

National Transportation Safety Board

Office of Research and Engineering

Washington, DC 20594



ERA21FA154

MATERIALS LABORATORY

Factual Report 22-089

November 9, 2022

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A. ACCIDENT INFORMATION

Location: Pembroke Pines, Florida
Date: March 15, 2021
Vehicle: Beech B36TC/N236BC
Investigator: Timothy Monville
OAS-ERA

B. COMPONENTS EXAMINED

Auxiliary Fuel Pump Switch

C. EXAMINATION PARTICIPANTS

Specialist Nancy B McAtee
NTSB/ RE-30
Washington DC

D. DETAILS OF THE EXAMINATION

The auxiliary fuel pump switch from the accident aircraft was submitted to the Materials Laboratory for examination. The received component is shown in Figure 1. The switch was received with the toggle between low and off positions and the toggle was immovable. The accident switch was x-rayed to determine contact position and to determine if the switch was internally damaged. The radiograph of the accident switch compared to an exemplar switch in the "down" position is shown in Figure 2. The radiograph showed that the contacts were also in the "down" position, however, the spring that held the contacts in position was shown to be damaged. Therefore, pre-impact position of the switch could not be determined with the radiograph image.

The surface of the accident switch locking collar, shown in Figure 3, was examined to see if any witness marks indicating pre-impact position were present. The only witness mark found is shown in Figure 4. The mark corresponds to the final position of the locking notch and the clean (void) area protected by the notch during exposure to the post-impact fire. No other marks or gouges were found on the surface of the locking collar. The damage and discoloration present were consistent with exposure to fire.

Submitted by:

Nancy B McAtee
Senior Chemist



Figure 1. Overall photograph of accident switch.

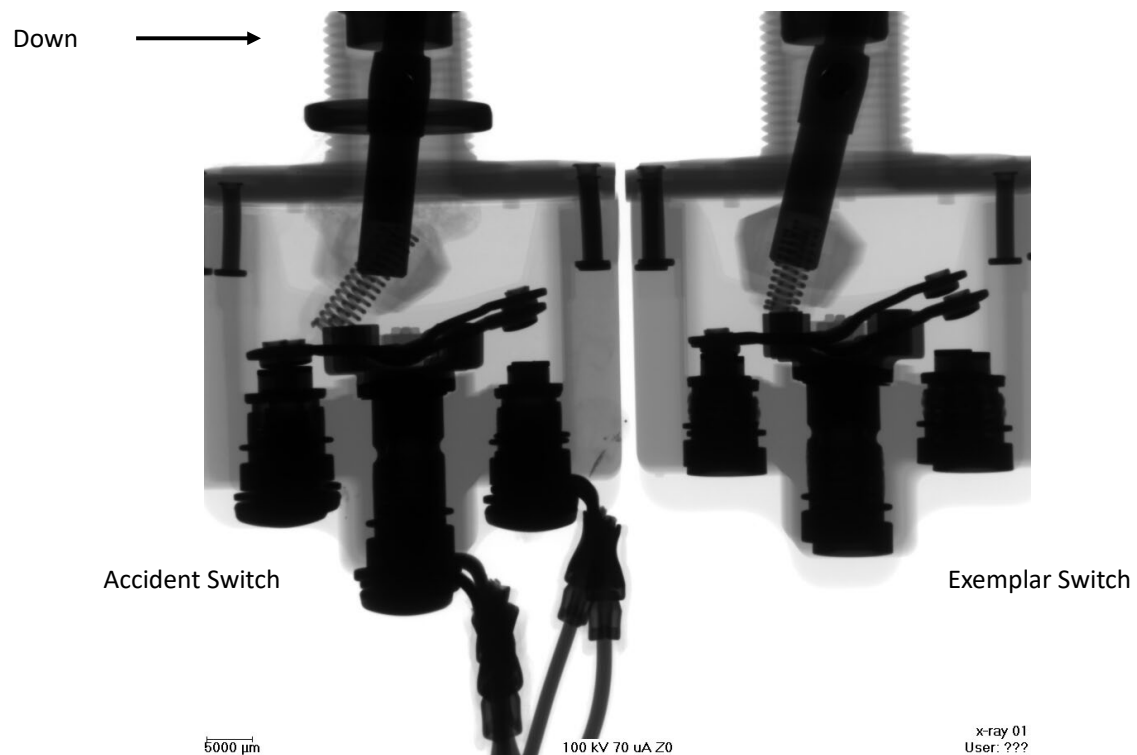


Figure 2. Radiograph of accident (on left) and exemplar (on right) switches.

