

NATIONAL TRANSPORTATION SAFETY BOARD

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



December 3, 2019

MATERIALS LABORATORY FACTUAL REPORT

Report No. 19-072

A. ACCIDENT INFORMATION

Place : Arecibo, PR
Date : 6/10/2018
Vehicle : Cessna 182
NTSB No. : ERA18LA165
Investigator : Leah Read

B. COMPONENTS EXAMINED

Fractured sections of crankshaft, No. 3 cheek (figure 1).

C. DETAILS OF THE EXAMINATION

The fractured sections of the crankshaft were degreased and cleaned for inspection using a stereo microscope. Both fracture surfaces of the number 3 cheek of the crankshaft exhibited fracture features consistent with a fatigue crack. Although both fracture surfaces exhibited smearing and recontact damage, the ratchet marks at the crack's origin were visible on both halves (Figures 2, 3). One half of the fracture surface also exhibited very distinct crack arrest marks (Figure 3).

Joseph Panagiotou
Fire Protection Engineer



Figure 1: Fractured sections of crankshaft as received.



Figure 2: Fracture surface exhibiting ratchet marks at crack origin.



Fatigue crack origin
exhibiting ratchet marks

Figure 3: Fracture surface exhibiting ratchet marks and crack arrest marks.