

National Transportation Safety Board

Office of Research and Engineering

Washington, DC 20594



WPR22FA184

MATERIALS LABORATORY

Factual Report 23-033

March 29, 2023

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A. ACCIDENT INFORMATION

Location: Cape Girardeau, MO
Date: 5/22/2022
Vehicle: M24 Orion Plus
Investigator: Stephen Stein

B. COMPONENTS EXAMINED

Portions of the pilot's and co-pilot's door latching mechanism (Figure 1).

C. EXAMINATION PARTICIPANTS

Specialist Joseph Panagiotou
National Transportation Safety Board
Washington, DC

D. DETAILS OF THE EXAMINATION

The door latching mechanism for both the pilot's and copilot's side consisted of two pins which were mounted to each of the doors and two corresponding closing blocks which were mounted to the door frame openings of the fuselage (Figure 2). locking pins which were engaged by the movement of a hand operated lever and actuated with push pull rods would enter the closing blocks and engage the door pins locking them in place (Figures 2, 3) until disengaged by the hand lever to unlock and open the door.

Examination of the door pins and the corresponding locking pins and closing blocks did not reveal any anomalies with the components or any deformities that would prevent the locking pins from engaging with the door pins (Figures 4, 5). Additionally, no evidence was observed that would indicate that the door pins were forcefully pulled past the locking pins and out of the closing blocks. A bend in one of the push pull rods actuating a locking pin on the copilot side was noted. This bend exhibited by the push pull rod, as well as bends in the hand levers, are likely the result of impact forces.

Submitted by:

Joseph Panagiotou
Engineer

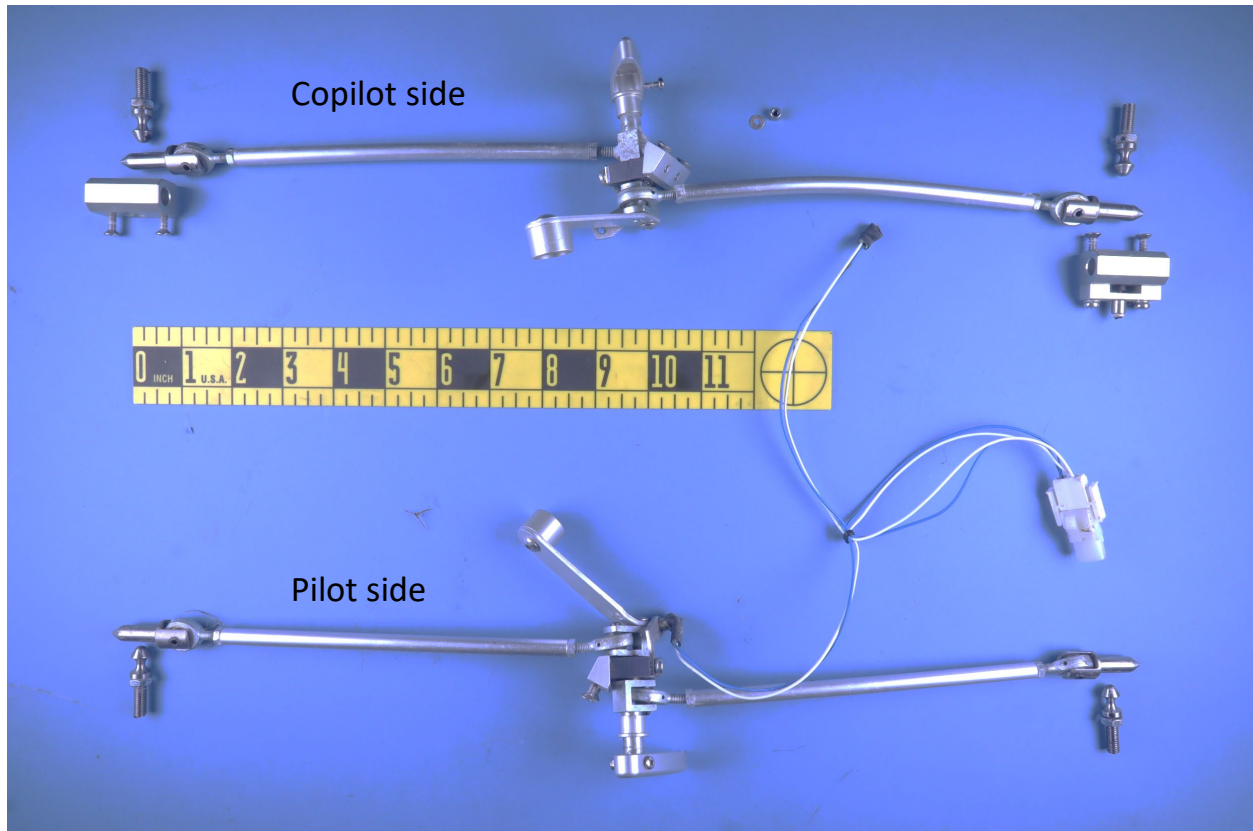


Figure 1. Portions of the pilot's and copilot's door latching mechanism as received.

