

Piper PA-28-181, G-KAIR

AAIB Bulletin No: 9/2002	Ref: EW/G2002/07/08	Category: 1.3
Aircraft Type and Registration:	Piper PA-28-181, G-KAIR	
No & Type of Engines:	1 Lycoming O-360-A4M piston engine	
Year of Manufacture:	1978	
Date & Time (UTC):	7 July 2002 at 1710 hrs	
Location:	Cumbernauld Airport, Glasgow	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - None
Injuries:	Crew 1 (Minor)	Passengers - N/A
Nature of Damage:	Right main wheel tyre burst	
Commander's Licence:	Basic Commercial Pilots Licence	
Commander's Age:	38 years	
Commander's Flying Experience:	3,500 hours (of which 3,450 were on type)	
	Last 90 days - 100 hours	
	Last 28 days - 50 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

History of flight

The aircraft was being flown from Cumbernauld, its normal operating airfield, to Aldergrove for routine maintenance when, a few minutes into the flight, the engine began to run roughly. The pilot turned back to his departure airfield but when still about six miles from it, the cockpit filled with smoke. Since this seriously impaired his vision and was causing him considerable discomfort, he opened the door to try to clear the smoke. At the same time he radioed to the airfield and asked them to clear all circuit traffic as he planned to make a direct downwind approach to land on Runway 08, to minimise the time he was exposed to the fumes.

After landing, the pilot applied heavy braking, causing the aircraft to slew from side to side and the right main wheel tyre to burst. The pilot taxied clear of the runway and onto the apron before shutting down the engine. Airfield personnel arrived at the aircraft almost immediately and

discharged fire extinguishant (CO2 and Powder) into the engine compartment, which was seen to be emitting smoke. The pilot went to the local hospital where he was detained overnight and treated for the effects of smoke inhalation.

Examination of the aircraft

The aircraft was examined by a local maintenance engineer and a CAA surveyor who was at the airfield for other reasons. They observed that the edges of both front cylinder baffles had been protected by a bead of black RTV sealant (*jpg 22kb*) (a high temperature silicone compound) to prevent them from being eroded by the cylinder cooling fins, but it was noted that the bead on the baffle adjacent to the No.2 cylinder had become detached (*jpg 24kb*). The air intake for the exhaust heat exchanger of the cabin heater was in the baffle immediately ahead of where the RTV bead had been.

Fragments of the beading (*jpg 10kb*) which were recovered and found to smoulder when an attempt was made to burn them. The pilot identified the odour of the fumes produced as being similar to those he had encountered in flight.

It was concluded that fragments of RTV sealant had fallen into the cabin air heat exchanger and that the cabin heat control had not been completely closed.

Subsequent action

Although the use of RTV sealant is not required in the maintenance procedures, its use had become accepted practice to prevent erosion of the baffles. Since this incident, the Maintenance organisation responsible for this aircraft has stopped this practice.

The rough running was attributed to two spark plugs which were found to be worn almost to their limits.