
Smoke emergency on climb, Fokker F 100, G-BXWF

Micro-summary: This Fokker F.100 experienced a smoke emergency on climb, followed by a diversion.

Event Date: 1999-11-17 at 1040 UTC

Investigative Body: Aircraft Accident Investigation Board (AAIB), United Kingdom

Investigative Body's Web Site: <http://www.aaib.dft.gov/uk/>

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Fokker F 100, G-BXWF

AAIB Bulletin No: 9/2000 **Ref: EW/G99/11/10** **Category: 1.1**

Aircraft Type and Registration: Fokker F 100, G-BXWF

No & Type of Engines: 2 Rolls-Royce Tay 650-15 turbofan engines

Year of Manufacture: 1991

Date & Time (UTC): 17 November 1999 at 1040 hrs

Location: Near 'SAPCO' reporting point

Type of Flight: Public Transport

Persons on Board: Crew - 7 - Passengers - 81

Injuries: Crew - None - Passengers - None

Nature of Damage: Left air-conditioning system

Commander's Licence: Airline Transport Pilot's Licence

Commander's Age: 47 years

Commander's Flying Experience: 12,000 hours (of which 2,500 were on type)
Last 90 days - 60 hours
Last 28 days - 25 hours

Information Source: Aircraft Accident Report Form submitted by the pilot and telephone inquiries

Shortly after take off from East Midlands Airport, as the aircraft was climbing through about 4,000 feet, the crew heard a loud 'bang' and about 1 minute later smoke began to enter the flight deck. After checking with the cabin crew that the smoke was not associated with the galley, immediately aft of the flight deck, the crew concluded that the problem was probably related to the air conditioning system although the system indications appeared to be normal. A 'PAN' call was made by the commander with an accompanying request to divert to Birmingham.

During the ensuing descent towards Birmingham the smoke density appeared to fluctuate, but at no time did it compromise the crew's ability to see or operate their systems normally. An overweight landing was made without incident and by the time the aircraft had been parked there was only a slight smoke haze remaining on the flight deck. The passengers were disembarked normally.

Following the overweight landing check, an inspection of both left and right air-conditioning bays was made to ascertain whether there were any obvious indications of damage. None was found and so the auxiliary power unit (APU) was started and the air conditioning packs operated. Both appeared normal except that a large amount of water appeared to be coming from the left pack air cycle motor (ACM) drain. After shutting down the APU, the ACM was inspected and found to rotate freely. The coalescer bag from the water separator unit was found to be blackened and saturated, and the screen at the inlet from the cool air mixing inlet duct had ruptured. The left ducting was then re-instated and a similar inspection of the right pack was made, but no abnormalities were found. After the aircraft returned to its maintenance base the ACM, water separator and duct of the left air conditioning pack were replaced and sent to the manufacturer for examination. The aircraft subsequently operated without any further air conditioning faults.

Examination of the components by the manufacturer confirmed that the water separator assembly had a number of faults, including loss of a coupling nut which had rendered the coupling unserviceable. After disassembly it was also found that the by-pass valve had been unserviceable and that the condenser shell was corroded.