

On March 27, 2013, about 1045 central daylight time, a Cessna 421C, N805DC, sustained substantial damage when its left main landing gear collapsed during landing at the River Falls Airport, Amarillo, Texas. The airplane subsequently exited the left side of the runway where the right main landing gear and the nose landing gear separated from the airplane. The pilot was not injured. The airplane sustained substantial damage to its wings and fuselage. The airplane was registered to and operated by PMT Flyers LLC under the provisions of 14 Code of Federal Regulations Part 91 as a maintenance positioning flight. Visual meteorological conditions prevailed for the flight, which operated on a visual flight rules flight plan. The flight originated from Amarillo International Airport, Amarillo, Texas, about 1040.

The pilot reported that while in the traffic pattern he extended the gear and noted that the three green landing gear lights illuminated indicating that the gear was down and locked. He stated that upon landing he touched down initially on the right wheel due to the crosswind correction and when the airplane settled on the left gear it continued until the left wing tip struck the ground.

Examination of the airplane after the accident revealed that all three gear down indicator lights were illuminated despite the left gear being collapsed into the wheel well. After raising the airplane the landing gear was extended and it was found that inward pressure on the left main landing gear would cause the actuator to unlock allowing the gear to fold inward. Further examination and testing revealed that the down lock microswitch on the actuator remained in an electrically closed position regardless of the position of the landing gear. As the switch was being removed from the actuator, the switch contacts opened after the switch housing was rotated about 1/8 of a turn.

The assembly instructions from the actuator manufacturer's overhaul manual stated:

"Hydraulically or manually extend and lock actuator. Lightly coat plunger of switch (3) and plunger (4) with silicone fluid (see note above) and install into gland (16). Install switch (3) with nut and washer saved from disassembly, into gland. Adjust switch so that the electrical signal comes on (continuity between leads (1 & 3) and (4 & 6) see figure 601) then turn another $90^{\circ} \pm 10^{\circ}$."

Disassembly of the actuator revealed that the switch plunger interfered with the internal locking mechanism of the actuator preventing it from properly locking in the extended position. The as found position of the switch was approximately 1/2 turn farther inward than specified in the assembly instructions. Once the down lock microswitch was adjusted according to the manufacturer's instructions the actuator and switch functioned normally and the actuator would lock in the extended position.

Maintenance records showed that both main landing gear actuators had been resealed at the last annual inspection on February 19, 2013. The mechanic that performed the maintenance reported that the maintenance was performed using guidance from the manufacturer's maintenance manual. He stated that the actuator was only disassembled to a point that allowed replacing the seals in the end cap assembly that the piston rod passes through and that no adjustment of the gear indicator switch was performed.

The maintenance manual had procedures for operational testing after maintenance was performed. The procedures included electrically testing the switch for proper indication of unlocked and locked conditions.