

ACCIDENT

Aircraft Type and Registration:	Piper PA-28-161 Cherokee Warrior II, G-BNXT	
No & Type of Engines:	1 Lycoming O-320-D3G piston engine	
Year of Manufacture:	1977	
Date & Time (UTC):	18 August 2009 at 1335 hrs	
Location:	Bromley, Kent	
Type of Flight:	Training	
Persons on Board:	Crew - 1	Passengers - None
Injuries:	Crew - 1 (Minor)	Passengers - N/A
Nature of Damage:	Substantial - beyond economic repair	
Commander's Licence:	Student Pilot	
Commander's Age:	59 years	
Commander's Flying Experience:	88 hours (of which 70 were on type) Last 90 days - 13 hours Last 28 days - 4 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot and subsequent AAIB enquiries	

Synopsis

During a solo circuit exercise, the aircraft reportedly lost power and the student pilot attempted to make a forced landing. The aircraft landed in a tree on the edge of a school playing field.

History of the flight

The student pilot flew three circuits with her instructor, who then briefed the student to carry out some solo circuits. On the second solo circuit, she was instructed by ATC to orbit during the downwind leg and, on rolling out of the orbit, she perceived that she was further downwind than expected. Having turned onto base leg, she recognised that she was slightly above the circuit height. She recalled selecting carburettor

heat, reducing power to approximately 1,700 rpm, and selecting two stages of flap.

The aircraft then "did not feel right" and descended more rapidly than she expected. She recalled attempting to apply power but there was little response. She transmitted a MAYDAY call and manoeuvred towards a field with houses close by.

The aircraft struck a tree on the edge of a school playing field within the built-up area of Bromley and then fell through the branches of the tree, coming to rest close to ground level. The pilot suffered injuries to her legs and ankles, but was able to exit through the door, which

had opened in the impact. Her exit was made awkward by substantial tree limbs which had penetrated the cabin during the impact sequence. There was no fire.

Recorded data

Radar and RTF recordings of the accident flight were obtained. The radar recorded only track over ground which showed a descending right turn culminating in ground impact in a downwind direction. The surface wind was 220°/9 kt.

Pilot training

The pilot began training towards a PPL in January 2007. Her total flying time of 88 hours, included two hours solo. Training records showed that she had only flown one exercise involving emergencies in the circuit, conducted in October 2007. This exercise had covered engine failure after takeoff drills, away from the aerodrome. The pilot reported she had not been taught how to deal with engine failure other than during the initial climb after takeoff.

Engine investigation

The engine was examined by engineers contracted by the aircraft owner. No fault was found.

Carburettor icing

CAA Safety Sense Leaflet SSL 14 discusses piston engine icing, and includes a graph depicting the likelihood

of carburettor icing depending upon temperature and dewpoint. The temperature at the time of the accident was 20°C and the dewpoint was 13°C. Under these conditions the graph indicated that moderate icing was possible at cruise power and serious icing at descent power.

The chief flying instructor of the flying club commented that he did not believe that PA-28-161 aircraft were particularly prone to carburettor icing.

Analysis

No malfunction or defect was found to account for the loss of power which the pilot reported. The environmental conditions were conducive to carburettor icing, and this may explain the partial loss of power and the engine's slight response to the opening of the throttle.

Pilots of single-engine aircraft must be ready to cope safely with power loss at any time. Student pilots early in their solo flying are generally not trained to deal with every eventuality and this student pilot had not received any training in dealing with engine failure other than in the climb after takeoff (EFATO). She was successful in avoiding impact with buildings, but unable to execute a forced landing. Her landing was downwind, and this meant that the groundspeed at impact was higher than it would have been had she been able to land into wind.