

NATIONAL TRANSPORTATION SAFETY BOARD

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



7/8/2016

MATERIALS LABORATORY FACTUAL REPORT

Report No. 16-058

A. ACCIDENT INFORMATION

Place : Bayport, New York
Date : April 10, 2016
Vehicle : Piper PA-28-180, N95118
NTSB No. : ERA16LA152
Investigator : Leah Read

B. COMPONENTS EXAMINED

A fuel selector valve, a portion of the valve cover and the handle (figure 1).

C. DETAILS OF THE EXAMINATION

The fuel selector valve had been previously disassembled before being shipped to the materials laboratory. Safety wire was used to secure the valve cap to the valve body (figure 2). The valve body exhibited blue staining consistent with a fuel leak. This blue staining was concentrated around the port perpendicular to the other two ports (figures 1,2). This port with the concentrated staining and its associated fuel fitting did not have paint markers to indicate if the fuel fitting had rotated from its original position. The other two ports and fuel fittings had paint markers indicating that their fittings had not rotated. After removal of the safety wire, the valve cap moved away from the valve body due to a spring inside the valve (figure 3). The valve cap had multiple tool marks on the hex flats indicating that it had been disassembled many times. The valve components were removed one by one revealing the internal component stack up as shown in figure 4. Comparison of the stack up with the illustration in the Piper Cherokee service manual indicated that component labeled #4 should have been between components #1 and #2 as depicted in figure 4. The valve's internal components exhibited wear and in particular the position washer (component #1 in figure 4). The position washer exhibited wear on both sides consistent with having been flipped over and reused instead of having been replaced (figure 5). The valve stem and plug cock assembly were seized within the valve body and could not be rotated. The portion of the fuel selector valve cover contained a spring loaded metal stop.

Joseph Panagiotou
Fire Protection Engineer

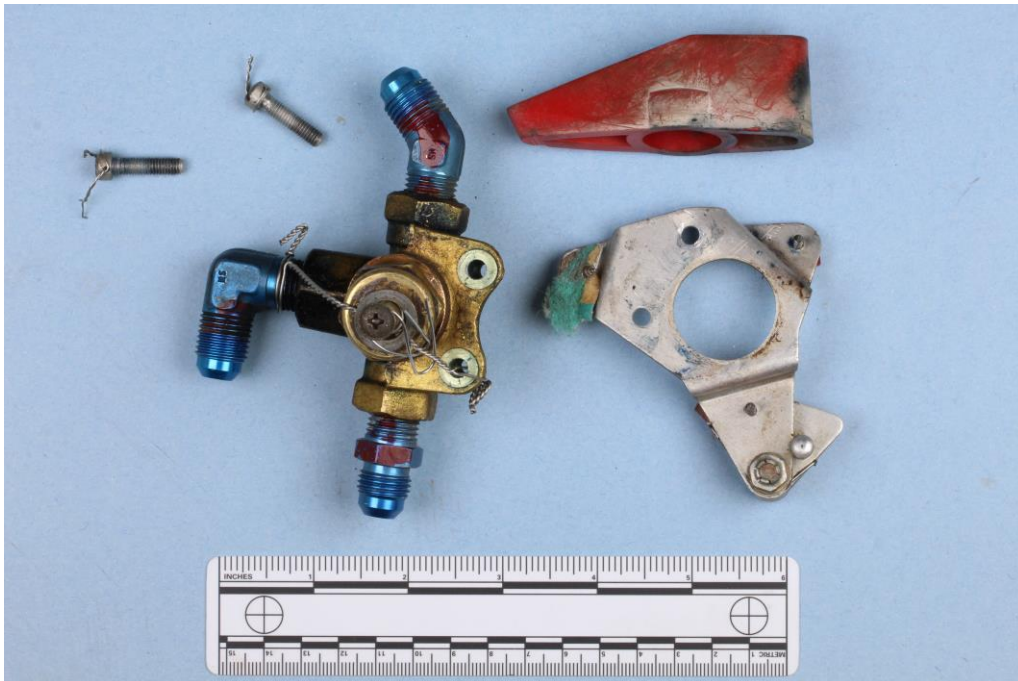


Figure 1: Fuel selector valve and associated parts as received.



Figure 2: Fuel selector valve cap safety wired to valve body.

