

## Piper PA-25-235 Pawnee, G-BFSC

<b>AAIB Bulletin No: 10/2003</b>	<b>Ref: EW/G2003/03/14</b>	<b>Category: 1.3</b>
<b>INCIDENT</b>		
<b>Aircraft Type and Registration:</b>	Piper PA-25-235 Pawnee, G-BFSC	
<b>No &amp; Type of Engines:</b>	1 Lycoming O-540-B2C5 piston engine	
<b>Year of Manufacture:</b>	1976	
<b>Date &amp; Time (UTC):</b>	17 March 2003 at 1730 hrs	
<b>Location:</b>	North Weald Aerodrome, Essex	
<b>Type of Flight:</b>	Familiarisation flight	
<b>Persons on Board:</b>	Crew - 1	Passengers - None
<b>Injuries:</b>	Crew - None	Passengers - N/A
<b>Nature of Damage:</b>	Fractured engine muffler and extensive heat damage within engine bay	
<b>Commander's Licence:</b>	Private Pilot's Licence	
<b>Commander's Age:</b>	76 years	
<b>Commander's Flying Experience:</b>	4,355 hours (of which 33 were on type)	
	Last 90 days - 12 hours	
	Last 28 days - 4 hours	
<b>Information Source:</b>	Aircraft Accident Report Form submitted by the pilot	

### History of flight

The pilot was one of a group of three tug pilots from the gliding club which operated this aircraft. G-BFSC had recently been delivered to the club after a long period of very low usage and the three pilots were taking advantage of good weather conditions to familiarise themselves with the Pawnee. Between the delivery of the aircraft in February 2003 and the incident in March, the club's tug pilots had accumulated about 12 hours of familiarisation on the aircraft.

The pilot on the incident flight was familiar with the PA-25 Pawnee, having ferried one to Sudan in the past. He was the last of the three pilots to fly and, at a height of about 700 feet on his first climb-out, the power from the engine suddenly ceased and the cockpit began to fill with smoke. The pilot immediately informed the Tower (North Weald Radio) and announced that he would be making a downwind landing on the runway he had just left. As he did this he turned off the fuel and electrical switches before completing a successful 'dead stick' landing with a large amount of smoke coming from the engine compartment. The local fire service attended the incident but by then the fire had been extinguished, in about five minutes, by people at the airfield.

### **Aircraft examination**

Examination of the aircraft after the incident showed that the cause of the fire in the engine compartment had been a large fracture in the muffler section of the engine exhaust. The hole in the top of the muffler was some 10 cm in diameter and the escaping hot gases had affected all the combustible material in the engine compartment. This had included the ignition harness, resulting in the sudden and complete loss of power. The engineer repairing the aircraft had not seen this sort of damage before and considered the most likely cause was an exhaust backfire shortly before the incident flight.

### **Analysis**

This particular aircraft, manufactured in 1976, had accumulated less than 40 hours of operation in its life, having spent much of its 27 year life in storage in the UK, in reserve for agricultural operations. The engineer commented that there appeared to have been corrosion inside the exhaust system, probably resulting from the long storage, and that this would have made it more vulnerable to damage from exhaust backfires.