

NATIONAL TRANSPORTATION SAFETY BOARD

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



November 26, 2019

MATERIALS LABORATORY FACTUAL REPORT

Report No. 19-069

A. ACCIDENT INFORMATION

Place : San Diego, California
Date : December 30, 2018
Vehicle : Piper PA-46-350P, N4161X
NTSB No. : WPR19LA060
Investigator : Elliott Simpson, AS-WPR

B. COMPONENTS EXAMINED

Engine mount pieces with attached nose landing gear actuator.

C. DETAILS OF THE EXAMINATION

An overall view of the submitted engine mount pieces with attached nose landing gear actuator is shown in figure 1. The engine mount was fractured at the right attachment foot and at one of the support tubes on the left attachment foot as indicated in figure 1. The nose landing gear actuator remained bolted to pieces of the left and right attachment feet.

The fractures were examined using an optical stereomicroscope, and all fracture features had a uniform matte-gray appearance on slant angles, features consistent with ductile overstress fracture. A photograph of the fracture at the right attachment foot is shown in figure 2. No evidence of any preexisting cracks was observed.

The aircraft log book for the accident airplane indicated the engine mount was inspected in accordance with Piper Service Bulletin (SB) 1103F¹ during the last annual inspection conducted on January 26, 2018. For the accident airplane, SB1103F requires fluorescent penetrant inspections for cracks in the area of the nose landing gear actuator attachment feet at 100-hour intervals. The airplane had accumulated 52.2 hours time in service (TIS) since the last inspection was recorded in the maintenance log.

According to SB1103F, all paint or Dinitrol AV 8 and AV 30 must be removed from the area of the attachment feet before performing the inspection for cracks. After inspection, the area is cleaned, and a two-coat corrosion prevention compound consisting of Dinitrol/Ardrox AV 8 and AV 30 are applied. According to Chemetall² technical data

¹ Subject: Engine Mount Inspection, Piper Aircraft, Inc., Vero Beach, Florida (2015).

² Chemetall GmbH, Frankfurt am Main, Germany.

sheets for Ardrex AV 8 and AV 30 (formerly Dinitrol AV 8 and AV 30), the applied compounds form waxy films that are somewhat transparent and tinted slightly brown.

As shown in figure 1, the ends of the engine mount away from the inspection area were covered with black paint. In the inspection area, the black paint had been removed, and the surfaces were covered with a thin yellowish green coating. No evidence of a semitransparent brown waxy film consistent with Dinitrol AV8 or AV30 was observed.

Matthew R. Fox, Ph.D.
Senior Materials Engineer

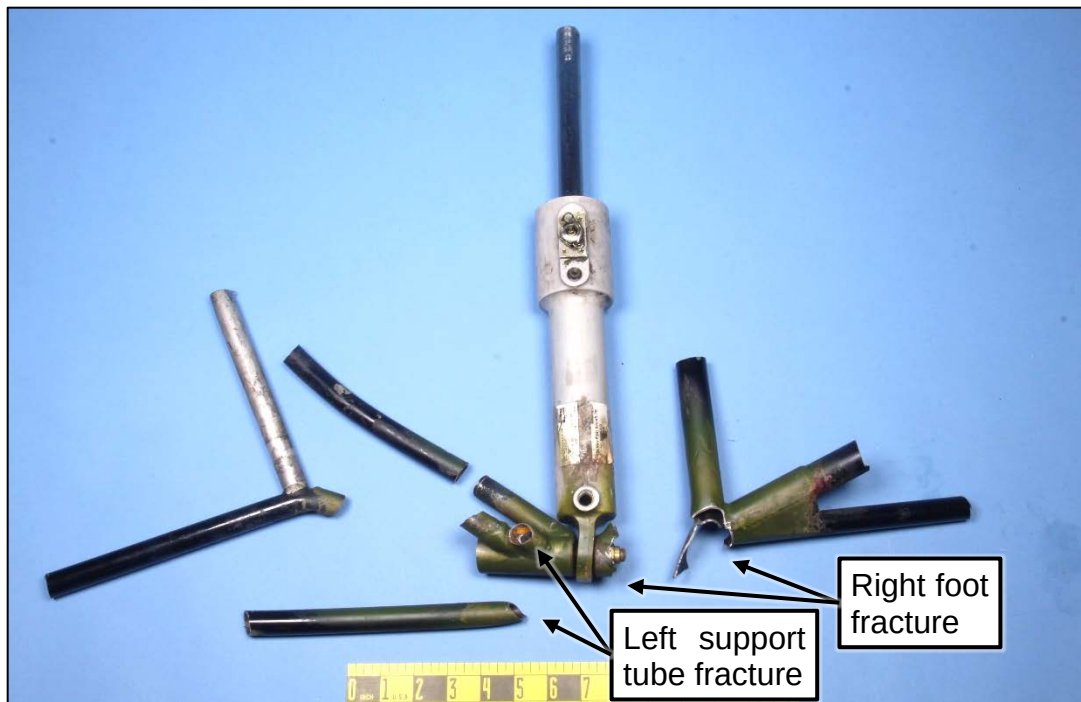


Figure 1. Overall view of the fractured engine mount pieces with attached nose landing gear actuator.



Figure 2. Close view of the fracture at the right nose landing gear actuator attachment foot.