Avro 146-RJ100, G-BXAS

AAIB Bulletin No: 7/2002	**Ref: EW/G2002/03/08**	**Category: 1.1**
Aircraft Type and Registration:	Avro 146-RJ100, G-BXAS	
No & Type of Engines:	4 Lycoming LF-507-1F turbofan engines	
Year of Manufacture:	1997	
Date & Time (UTC):	10 March 2002 at 0728 hrs	
Location:	Gatwick Airport	
Type of Flight:	Public Transport	
Persons on Board:	Crew - 6	Passengers - Nil
Injuries:	Crew - None	Passengers - N/A
Nature of Damage:	Electrical overheat damage to a passenger seat motor	
Commander's Licence:	Airline Transport Pilot's Licence	
Commander's Age:	27 years	
Commander's Flying Experience:	4,200 hours (of which 1,000 were on type) Last 90 days - 116 hours Last 28 days - 40 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot and additional AAIB inquiries	

Description of incident

The aircraft had been parked overnight at Gatwick Airport. The commander and first officer arrived at the aircraft to begin preparations for a scheduled flight to Geneva. Shortly afterwards, the cabin crew arrived and asked for 'cabin seat power'. This was activated by the operation of a switch on the flight deck pedestal and supplied power to motors in the seat units in the forward cabin section.

The motors enabled variation of the width of the individual seats in order to configure the cabin to either economy or business class.

The senior cabin crew member then reported to the commander that the seat motor in one of the seat rows was not working. An engineer was requested to attend the aircraft in order to troubleshoot the problem. However, before he arrived, a burning smell was detected in the cabin. It was then found that the seat No 2C motor was apparently burning and giving off a lot of white smoke.

The commander ordered everyone to vacate the aircraft and that the refuelling hose be disconnected. He then called out the Airport Fire Service (AFS) on the 'Gatwick Delivery' frequency and, together with the first officer, completed the Evacuation Checklist. They vacated the aircraft and briefed the AFS on arrival at the scene. By this time the smoke and fumes had ceased, so no fire-fighting activity was required.

Subsequent investigation

The operator's maintenance organisation removed the defective seat motor, together with its associated control unit. It was reported that the circuit breaker on the latter had tripped. The replacement components were tested for satisfactory operation and the aircraft was returned to service.

No visible signs of overheating were apparent on the components, although the control unit was observed to have a characteristic 'electrical overheat' smell. Internally, it was found that there had been localised melting of insulation surrounding the power transformer.

The motor and control unit were forwarded to the manufacturer, who found no defect in the motor. However, they concluded that there had been a "failure in the protection circuit" in the control unit, leading to a "power exceedance" input to the transformer.

According to the aircraft manufacturer, this operator's 146 fleet is unique in having electrically reconfigurable seats, which had been fitted since aircraft delivery. Neither the operator, its maintenance organisation nor the aircraft manufacturer was aware of similar incidents.

The seat motors were powered from the No 2 AC bus via a dedicated relay, the contacts of which were energised only when the aircraft was on the ground, the main cabin door was open and the master switch on the pedestal was selected. Therefore, there was no possibility that the seat motor or control unit circuits could be energised during flight.