

NATIONAL TRANSPORTATION SAFETY BOARD

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



12/18/2018

MATERIALS LABORATORY FACTUAL REPORT

Report No. 18-104

A. ACCIDENT INFORMATION

Place : Fort Wayne, IN
Date : May 15, 2018
Vehicle : Cessna 177F, N9058F
NTSB No. : CEN18LA174
Investigator : Pam Sullivan

B. COMPONENTS EXAMINED

Aero Classic oil cooler (PN:8111175, SN:10428728) figure 1.

C. DETAILS OF THE EXAMINATION

The oil cooler appeared to be in relatively new condition. There was no damage visible to the cooling fins and no debris fouling the air passages. Some oil staining was observed in the area of the third oil circuit up from the bottom on the left side (figure 1). This staining was evident on both the forward and aft sides at this location. Shop air was used to pressurize the oil cooler and observe the leak (figures 2, 3). Under pressure, oil leaked from between the plates forming the third oil circuit from the bottom (figure 4). The locations of the leaks did not exhibit any evidence of mechanical damage by an external source. The locations of the leaks did not exhibit any evidence of bulging or other distortions. The likely cause of the leak is due to a defect in the brazed joint between the plates forming the oil circuit.

Joseph Panagiotou
Fire Protection Engineer

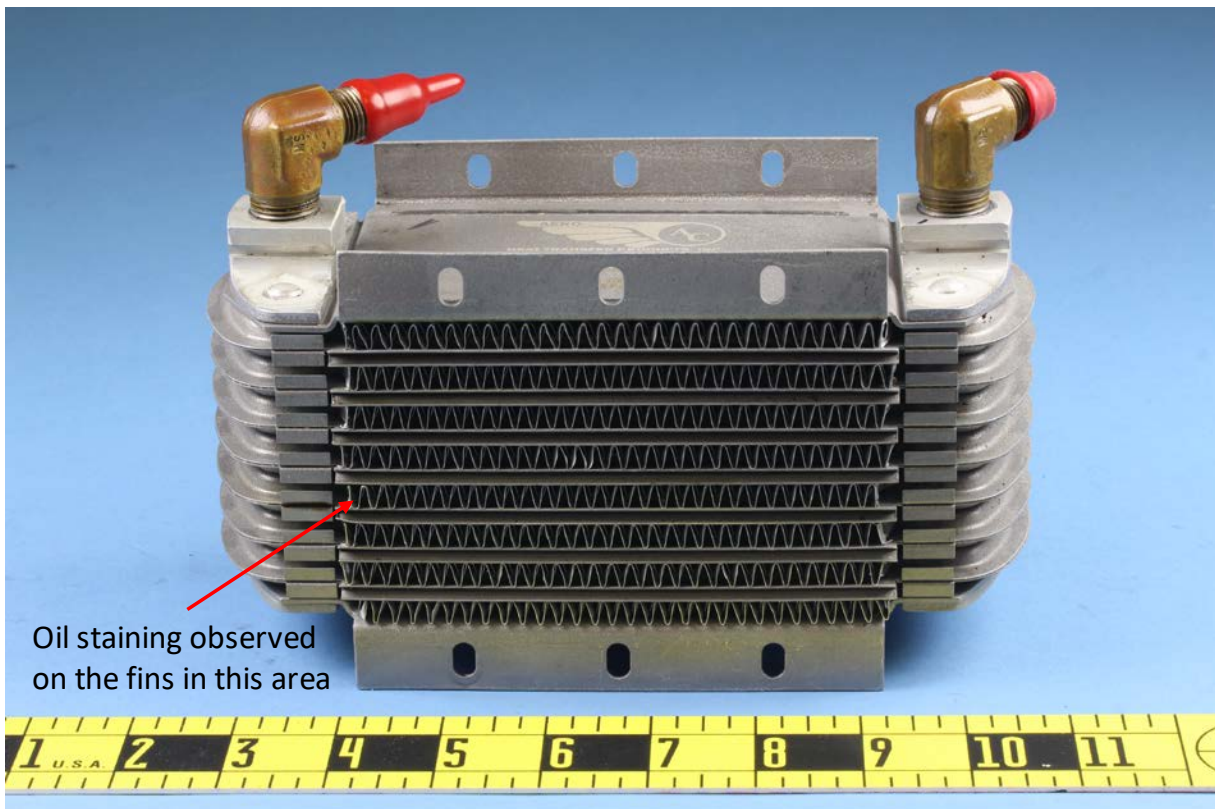


Figure 1: Oil cooler as received.

