

NATIONAL TRANSPORTATION SAFETY BOARD

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



1/4/2018

MATERIALS LABORATORY FACTUAL REPORT

Report No. 17-093

A. ACCIDENT INFORMATION

Place : Wurtsboro, NY
Date : 8/27/2017
Vehicle : Cessna 305
NTSB No. : ERA17LA298
Investigator : Heidi Kemner

B. COMPONENTS EXAMINED

Left main landing gear axle assembly and wheel (figure 1)

C. DETAILS OF THE EXAMINATION

The axle of the left main landing gear assembly was fractured near the end that would have been attached to the landing gear strut (figure 2). Examination of the fracture surface using a stereo microscope revealed fracture features consistent with a fatigue fracture (figure 3). There were two opposing fatigue regions on the fracture surface separated by an overstress region (figure 4). Fatigue region #1 had a shiny appearance consistent with re contact of the fracture surfaces. Fatigue region #2 exhibited a more matte appearance and covered a larger area than region #1.

The tread of the rubber tire exhibited a wear pattern that was not centered but instead had shifted towards the shoulder.

Joseph Panagiotou
Fire Protection Engineer



Figure 1: Left main landing gear wheel and axle assembly as received.



Figure 2: Portion of fractured axle shaft.



Figure 3: Axle shaft fracture surface exhibiting ratchet marks on the periphery and crack arrest fronts towards the middle.

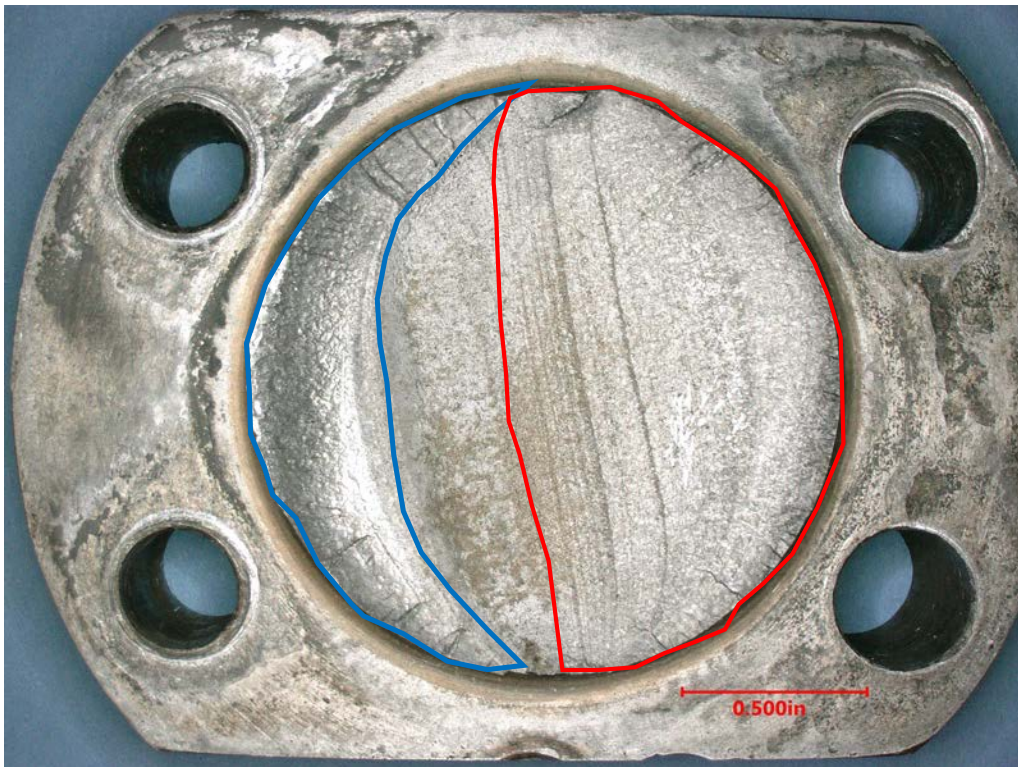


Figure 4: Approximate boundaries of fatigue regions #1 (blue) and #2 (red) separated by overstress region.