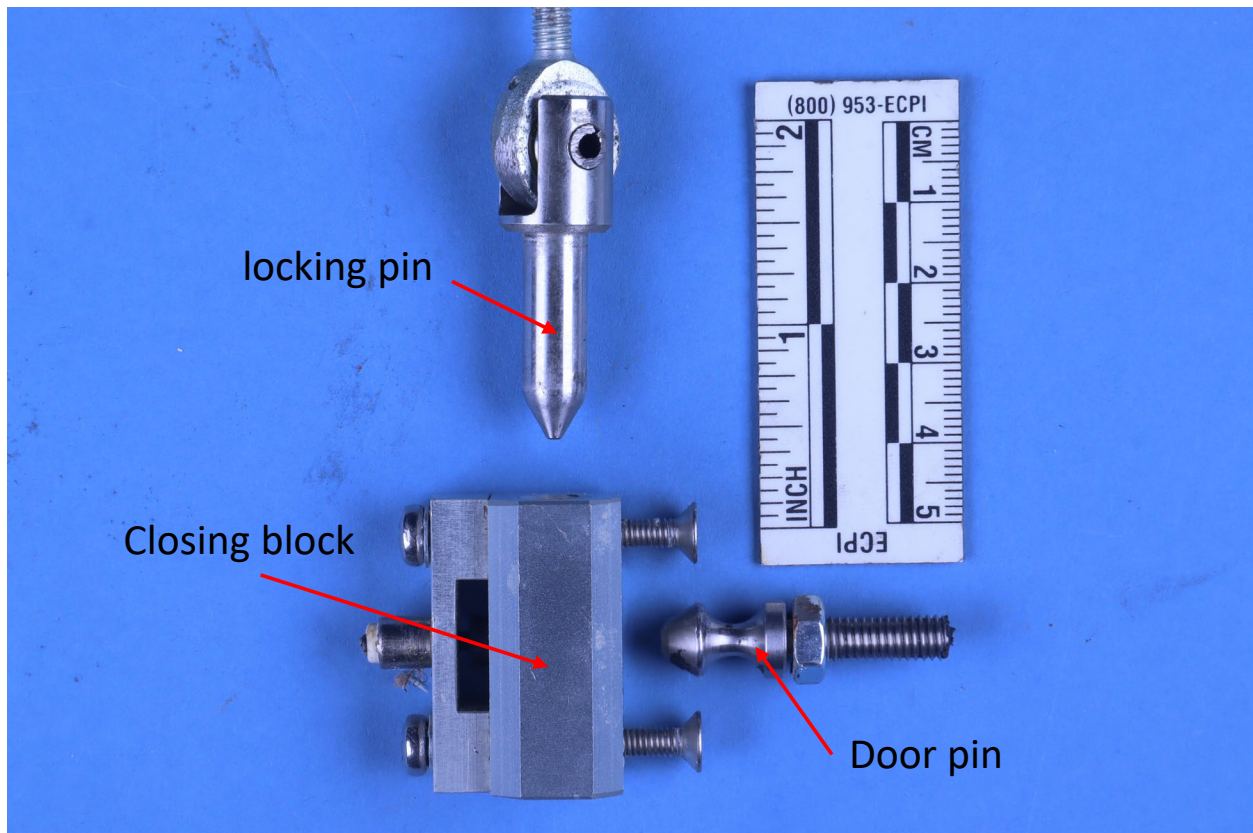


Figure 2. Door pin latching mechanism components (open).

