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**Region**

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NTSB Case Number: ERA22LA132  
Aircraft: Cessna 140, N2509N  
FAA inspector: Lynda Falcon  
Mechanic: Hunter Owens A&P mechanic (Owens Aviation)  
Date: 3/8/2022  
Subject: Brake inspections findings

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In a email sent to FAA inspector Lynda Falcon, a Mr. Hunter Owens of (Owens Aviation) reported the following after inspection of the brake system failure and in a email he wrote....

***“The left brake master cylinder is to blame for loss of the left brake. I checked the fluid level which was extremely low. So then I removed the master cylinder to inspect it internally and to remove the flexible brake line to check it for cuts. The flexible line is good and intact and still very flexible.***

***However upon removal I found two issues that caused the low level and ultimately the brake not actuating when commanded.***

***There is a bulkhead fitting on the fwd facing side of the master cylinder that had worked loose, from I would say the pedal movement over the years as it causes the flexible line to pull on the bulkhead fitting when working the rudder pedals.***

***After removal I removed the bulkhead fitting and saw that not only had it worked loose but the o-ring behind it had been pinched by the threads from whenever it was last overhauled and likely causing a false torque on the bulkhead fitting.***

***To test my theory I filled the master cylinder with fresh fluid and capped off the bulkhead fitting to simulate the pressure that would develop upon actuating the brake and assembled it again with the cut o-ring and hand tight fitting. Upon actuated it does in fact seep fluid from around the threads of the fitting once under pressure.***

***Ultimately it had a very slow leak that only leaked once pressure was introduced to the system (applying the brakes) that resulted in the fluid level slowly going down until no fluid remained in the reservoir, thus causing the brake to fail once the fluid was depleted.***

***The right brake is fully functional and the reservoir is full. But of course will be removing the entire brake system and inspecting and resealing the whole system, as well as replacing the flexible lines with new.***

***Attached are some photos showing the cut o-ring, the disassembled master cylinder and a photo of the fluid seep from the threads once I applied pressure to the system.”***