

NATIONAL TRANSPORTATION SAFETY BOARD

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



October 31, 2014

MATERIALS LABORATORY FACTUAL REPORT

Report No. 14-083

A. ACCIDENT INFORMATION

Place : Dunnellon, Florida
Date : April 5, 2014
Vehicle : Fortuna Sonex, N229P
NTSB No. : ERA14FA464
Investigator : Tim Monville, ERA-ASI

B. COMPONENTS EXAMINED

Fuel Line between cockpit fuel shutoff valve and fuel strainer with firewall fittings.

C. DETAILS OF THE EXAMINATION

The as-received fuel line is displayed in figure 1. The line was composed of two aluminum tube sections joined by fittings at the engine firewall. In figure 1, the tube on the left and part of the fitting were reported to be from inside the cockpit and connected to the fuel shut off valve.

As-received the cockpit side tube was separated at the firewall fitting, as shown in figure 1. Magnified optical examinations found severe pitting corrosion of both the tube and cockpit side fittings in the area of separation, indicated by the yellow brackets in figure 1. The corrosion had removed significant material from the surfaces of the fittings and from both the exterior and interior surfaces of the tube. No fracture features were present on the tube separation. A hole and cracks were also apparent adjacent to the separation, see figure 2. The hole and cracks were consistent with corrosion penetration.

The remaining length of the cockpit side tube showed lesser amounts of corrosion. The engine side fuel tube showed little or no corrosion.

Joe Epperson
Senior Metallurgist

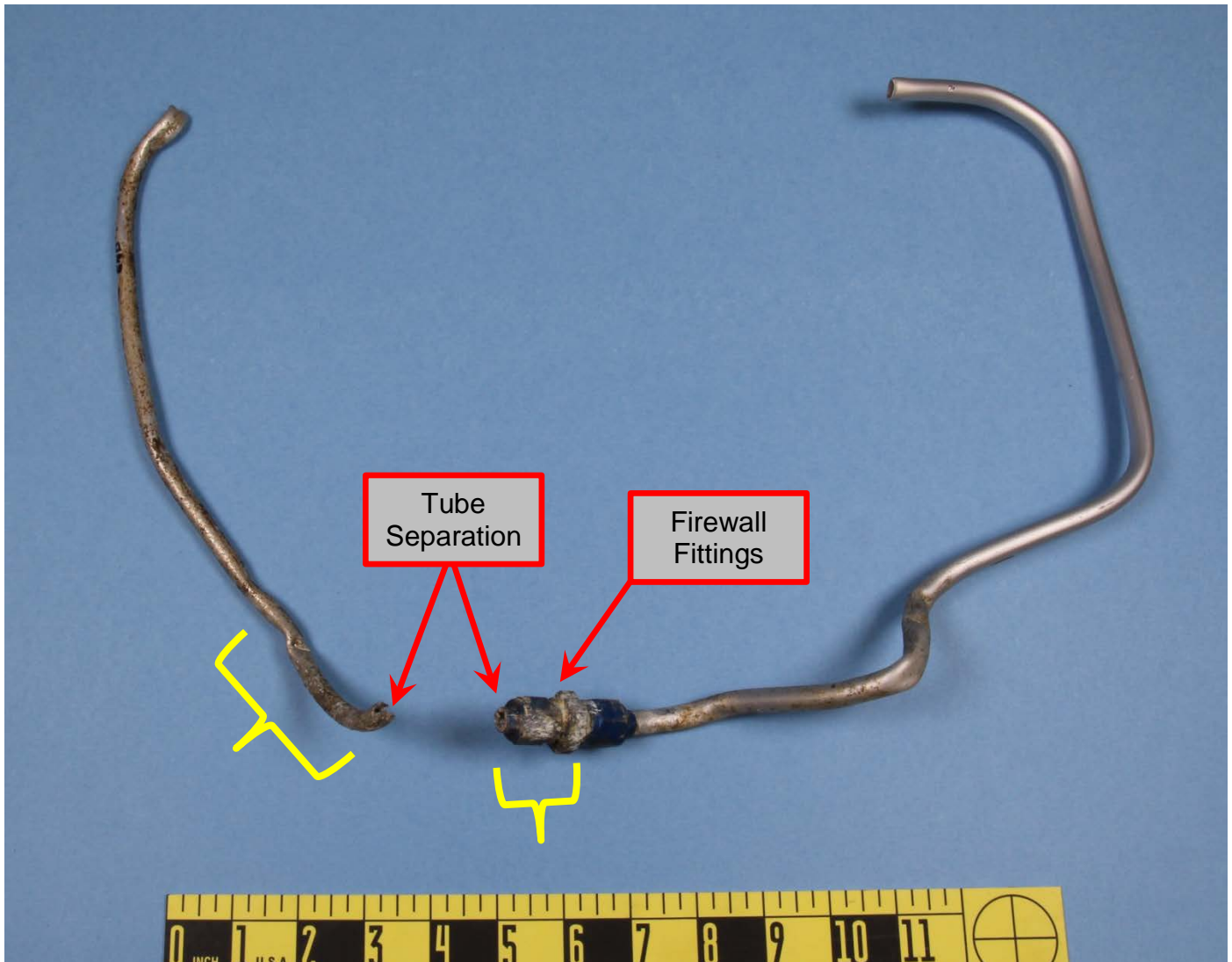


Figure 1. Overall view of the received fuel line. The cockpit side fuel tube was separated adjacent to the firewall fittings as indicated. Areas denoted by yellow bracket were severely corroded.



Figure 2. Two different views of the severely corroded and separated end of the cockpit side fuel tube.