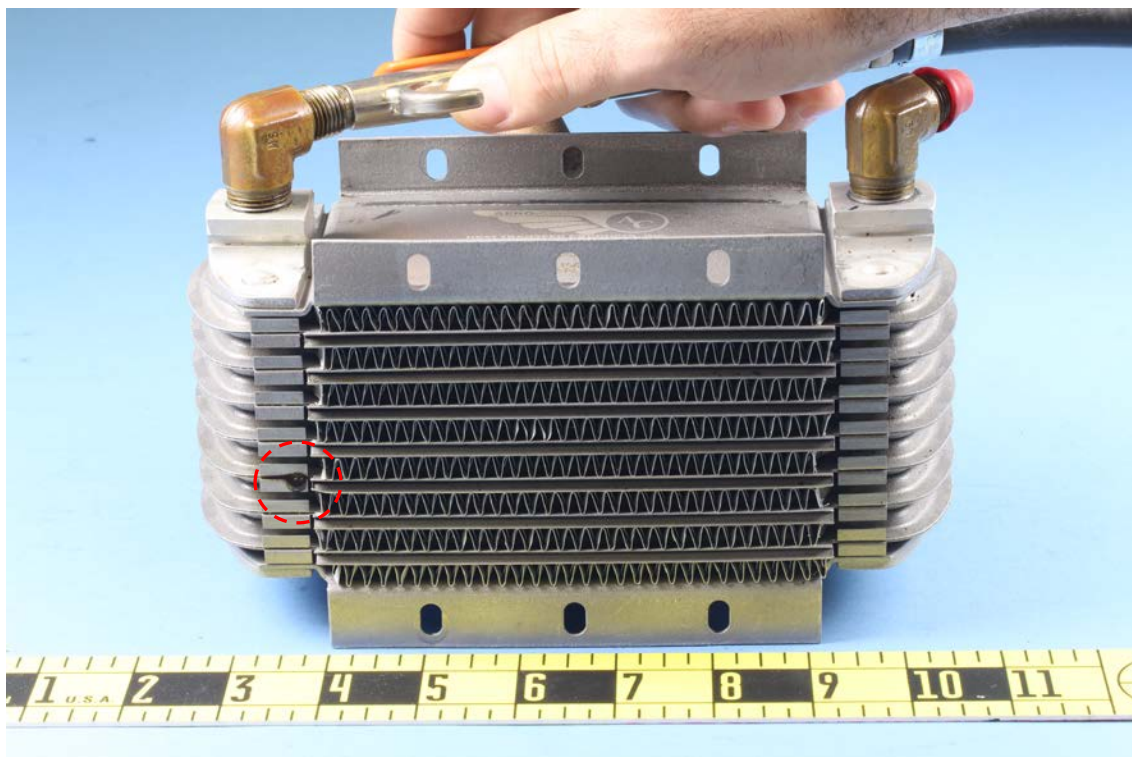


Figure 2: Forward side of oil cooler exhibiting leak while under pressure. The oil leak location is circled in red.

