



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety

Western Pacific Region

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BRAKE ASSEMBLY EXAMINATION

WPR13FA420

This document contains 10 embedded photos.

Examination Report - N194SJ Cessna 525A

Exam Location:

UTC Aerospace Systems
101 Waco St
Troy, OH 45373

Participants:

Van McKenny	NTSB
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Tracey Canterbury	UTC Aerospace Systems
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Examination Summary:

The following brake assemblies were examined, functionally tested, disassembled.

- Left Brake Assembly
PN: 2-1651-1
SN: 0419
Date of Manufacturer: 12/02
- Right Brake Assembly
PN: 2-1651-1
SN: 0470
Date of Manufacturer: 07/03

Left Brake Assembly:



Left brake assembly (side view)



Left brake assembly (hub view)

The left brake assembly was visually examined. The piston housing was coated in soot and dirt, the paint had discolored to a light brown tint. The paint discoloration is an indication of exposure to an external heat source. Excessive corrosion was observed on the torque plate and heat sink disk in comparison to brake assemblies that are received for normal overhaul. No hydraulic leaks or fluid staining was observed. The disk rotors were free to rotate by hand.

A hydraulic fitting was placed on the primary port of the shuttle valve and pressurized to 100 psi. No leakage was observed, piston movement was observed on all 5 pistons, and the rotors could not be moved by hand. Hydraulic pressure was released and adjuster assemblies were observed to return to their normal position. The system was pressurized to 850 psi, no leaks were observed and the rotors could not be moved by hand. The wear pins extension was measured at 0.262 in and 0.268 in, indicating about 2/3 wear (new pin measures 0.864 in). The system held pressure at 850 psi for 5 minutes. The system was depressurized to 9 psi. The pistons retracted and a feeler gauge measured a gap between rotor and stator disks of 0.020 in.

The hydraulic fitting was removed from the primary port and placed on the pneumatic port (emergency system). When pressurized to 100 psi the shuttle valve could be heard to move from primary to emergency. Indicating the last actuation was via the normal (primary) brake system. The system was pressurized to 850 psi, no leaks were observed, and piston movement evident.



Left brake assembly showing piston extension.

The brake assembly was disassembled. The 7 brake disks (rotors and stators) were removed individually and visually examined. Normal wear signatures were observed, no cracks were evident, and the expansion slots on all disks were all similar in gap size. No evidence of overheating were observed.

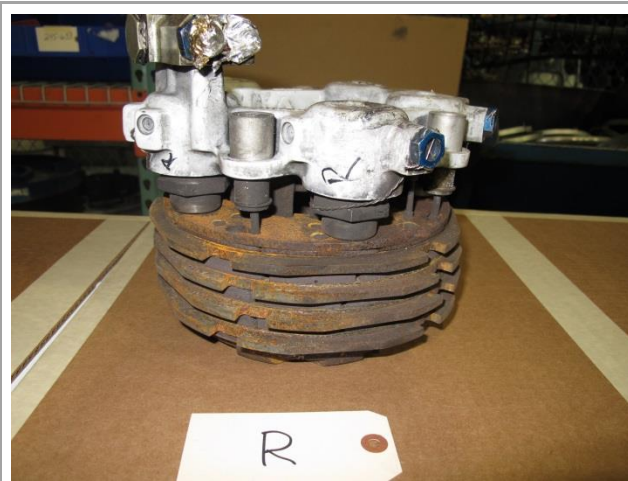


Left brake disks



Left brake disks (reverse sides)

Right Brake Assembly:



Right brake assembly side view



Right brake assembly top view.

The right brake assembly was visually examined. The brake piston housing was clean with no discoloration of the medium gray paint. Excessive corrosion was observed on the torque plate and heat sink disk, in comparison to brake assemblies that are received for normal overhaul. No hydraulic leaks or fluid staining was observed. The disk rotors were free to rotate by hand.

A hydraulic fitting was placed on the primary port of the shuttle valve and pressurized to 100 psi. No leakage was observed, piston movement was observed on all 5 pistons, and the rotors could not be moved by hand. Hydraulic pressure was released and adjuster assemblies were observed to return to their normal position. The system was pressurized to 850 psi, no leaks were observed and the rotors could not be moved by hand. The wear pins extension was measured at 0.300 and 0.294 in, indicating about 2/3 wear (new pin measures 0.864 in). The system held pressure at 850 psi for 5 minutes. The system was depressurized to 9 psi. The pistons retracted and a feeler gauge measured a gap between rotor and stator disks of 0.020 in.

The hydraulic fitting was removed from the primary port and placed on the pneumatic port (emergency system). When pressurized to 100 psi the shuttle valve could be heard to move from primary to emergency. Indicating the last brake actuation was via the normal (primary) brake system. The system was pressurized to 850 psi, no leaks were observed, and piston movement evident.



The brake assembly was disassembled. The 7 brake disks (rotors and stators) were removed individually and visually examined. Normal wear signatures were observed, no cracks were evident, and the expansion slots on all disks were all similar in gap size. No evidence of overheating were observed.



Right brake disks



Right brake disks (reverse side)