

ACCIDENT

Aircraft Type and Registration:	DH89A Rapide, G-AIYR	
No & Type of Engines:	2 De Havilland Gipsy Queen 3 piston engines	
Year of Manufacture:	1943 (Serial no: 6676)	
Date & Time (UTC):	19 June 2022 at 0930 hrs	
Location:	Duxford Airfield, Cambridgeshire	
Type of Flight:	Commercial Air Transport (Passenger)	
Persons on Board:	Crew - 1	Passengers - 8
Injuries:	Crew - None	Passengers - None
Nature of Damage:	Damage to underside of cockpit and front fuselage, both propellers and both engine cowlings	
Commander's Licence:	Commercial Pilot's Licence	
Commander's Age:	53 years	
Commander's Flying Experience:	2,501 hours (of which 65 were on type) Last 90 days - 34 hours on type Last 28 days - 16 hours on type	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

Synopsis

On landing the aircraft decelerated rapidly and unexpectedly. It pitched onto its nose and exited the runway to the right. The pilot and passengers were assisted out of the aircraft by the RFFS and all were uninjured. It was later discovered that the right main landing gear tyre had deflated either in flight or on touchdown.

History of the flight

The aircraft was conducting short, commercial passenger flights during the Duxford Airshow. The first sortie of the day had been completed without any abnormal events. On the second sortie the takeoff and planned local flying were conducted without incident. On returning to Duxford Airfield the pilot reported on the downwind leg to the Duxford Flight Information Service Officer and was advised to make a further report on final approach. He recalled completing the pre-landing checklist during which he physically confirmed that the aircraft wheel brakes were set to OFF. The aircraft was approaching Runway 06 at Duxford and the wind was reported as 340° at 10 kt. Therefore, there was a significant crosswind from the left, although it was within the aircraft limit of 20 kt.

The pilot recalled the aircraft touching down on the left main landing gear and then, as the right landing gear touched down, he felt a strong deceleration and the aircraft rapidly pitched

nose down. He described the landing as a “not particularly heavy touchdown though with a bit of a skip”. The tips of both propellers struck the runway followed by the underside of the aircraft nose. The aircraft slid with its nose touching the ground and gradually veered to the right. The aircraft departed the paved surface to the right and stopped on the grass with the nose on the ground (Figure 1).



Figure 1

Aircraft on nose post runway exit

Both engines had stopped but the pilot recalled securing the aircraft by turning off the magnetos, the fuel cocks, the radio and the battery master switch. He then confirmed that all the passengers were uninjured and directed the passenger in the rear left seat to open the cabin door. Due to the attitude of the aircraft the door was a significant distance above the ground.

The pilot could see no signs of fire and there was no smell of fuel. He saw a fire vehicle approaching the aircraft. Due to the distance of the door from the ground the pilot directed the passengers to remain on board until the RFFS could position a ladder to facilitate safe exit from the aircraft. The RFFS sprayed firefighting foam onto both engines and the surrounding ground and assisted all those aboard to evacuate the aircraft. Neither the pilot nor any passengers were injured.

Aircraft information

The aircraft is a DeHavilland Dragon Rapide built in 1943. It is registered as G-AIYR but is painted in historical Royal Air Force colours. It has a CAA Display of Registration Mark Exemption to allow the aircraft to be flown with the historic military serial number HG691.

Aircraft examination

After exiting the aircraft, the pilot noted that the right main landing gear tyre was completely deflated. The aircraft sustained damage to the underside of the cockpit and nose cone, to both propellers and to both engine cowlings.

The aircraft was examined by the operator's engineering personnel. It was jacked and the right wheel was found free to turn and was not loose on the axle. There was no visible damage to the landing gear or brake assembly. The creep marks¹ on the tyre were displaced by between one and two inches. The tyre was removed from the hub for further examination and a tear was found in the inner tube valve where it had been displaced from the wheel. There were two further small puncture marks in the inner tube. The tyre was undamaged.

Analysis

The aircraft landed with a crosswind of approximately 10 kt from the left. The pilot used into-wind aileron to control the drift, so the aircraft made an initial touchdown on the left main landing gear and then rolled right to touch down the right main gear. After the right main gear touched down, the aircraft decelerated rapidly and pitched onto its nose and then yawed to the right. This outcome is consistent with the expected effects of landing with a deflated right main tyre, as found after the event.

On the previous sortie of the day the pilot had not noticed any unusual effects during taxi, takeoff or landing. The taxi and takeoff for the incident flight were also completely normal. It is therefore likely that the right main landing gear tyre deflated in flight or on touchdown. It was not possible to determine when the creep on the right wheel occurred, but the damage to the inner tube was consistent with creep and so that was the probable cause of the deflation.

Conclusion

Due to the deflated right main landing gear tyre the aircraft decelerated rapidly and pitched onto its nose. The aircraft yawed to the right and exited the paved surface coming to rest on the adjacent grass. The aircraft suffered significant damage but none of those aboard were injured.

Footnote

¹ To detect the gradual rotation of a tyre around a wheel white index marks are made on tyres and wheels and are called creep marks.