

NATIONAL TRANSPORTATION SAFETY BOARD

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



June 7, 2013

MATERIALS LABORATORY FACTUAL REPORT

Report No. 13-050

A. ACCIDENT

Place : Macon, Georgia
Date : May 27, 2013
Vehicle : Piper PA-32R-300
NTSB No. : ERA13FA256
Investigator : Eric Alleyne

B. COMPONENTS EXAMINED

Crankcase portion and right oil cooler hose.

C. DETAILS OF THE EXAMINATION

Figure 1 shows a photograph of the as-received crankcase portion and right oil cooler hose. The fitting on the crankcase side of the hose had fractured. Bench binocular microscope examination of the hose revealed the fractured fitting contained a slant fracture that extended all around the fitting. The fracture face exhibited a rough texture consistent with overstress separation with no evidence of crack arrest marks (fatigue cracking). An adapter was attached to the fractured fitting. The exposed end of the adapter contained an external thread. The external thread portion was covered with solidified metal. The mating threads (internal threads located on the crankcase) and crankcase in the general area of the internal threads was severely deformed from exposure to heat from a fire. Close examination of the adapter revealed the corner adjacent to the external threads and in the area below the solidified metal contained material exhibiting size and contour consistent with a gasket (figure 2).

Frank Zakar
Senior Metallurgist

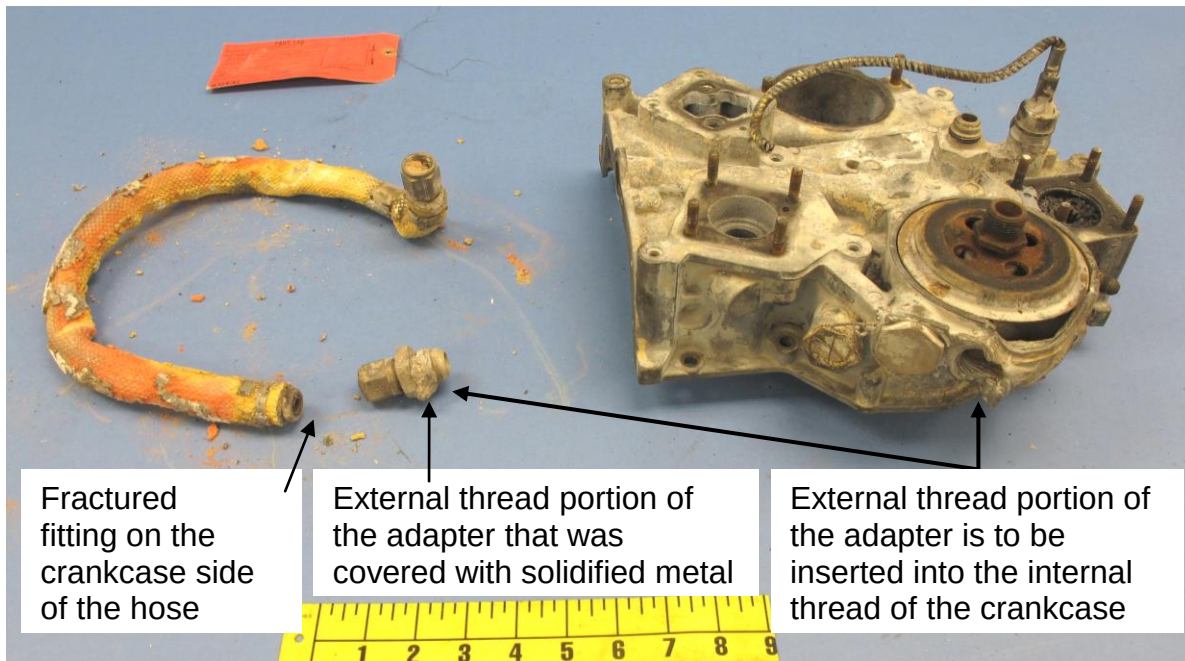


Figure 1. Overall view of the as-received crankcase portion (right side of the page) and right oil cooler hose (left side of the page). The fitting on the crankcase side of the hose had fractured.

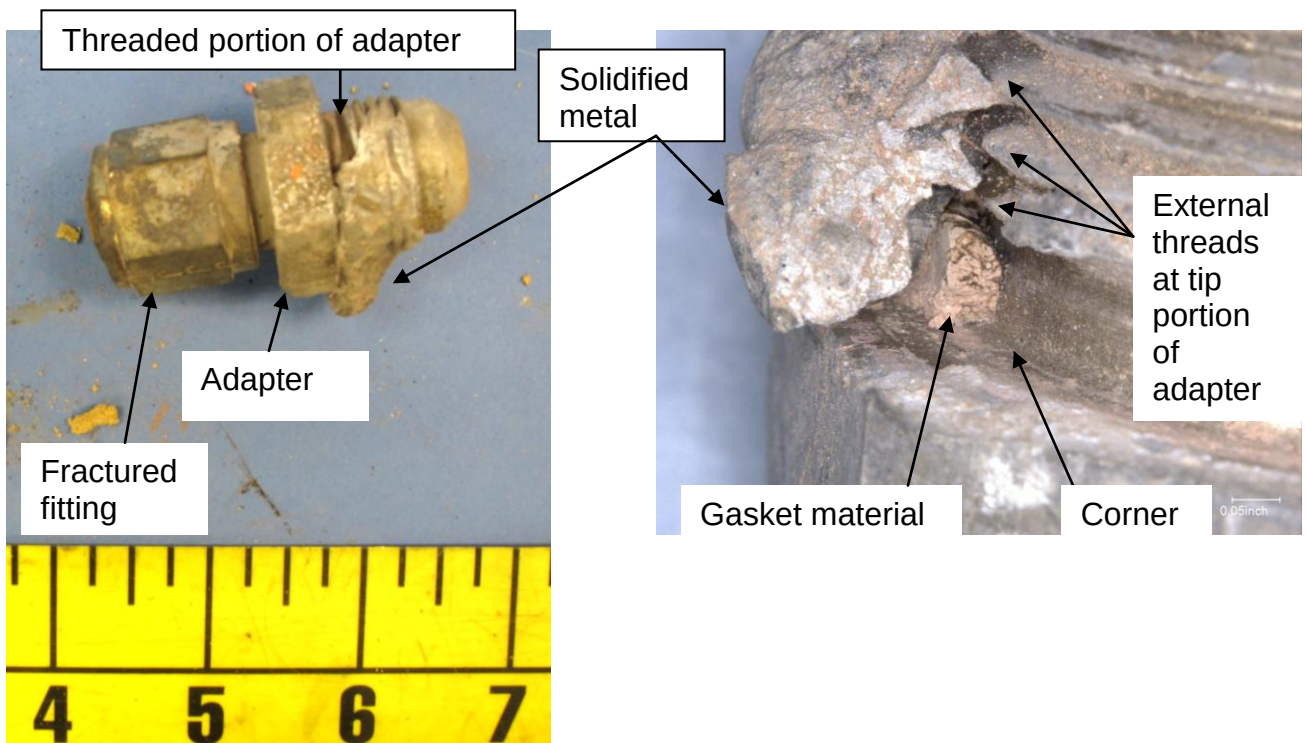


Figure 2. Fractured fitting and adapter portion (lower left side of page) and close up photograph of the gasket material that was found at the corner of the adapter underneath solidified metal (lower right side of page).