ACCIDENT

Aircraft Type and Registration:	DHC-1 Chipmunk 22, G-BCKN	
No & Type of Engines:	1 Lycoming O-360-A4A piston engine	
Year of Manufacture:	1952 (Serial no: C1/0707)	
Date & Time (UTC):	17 October 2020 at 1050 hrs	
Location:	Blackpool Airport, Lancashire	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - 1
Injuries:	Crew - None	Passengers - None
Nature of Damage:	Minor damage to right wing surface and flap	
Commander's Licence:	National Private Pilot's Licence	
Commander's Age:	83 years	
Commander's Flying Experience:	957 hours (of which 35 were on type) Last 90 days - 20 hours Last 28 days - 1 hour	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

Synopsis

The aircraft swung off the runway onto the grass during a landing at Blackpool Airport and struck a Precision Approach Path Indicator (PAPI) light causing minor damage to the right wing.

History of the flight

The pilot reported that he was intending to conduct circuits at Blackpool Airport. He took off on Runway 28 but, due to the light and variable winds, ATC changed the runway to Runway 10. The wind was reported as coming from 040° at 7 kt. The pilot reported that he encountered no difficulty during the approach but following a straight three-point touchdown at 50 kt the aircraft swung to the left. Despite the application of full right rudder, the aircraft departed the runway onto the grass. The aircraft came into contact with a PAPI light on the left side of the runway resulting in damage to the right wing surface and flap. The pilot did not use differential braking during the landing roll because he assessed the wind to be calm to very light. He could not account for why the aircraft unexpectedly swung to the left on landing. He stated that he had considered carrying out a go-around but chose to commit to controlling the ground roll from the runway onto the grass to avoid a propeller strike on the soft ground.

Aircraft examination

An engineering inspection commissioned by the aircraft owner reported that the main wheel braking system and tail wheel were free from defects and all system perishables were found to be in good condition.

Wheel brake system description

The Chipmunk is equipped with a hand-operated wheel brake system. A lever on the left sidewall of the cockpit is pulled rearwards to apply the brakes. For manoeuvring on the ground, differential braking is available by action on the rudder pedals. If the wheel brake lever is in the OFF (fully forward) position, no braking is applied to either main wheel, even if full pedal is applied in one direction. As the lever is pulled to the rear, progressively more brake pressure is applied to the wheel corresponding to the rudder pedal that is held forward.

A finger-operated collar at the base of the wheel brake lever handgrip can be set to hold the lever in a given position so that the appropriate brake operates when a rudder pedal is moved forward. Both brakes are inoperative when the rudder pedals are centralised again. The various lever positions are defined by the teeth of a ratchet device. A combination of lever movement and rudder pedal displacement is used to modulate the differential braking force applied and augment directional control on the ground. The number of notches required to provide differential braking can be counted during the operation described. If differential braking is required for a crosswind landing, the correct amount of brake can be set in the air.

Discussion on the use of the brakes in crosswinds

Advice on the use of brakes in the Chipmunk community is varied and, to a degree, divided. The point of debate is the benefit of pre-setting the system for differential braking to be available for use immediately on landing, compared with relying primarily on rudder authority for directional control followed by the gentle use of the brake lever to augment control if required. The Pilot's Manual refers to the use of differential braking for crosswind landings and ground taxiing but offers no further advice. Although the pilot was unable to explain why this accident happened, he commented that he would seek further advice from a qualified Chipmunk instructor on suitable techniques to control the landing roll in various wind conditions.