



**National Transportation
Safety Board**

Memorandum For The Record

DATE: June 25, 2019

FROM: Courtney Liedler, NTSB IIC

SUBJECT: Details of Nose Landing Gear Exam for N197GB

On June 25, 2019, NTSB, Ponderosa Aviation, and a representative for Twin Commander met at Ponderosa Aviation in Safford, Arizona for examination of the nose landing gear (NLG) assembly. The spacer and pin assembly for the steering cylinder attach point from the accident airplane was examined. The roll pin installed in the space and pin assembly had been sheared, with the roll pin still installed on the right and left sides. The stud was missing and was not found at the accident site.

Once at the airplane, familiarization and photographs of the nose steering assembly were completed. Ponderosa showed the parts that were replaced in the nose steering system for the ferry flight from Jacksonville, FL to Safford, AZ. A new space and pin assembly, manufactured by Twin Commander, had been installed.

The airplane was raised with wing jacks and the NLG was attempted to be raised. The NLG would not retract. After further examination, it was determined the NLG hydraulic lines were misconnected, preventing hydraulic pressure from increasing to allow for retraction of the gear. After reconnecting the hydraulic lines and re-installing the right aft nose gear door, then retraction of the gear was attempted again. The NLG retracted and extended normally.

The nosewheel steering actuator arm was disconnected to allow the nose wheel steering cylinder and actuator to pivot on the bracket on the nose gear strut body. The nose gear was lowered, and the nose wheel cylinder and actuator arm would get jammed on the nose wheel well main frame. However, the nose wheel was not extended past the nose landing doors and did not appear "out or down." The forward nose landing gear doors were reinstalled, and the nose gear was attempted to be lowered again. Upon closer examination, a wear mark was observed on the left-side forward gear door actuating rod. The nose gear was lowered again and the nose wheel actuator rod was jammed on the left forward gear door actuating rods, matching the witness mark. It was also observed that the nose wheel cylinder and actuator could jam on both the left and right gear door actuating rods.