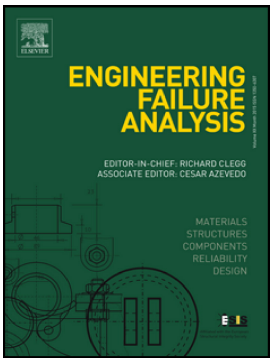

Failure analysis of landing gears strut bearings

D. Turan, B. Karabayrak, S. Baskut, S. Dalkilic

PII: S1350-6307(16)30897-4
DOI: doi: 10.1016/j.engfailanal.2017.04.002
Reference: EFA 3082

To appear in: *Engineering Failure Analysis*

Received date: 2 October 2016
Revised date: 13 April 2017
Accepted date: 14 April 2017

Please cite this article as: D. Turan, B. Karabayrak, S. Baskut, S. Dalkilic , Failure analysis of landing gears strut bearings. The address for the corresponding author was captured as affiliation for all authors. Please check if appropriate. Efa(2017), doi: 10.1016/j.engfailanal.2017.04.002

Failure analysis of landing gears strut bearings

D. Turan[1], *B. Karabayrak**[1], *S. Baskut*[2], *S. Dalkilic* [1, 3]

[1]*Faculty of Aeronautics and Astronautics, Anadolu University, Eskisehir, Turkey*

[2]*Faculty of Engineering, Department of Materials Science and Engineering, Anadolu University, Eskisehir, Turkey*

[3]*Now working at, Higher Colleges of Technology Aviation Engineering Department, Abu Dhabi, UAE*

Abstract

This paper analyses TB 20 training aircraft main landing gear attachment bearings which were failed as a results of cracks. Strut bearing is an attachment fitting of landing gear which attached to the wing spar and secures the hinged strut. TB 20 Trinidad aircrafts are used for training purposes at Anadolu University. With respect to Service Bulletin, the hinged strut attachment bearings should be inspected for crack detection after reaching 6000 landings or 4000 flight hours, whichever occurs first (1). Cracks on the bearings were detected during the nondestructive inspection. The crack initiation and propagation on the attachment bearings were investigated by using light microscope and scanning electron microscope (SEM) attached with an energy dispersive X-ray spectrometer (EDX). The results of light microscope and SEM showed that the cracks were initiated by corrosion and assisted by fatigue and the crack propagation was accelerated by corrosion.

Keywords: Landing gear, Strut bearing, Fatigue, Corrosion.