

ACCIDENT

Aircraft Type and Registration:	Piper PA-31-350 Navajo Chieftain, N678BY	
No & Type of Engines:	2 Lycoming TI0-540-J2BD piston engines	
Year of Manufacture:	1979	
Date & Time (UTC):	2 April 2011 at 2145 hrs	
Location:	JAGS McCartney International Airport, Grand Turk, Turks and Caicos Islands	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - 5
Injuries:	Crew - None	Passengers - None
Nature of Damage:	Flaps, propellers, right wingtip and landing gear doors	
Commander's Licence:	Commercial Pilot's Licence	
Commander's Age:	56 years	
Commander's Flying Experience:	5,000 hours (of which 1,500 were on type) Last 90 days - 86 hours Last 28 days - 28 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

Synopsis

On final approach to his intended destination, the pilot selected the landing gear to the DOWN LOCKED position but it failed to extend fully. The aircraft diverted to an alternate airport and landed with the landing gear partially extended, resulting in damage to the aircraft but without injury to the pilot or passengers. Hydraulic fluid leaking from a failed hydraulic hose prevented the landing gear from operating normally.

History of the flight

The aircraft departed Ft Lauderdale Executive Airport, Florida, at 1800 hrs on a private flight to Providenciales Airport in the Turks and Caicos Islands. The pilot was accompanied by five passengers, and the fuel endurance

of the aircraft at departure was calculated by the pilot to be 4 hours and 30 minutes.

The flight proceeded uneventfully until the aircraft was 5 nm from Providenciales Airport, on final approach for Runway 10, when the pilot attempted to extend the landing gear. No green DOWN LOCKED lights were observed and the red NOT LOCKED light remained illuminated, indicating that the landing gear had failed to extend fully.

The pilot continued the approach and made a low pass along the runway to permit visual examination of the landing gear by the ATC tower controller, who

confirmed that the landing gear was partially extended. The pilot then entered a holding pattern to the south of Providenciales Airport for 15 minutes, whilst attempting to lower the landing gear using the manual extension handle. This attempt was also unsuccessful. ATC then cleared the aircraft for a visual approach for Runway 10, but when the aircraft was 2 nm from touchdown, ATC instructed the pilot to execute a missed approach and divert to JAGS McCartney International Airport. JAGS McCartney International Airport is on the island of Grand Turk and is 66 nm from Providenciales Airport.

On arrival at JAGS McCartney International Airport, the pilot made a low pass along Runway 11 to permit another visual examination by the ATC tower controller, who confirmed that the landing gear remained partially extended. The weather at Grand Turk was described by the pilot as being good, with scattered clouds at 1,500 ft. The pilot briefed the passengers to prepare them for a gear-up landing. Immediately prior to touchdown, the pilot positioned the fuel selector valves to OFF and closed the throttles. The aircraft landed on Runway 11, touching down on the left main landing gear leg and, shortly thereafter, settling onto the right wingtip. During the landing rollout, the left main landing gear leg retracted and the aircraft slewed to the right by approximately 90°, before coming to rest on the edge of Runway 11, halfway along the 6,362 ft runway.

The AFRS were quickly in attendance but no fire or fuel spillage occurred, and the pilot and passengers were able to exit the aircraft from the main cabin door. The pilot estimated that fuel equating to 20 minutes of flying time remained on board the aircraft following the landing.

Assessment of the cause

Following the accident the aircraft was inspected and it was apparent that a hydraulic hose, running to the actuator on the right main landing gear door, had failed, allowing hydraulic fluid to leak from the system. The loss of hydraulic fluid also prevented the emergency hand-pumped landing gear extension system from functioning.

Discussion

The aircraft was diverted from landing at Providenciales Airport in order to avoid blocking the airport's single runway and causing delays to scheduled airline flights. The aircraft carried sufficient fuel for the diversion and the pilot commented that he was willing to comply with the diversion request, as the weather conditions at JAGS McCartney International Airport were suitable for a visual approach.