

SERIOUS INCIDENT

Aircraft Type and Registration:	Boeing 767-322, N657UA	
No & Type of Engines:	2 Pratt & Whitney PW4000 turbofan engines	
Year of Manufacture:	1993 (Serial no: 27112 LN:479)	
Date & Time (UTC):	29 April 2019 at 0835 hrs	
Location:	Departure from London Heathrow Airport	
Type of Flight:	Commercial Air Transport (Passenger)	
Persons on Board:	Crew - 11	Passengers - 86
Injuries:	Crew - None	Passengers - None
Nature of Damage:	Arcing and heat damage within a wiring harness	
Commander's Licence:	Airline Transport Pilot's Licence	
Commander's Age:	59 years	
Commander's Flying Experience:	18,250 hours (of which 1,850 were on type) Last 90 days - 218 hours Last 28 days - 34 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot and further enquiries made by the AAIB	

Synopsis

The aircraft was climbing through 15,000 feet after departure from London Heathrow (LHR) when it was reported that an electrical burning smell, smoke and haze, was apparent in the cabin. The crew obtained clearance to return to LHR and, after carrying out the 'smoke and fumes' checklist, the problem was alleviated. The aircraft landed without further incident. A small section of wiring within the cabin ceiling lighting harness was found to have been the source of the smoke and fumes. Damage to the harness was found to have been caused by an electrical event leading to arcing between two of the insulated wires within the harness. The exact nature of this event could not be determined.

History of the flight

The aircraft had departed Heathrow, on route to Chicago O'Hare, and was climbing through 15,000 feet when the commander received a call from the cabin staff informing him of smoke in the cabin. It was reported that an electrical burning smell and haze was apparent near to Row 20. Rather than divert, the crew decided the aircraft should return to LHR. The commander declared a PAN to London ATC and permission was given to return. The crew carried out the smoke and fumes checklist, which included selecting the utility bus switches to OFF. After this had been done the purser reported that the smoke and haze had dispersed, although the electrical burning smell was still noticeable although dissipating.

The commander carried out the QRH requirements for an overweight landing and configured the aircraft accordingly. ATC and the commander agreed that, unless the situation deteriorated after landing, the aircraft should be turned off the runway and stop at a convenient location to enable the airport fire service to make an assessment.

The aircraft landed without further incident and stopped at a remote stand. The fire service boarded the aircraft and found no signs of heat or fire. There were no injuries to the passengers and crew.

Investigation

One of the passengers on the flight reported that they had seen a momentary flash above the overhead ceiling panels near Row 20. The operator carried out an examination of the area and identified the source of the smoke and haze. Wiring in the cabin ceiling lighting harness above Row 19/20 on the left side showed evidence of electrical arcing and heat damage. There was also soot on the insulation surrounding a section of wiring, as shown in Figure 1.



Figure 1

Damage to the wiring harness and surrounding material

The circuit breaker (CB) protecting the circuit was found to have tripped. The wiring harness, CB and the lighting ballast connected to the harness were removed for further examination by the manufacturer. The CB and lighting ballast passed functional tests.

Conclusion

Damage to the harness was found to have been caused by an unidentified electrical event between two of the insulated wires within the harness. The electrical event led to arcing between the wires which generated significant heat, enough to cause localised melting of the copper strands in the wires. The exact nature of this event could not be determined.