

ACCIDENT

Aircraft Type and Registration:	Piper PA-28-181 Cherokee Archer II, G-BSIZ	
No & Type of Engines:	1 Lycoming O-360-A4M piston engine	
Year of Manufacture:	1979 (Serial no: 28-7990377)	
Date & Time (UTC):	7 January 2018 at 1140 hrs	
Location:	Near Elstree Aerodrome, Hertfordshire	
Type of Flight:	Training	
Persons on Board:	Crew - 2	Passengers - None
Injuries:	Crew - None	Passengers - N/A
Nature of Damage:	Extensive	
Commander's Licence:	Commercial Pilot's Licence	
Commander's Age:	33 years	
Commander's Flying Experience:	535 hours (of which 327 were on type) Last 90 days - 66 hours Last 28 days - 44 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

Synopsis

Following a training flight, involving forced landing practice, the aircraft descended in preparation for landing at Elstree Aerodrome. When the student pilot advanced the throttle, the engine power did not increase, and the instructor took control and landed the aircraft in a field to the south of the airfield.

History of the flight

The aircraft departed from Elstree at 1010 hrs and operated in an area some 15 nm to the northwest of the airfield, at altitudes up to 3,500 ft amsl, while the student pilot practised forced landing procedures. Both the instructor and the student stated that they remained well clear of the few clouds they saw above them and that carburettor heat was applied regularly throughout the exercise. During the transit back towards Elstree, carburettor heat was de-selected when the aircraft was approximately 7 nm from the airfield at 1,700 ft aal. The carburettor heat was selected on again before the throttle was reduced to idle in preparation for a descent to 1,000 ft aal, the circuit altitude. During this descent the aircraft routed overhead the airfield from north to south, to join the right-hand circuit for Runway 08.

After inadvertently descending to 900 ft aal, the student advanced the throttle to initiate a climb, but the engine did not respond. He immediately checked that all fuel and electric indications were normal and then both he and instructor made further unsuccessful attempts

to increase power, before the instructor took over control of the aircraft and manoeuvred it towards a field one mile south of Elstree. The instructor actioned the engine failure checklist items but no power increase was apparent so, at approximately 500 ft agl, he transmitted a MAYDAY call and completed the checklist items for a forced landing.

The aircraft touched down in a wet and muddy grass field, on all three wheels, but the nosewheel then lifted-off for a short distance before contacting the ground a second time and detaching. Consequently the propeller and the nose of the aircraft dug in and caused the aircraft to turn left through approximately 90°, while the right wing struck the ground and incurred severe damage. Once the aircraft came to rest, the uninjured occupants exited the aircraft and phoned the airfield to report what had happened.

Aircraft examination

Following an examination of the aircraft, its owner reported that no engine fault was found and that both fuel tanks still contained fuel before the aircraft was recovered. Carburettor icing was suggested as a possible cause for the engine problem, even though the instructor reported that carburettor heat was used in accordance with the aircraft manufacturer's procedures.

AAIB comment

Detailed guidance concerning all forms of engine induction icing is provided in UK 'Aeronautical Information Circular 077/2009 (Pink 161)' which is available on the NATS Aeronautical Information Service website. Relevant information can also be found in the CAA's Safety Sense Leaflet 14 'Piston Engine Icing' which is similar to the EASA's European General Aviation Safety Team's Safety Promotion Leaflet GA 5.

Met Office records indicate that the outside air temperature while the aircraft was returning towards Elstree was approximately 0°C and that the dew point was in the region of 0.5°C less than this. According to a chart which can be viewed in the aforementioned documents, this would have placed the aircraft at risk of serious icing at any power setting.

Loss of engine power has been attributed to carburettor icing in several previous AAIB reports, even when the carburettor heat has apparently been used as recommended, for example G-BZDA in AAIB Bulletin 11/2016 and G-LUSH in AAIB Bulletin 9/2017.