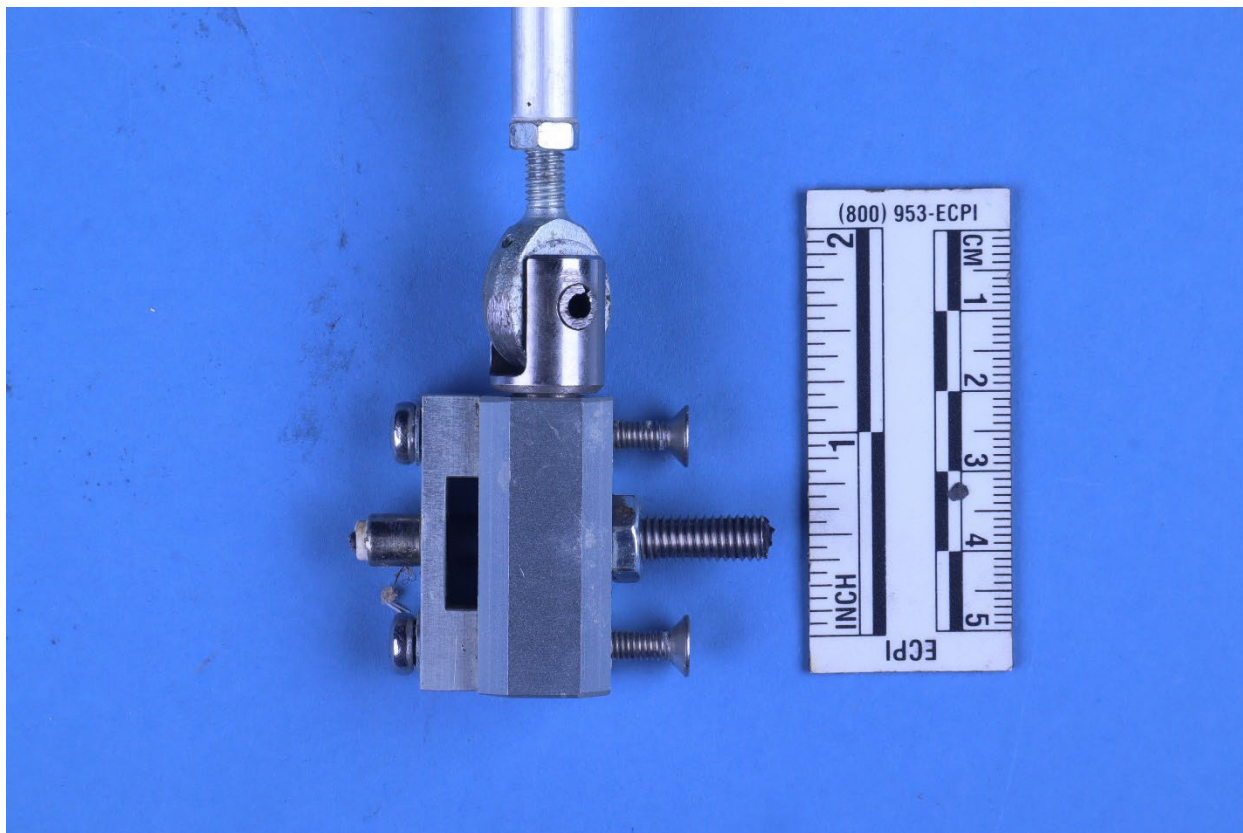


Figure 3. Door pin latching mechanism components (closed & locked).

