

NATIONAL TRANSPORTATION SAFETY BOARD

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



February 23, 2018

MATERIALS LABORATORY FACTUAL REPORT

Report No. 18-019

A. ACCIDENT INFORMATION

Place : Glendale, AZ
Date : 12/5/2017
Vehicle : Piper PA-34-200T
NTSB No. : WPR18LA044
Investigator : Maja Smith

B. COMPONENTS EXAMINED

Portions of the left landing gear strut (figure 1).

C. DETAILS OF THE EXAMINATION

Examination of the fracture surfaces of one of the portions (figure 2) of the landing gear strut revealed that most of the fracture surface was characterized by slant fractures consistent with an overstress failure. One small area of the fracture surface, coincident with the forging flash line, exhibited a flat fracture surface. A sample containing this flat fracture area was cut out of the landing gear strut for examination in the scanning electron microscope (SEM) (figures 3,4). SEM examination of this sample revealed that the flat fracture area contained striations consistent with a fatigue fracture (figure 5).

Joseph Panagiotou
Fire Protection Engineer



Figure 1: Portions of the left landing gear strut as received.

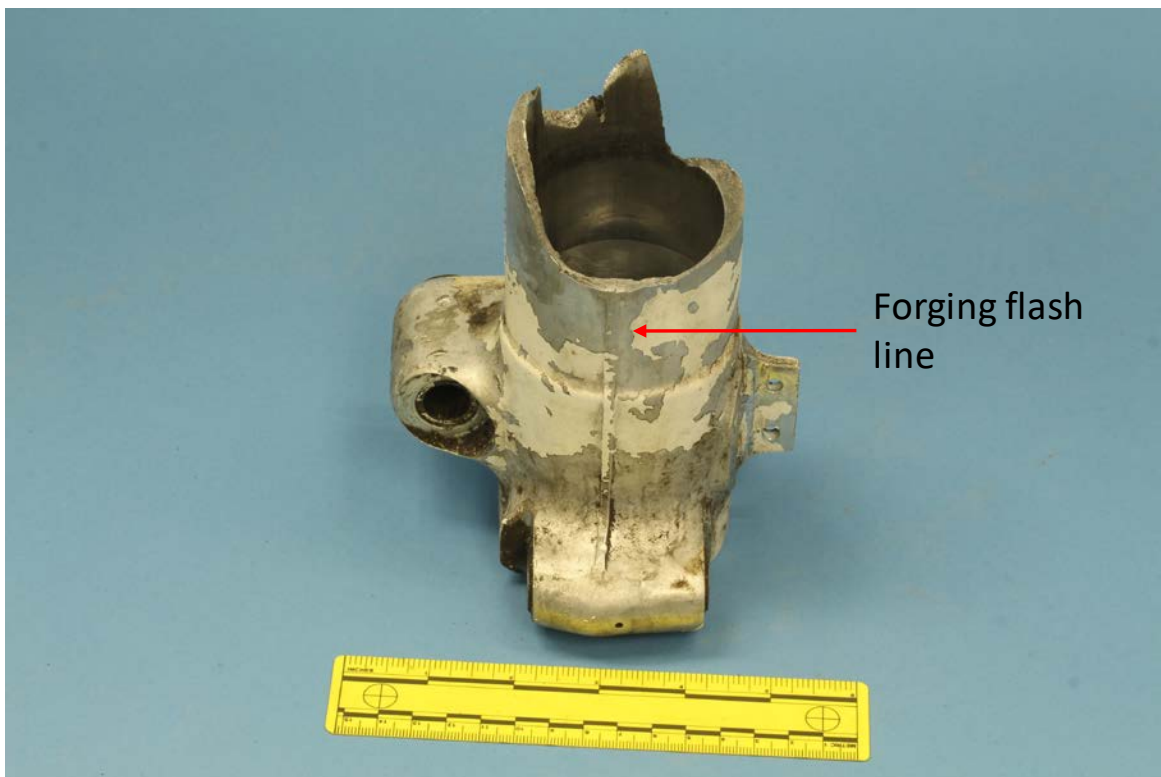


Figure 2: Fracture surface characterized mostly by slant fractures and a flat fracture at the forging flash line.