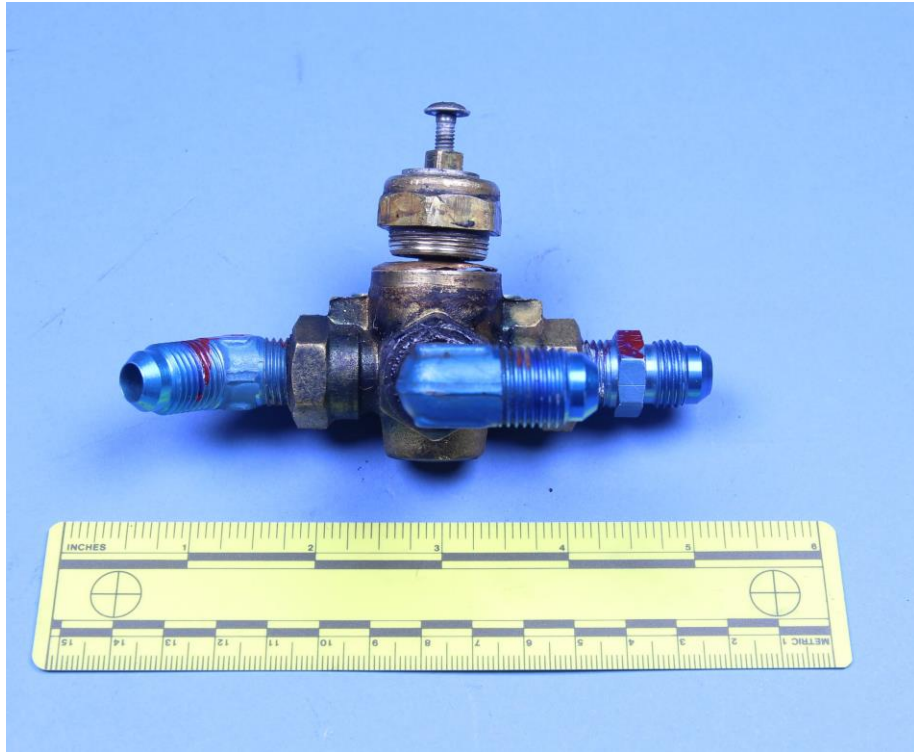


Figure 3: Fuel selector valve after safety wire removal.

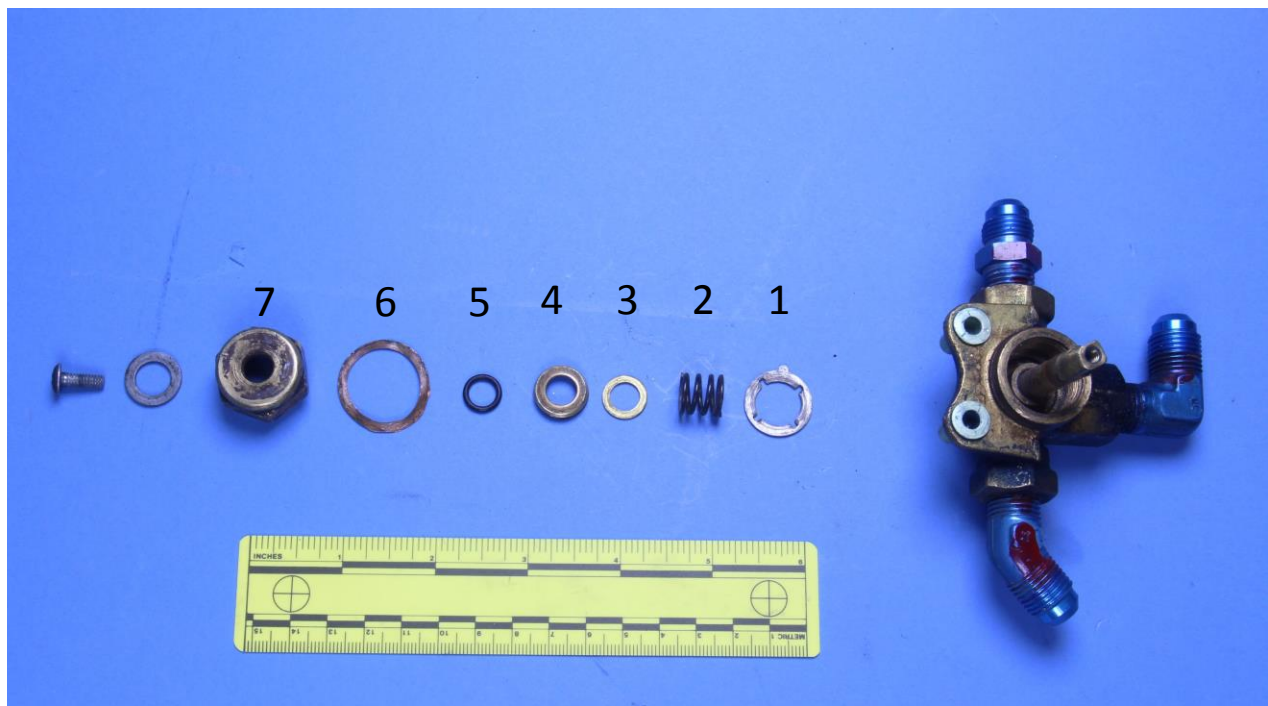


Figure 4: Fuel selector valve component stack up as received.



Figure 5: Both sides of the position washer.