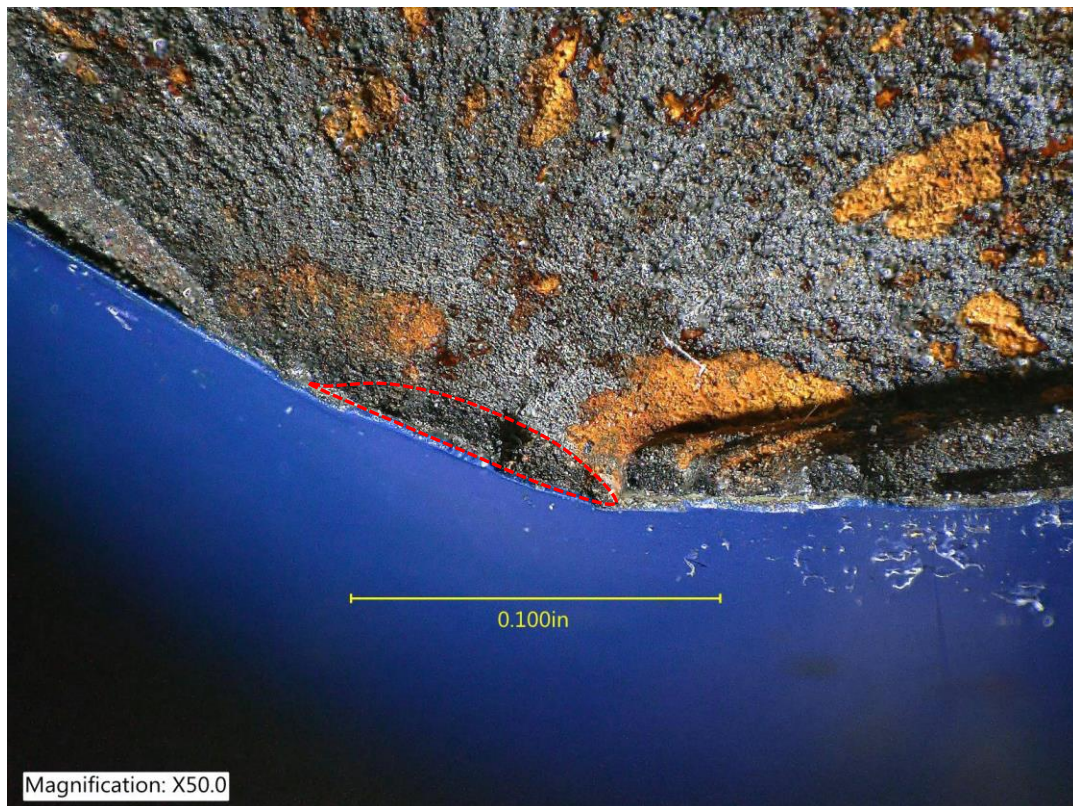


Figure 4: Fatigue fracture region outlined in red.