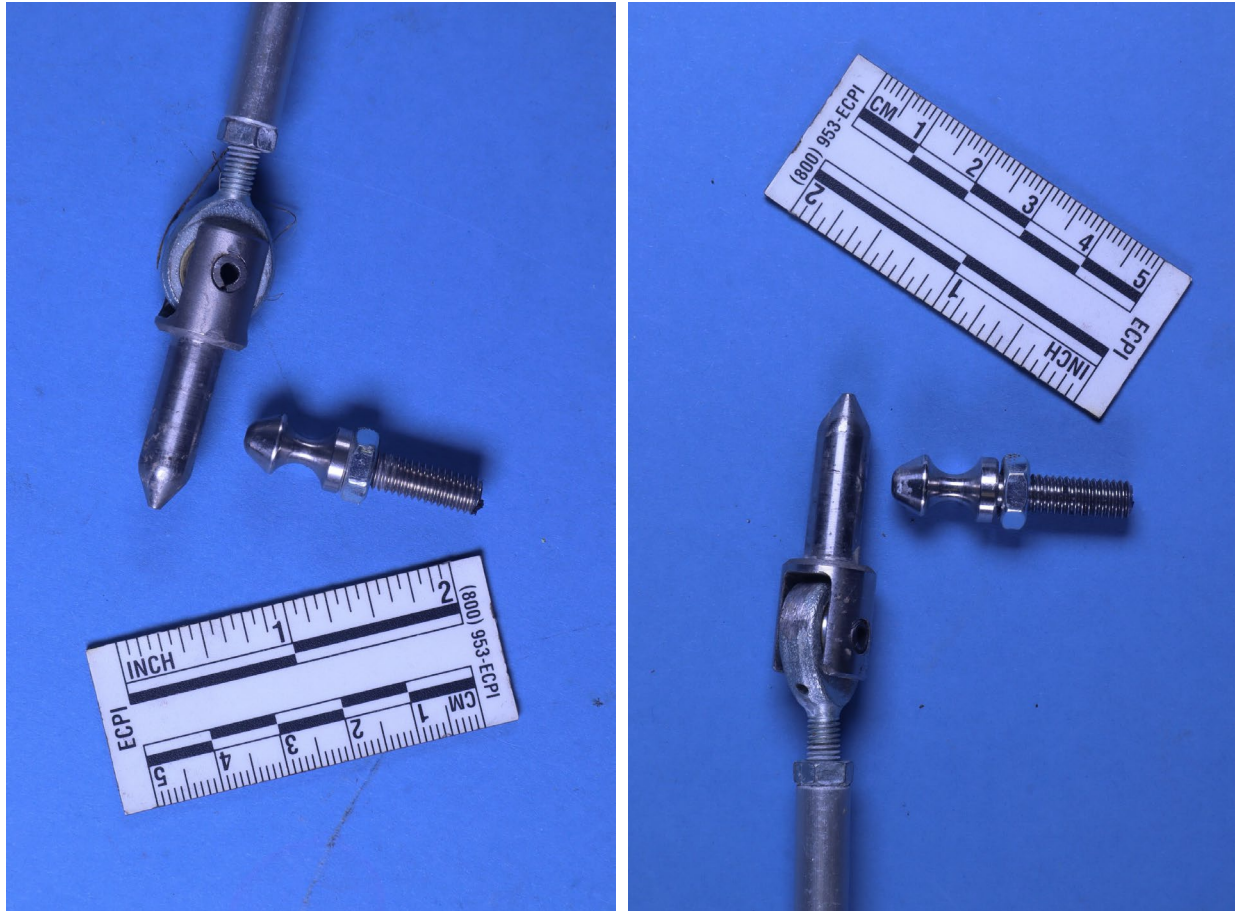


Figure 4. Door pins and locking pins from pilot's side.

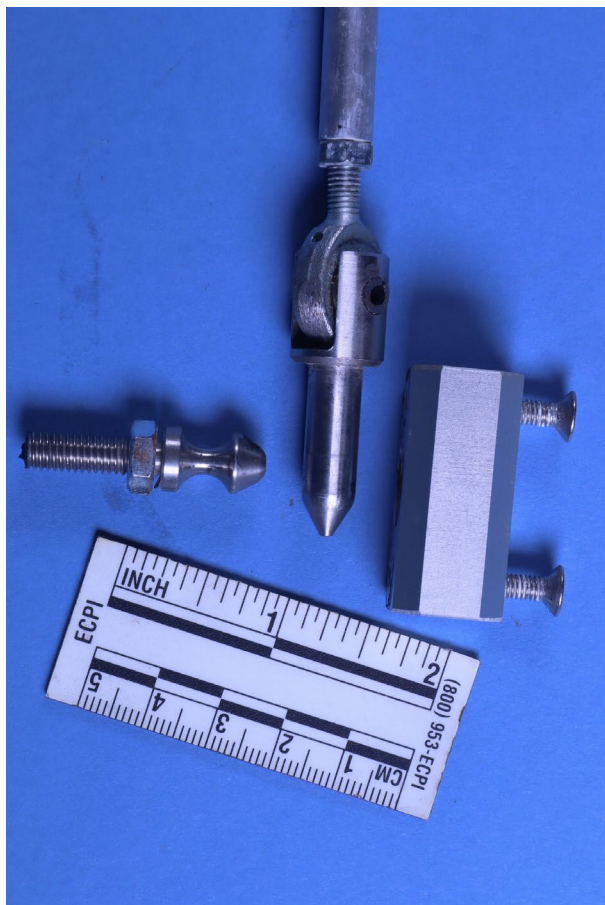


Figure 5. Door pins, closing blocks and locking pins from copilot's side.