

Bridger Aviation Services

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Bridger Aviation Services, Inc.



25/OCT/2022

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NTSB Accident Investigator

The Following is a description of a post-accident mechanical inspection of flight controls of N3268B, a Piper PA-22 Tri-Pacer at KRVF ON 29/AUG/2022:

Referencing UNIVAIR PA-22 TRI-PACER PARTS CATALOG pages 129, Figure 43. Nose Wheel Installation, Page 93, Figure 30. Control Column and Rudder Pedal Installation, Page 104, Figure 34. Aileron and Rudder Interconnecting System, and Page 99, Figure 33. Aileron, Elevator and Stabilizer Adjustment Control.

1. All control cables inspected for integrity, connection, routing, pulley, and fairlead integrity.
No problems noted.
2. Control surface movement and travel on hinges.
This required disconnecting cables at control surface bell cranks. No abnormal movement or travel detected.
3. Rudder pedals inspected for integrity, distortion, broken welds, V-Bar structural integrity and movement.
Co-pilot left rudder pedal stuck. This required detaching the nose wheel steering torque tube assembly, Item 32, Figure 43, Page 129, at the pedal. Pedal travel normal.
Pilot-side right rudder pedal stuck. Several attempts to free pedal unsuccessful until pilot-side nose wheel steering torque tube disconnected at the pilot-side right rudder pedal.

4. Nose wheel jammed at, or beyond the right steering limit of travel. The co-pilot side steering rod was free to travel through the firewall seal, Items 36-40, Figure 43, Page 129, albeit lack of lubrication and presence of dirt and oil.
5. Pilot-side steering rod was jammed against the 10 O'clock (as viewed from the cockpit) area of the firewall seal, taking several blows of a 4 lb. hammer to dislodge it from that portion of the firewall seal. The rubber disc, Item 37 Figure 43, Page 129, which floats inside the firewall seal cover, Items 36, 40, Figure 43, Page 129, to accommodate the change in geometry as the nose wheel steering bell crank articulates horizontally and vertically, was jammed from lack of lubrication, with dirt and old grease or oil. Because we did not have equivalent airworthy steering rods, Item 32, Figure 43, Page 129, to compare against the installed rods, we could not determine if the bends in the rods were beyond the normal radius of the design.

In conclusion, I have seen binding steering rods in other similar aircraft, PA-22-Series, Maule MXT-Series, where they come through the firewall, from lack of lubrication and dirt, requiring disassembly, cleaning, and suitable lubrication at Annual Inspection.

Due to the installation of the aileron-rudder interconnect system, considerable pressure and exertion must be exercised to put this aircraft in an intentional full slip (full rudder pedal deflection) as the spring bungees, Item 3, Figure 34, page 104, are "fighting" the adverse control input. We are unable to determine if the pilot-side steering rod jammed on approach, during the application of a slip to landing, or if the aircraft hit the ground with the nose wheel cocked to the right upon ground contact on the runway, or in the dirt field at the subsequent accident site.

I hope this helps the investigation.

Thank-You,

David A. Shapiro

DAS/ds