Figure 3: A sample containing the flat fracture area was cut from the remainder of the fracture surface.



Figure 4: close-up of the sample containing the flat fracture area.

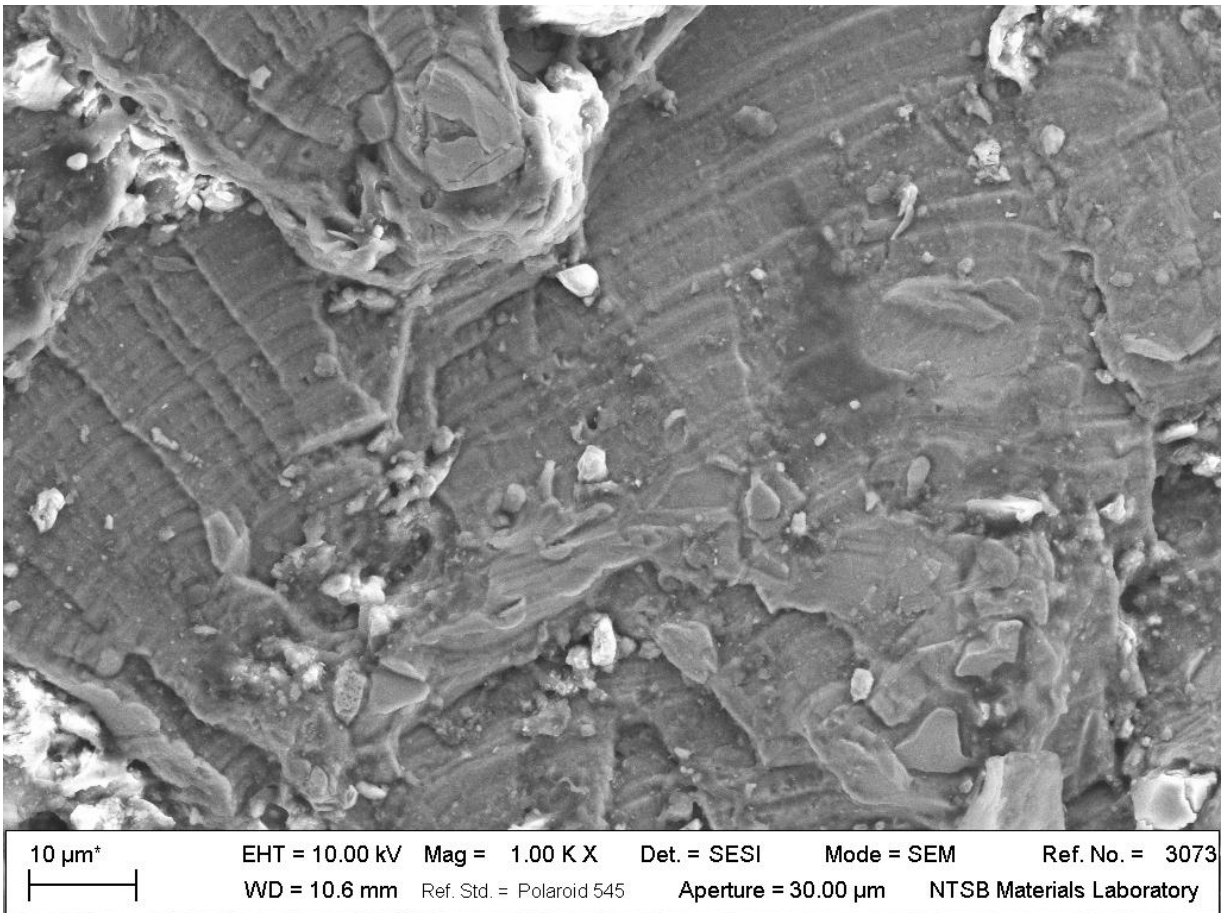


Figure 5: SEM micrograph depicting striations in the flat fracture area of the sample.