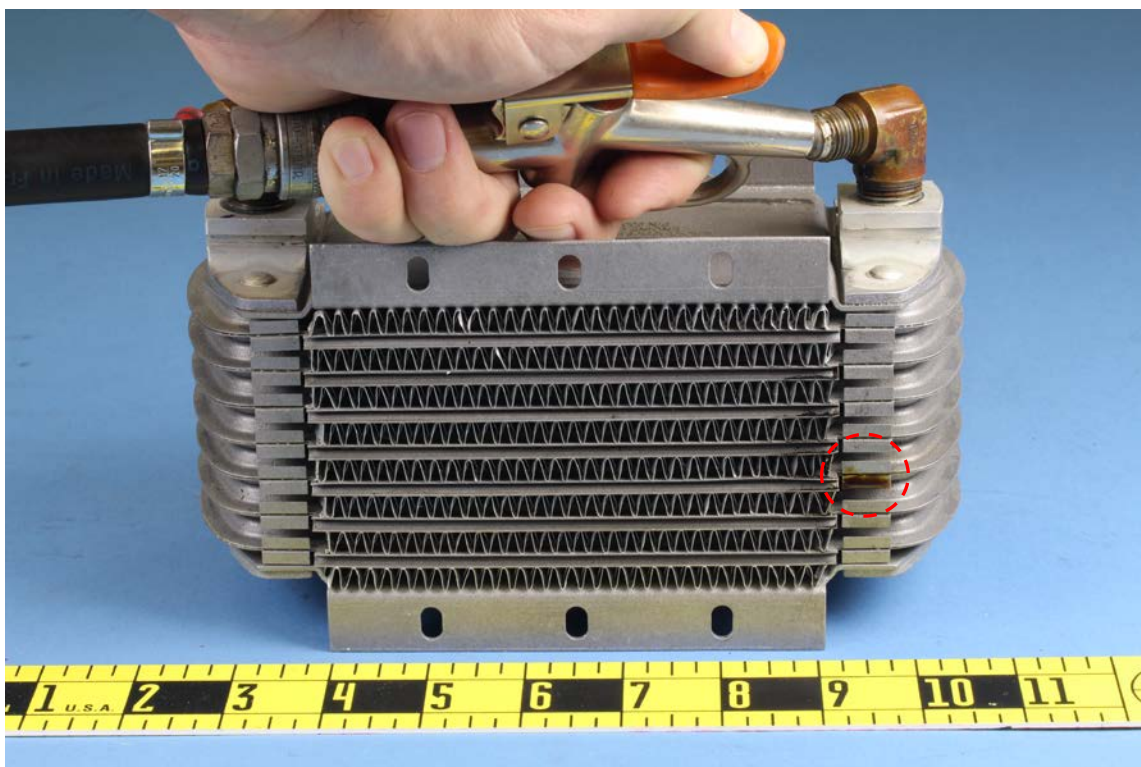


Figure 3: Aft side of oil cooler exhibiting leak while under pressure. The oil leak location is circled in red.

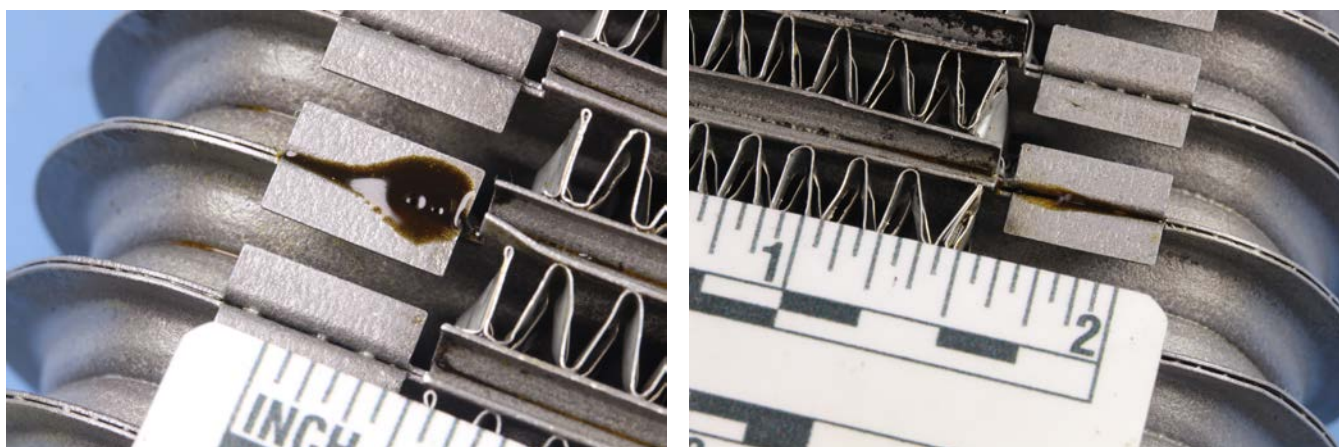


Figure 4: Close up of the leaks between the plates forming the third oil circuit from the bottom of the oil cooler.