ACCIDENT

Aircraft Type and Registration:	Maverick 430, G-MZJJ	
No & Type of Engines:	1 Jabiru 2200A piston engine	
Year of Manufacture:	1998 (Serial no: PFA 259-13016)	
Date & Time (UTC):	22 May 2016 at 1745 hrs	
Location:	Shop Farm, Clopton, Suffolk	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - 1
Injuries:	Crew - None	Passengers - None
Nature of Damage:	Fuselage and landing gear badly damaged	
Commander's Licence:	National Private Pilot's Licence	
Commander's Age:	69 years	
Commander's Flying Experience:	568 hours (of which 217 were on type) Last 90 days - 11 hours Last 28 days - 11 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

Synopsis

The aircraft ran out of fuel and was severely damaged while attempting an engine-off landing in a field.

History of the flight

The pilot had flown from Monewden Airfield in Suffolk to Shoreham Airport. The flight had taken 1 hour 40 minutes and had used 25 litres of fuel, leaving 35 litres (indicated) in the 60 litre fuel tank for the return flight. In planning the return flight the pilot used a fuel consumption of 11 litres per hour, which gave an endurance of just over three hours. The surface wind at Shoreham was from 220º at 12 kt and the pilot calculated that the return flight would also take 1 hour 40 minutes and require approximately 19 litres of fuel. This would leave a reserve of 16 litres of fuel, which on the planned fuel consumption would be sufficient for approximately 1 hour 25 minutes of flight.

The pilot stated that while he planned on a tail wind, the actual wind at 2,000 ft was from 120º at 15 kt and "he was blown off course to the west". Consequently, he had to back track in order to verify his position. He was then refused permission to fly through the ATZ at Southend Airport, which required him to extend his flight further.

As the aircraft approached Ipswich, which is approximately 10 miles south of Monewden, there was 5 litres (indicated) of fuel remaining in the tank. The engine ran normally until

approximately 2 to 3 miles from Monewden, when during the descent to circuit height the engine suddenly cut out. The pilot did not attempt to start the engine, but instead positioned the aircraft for a field landing during which the main landing gear struck the top of a ditch on the boundary of the field. While the pilot and passenger were uninjured, the lower fuselage and landing gear were severely damaged. The accident flight had lasted about 2 hours 45 minutes.

Comments by the pilot

The pilot reported that following the accident there was approximately 2 to 3 litres of fuel remaining in the tank. He was of the opinion that as the fuel outlet pipe is situated at the rear of the tank, it is probable that the pipe became uncovered during the descent resulting in fuel starvation and the engine cutting out. The pilot stated that as soon as he realised that he was getting low on fuel, he should have diverted to one of the airfields en-route.

AAIB Comment

While the pilot estimated the fuel consumption as 11 litres per hour, the consumption on the outbound flight was 15 litres per hour, assuming the fuel gauge was correct. The accident flight lasted for about 2 hour 45 minutes before the engine cut out, which at 11 litres per hour would have required 30 litres of fuel with 5 litres remaining in the tank. Therefore, the fuel consumption on the accident flight was probably greater than 11 litres per hour.

The pilot continued the flight beyond Ipswich with 5 litres (indicated) of fuel remaining, without being aware of how much was unusable. With regard to fuel planning, CAA Safety Sense Leaflet 1e advises:

> *'13 FUEL PLANNING*
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> *a) Always plan to land by the time the tanks are down to the greater of ¼ tank or 45 minutes' cruise flight, but don't rely solely on gauge(s) which may be unreliable. Remember, head-winds may be stronger than forecast and frequent use of carb heat will reduce range.*
>
> *b) Understand the operation and limitations of the fuel system, gauges, pumps, mixture control, unusable fuel etc. and remember to lean the mixture if it is permitted.'*