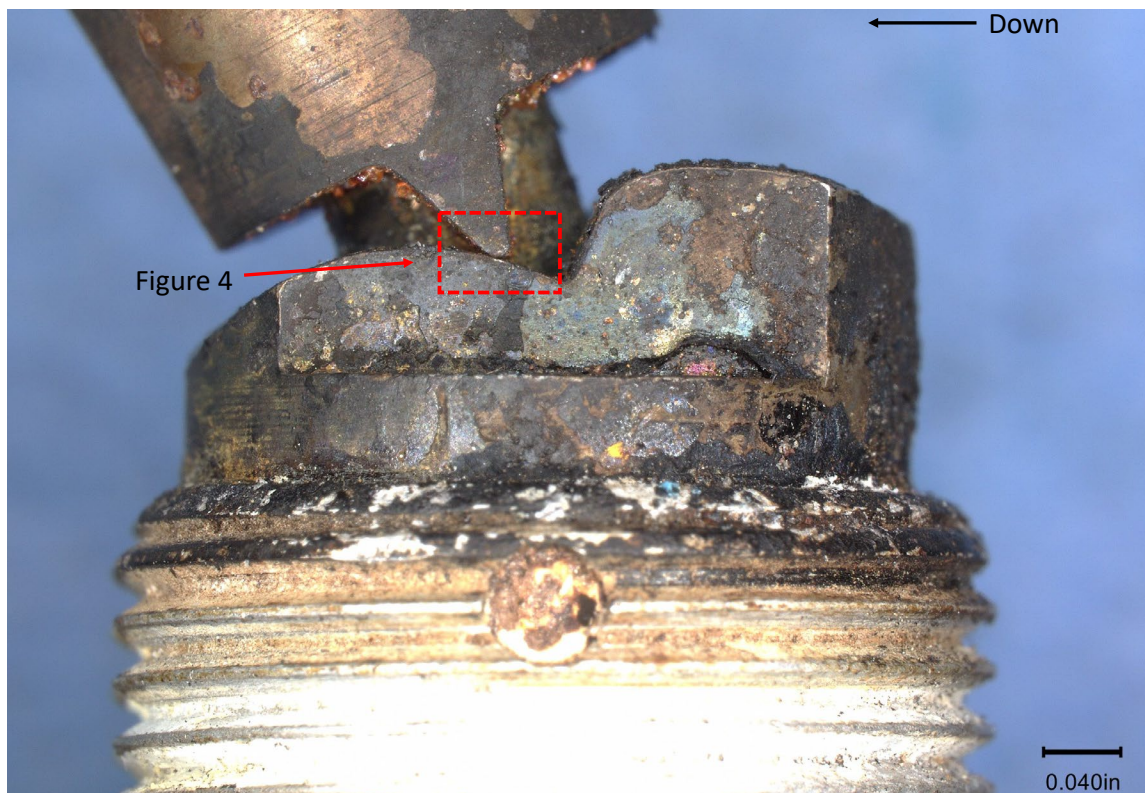


Figure 3. Photograph of left side (right side as installed in aircraft) of locking collar on accident switch.

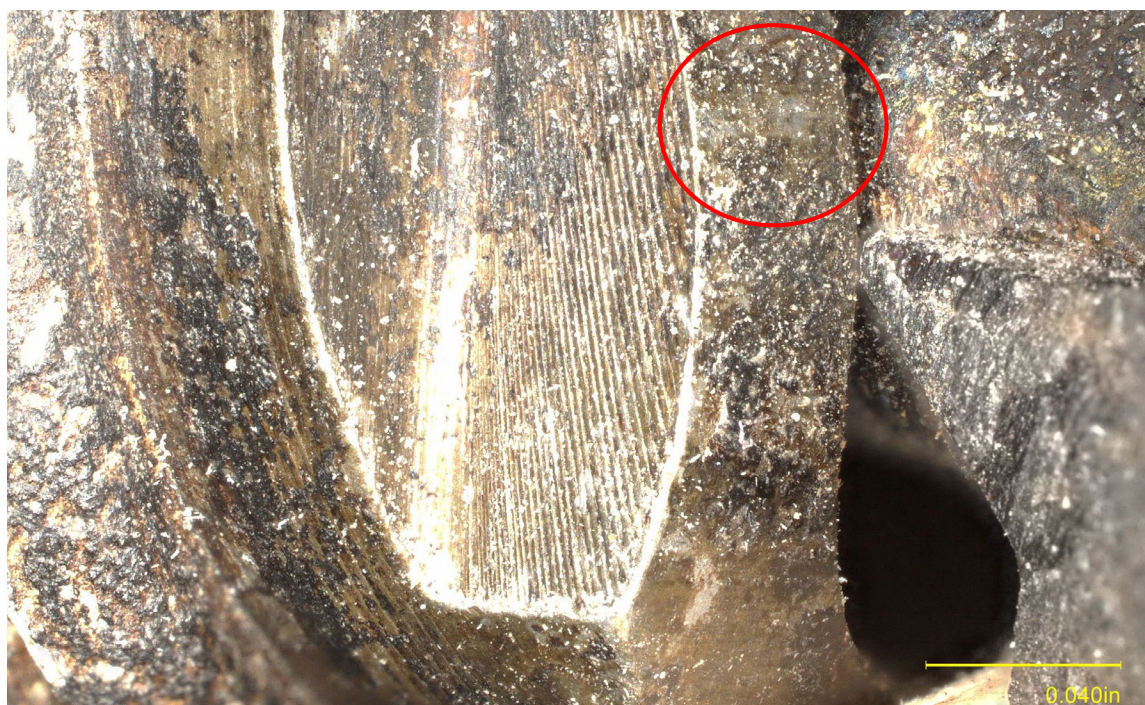


Figure 4. Close-up photograph of protected area under switch locking notch on left side (right side as installed in aircraft) of locking collar. Area highlighted with red circle.