INCIDENT

Aircraft Type and Registration:	Bombardier Dash 8 Q400, G-JECZ
No & Type of Engines:	2 Pratt & Whitney Canada PW150A turboprop engines
Year of Manufacture:	2007
Date & Time (UTC):	16 December 2009 at 2030 hrs
Location:	Manchester Airport
Type of Flight:	Commercial Air Transport (Passenger)
Persons on Board:	Crew - 4 Passengers - 45
Injuries:	Crew - None Passengers - None
Nature of Damage:	Engine intake anti-ice heater mat destroyed
Commander's Licence:	Airline Transport Pilot's Licence
Commander's Age:	46 years
Commander's Flying Experience:	10,148 hours (of which 1,100 were on type) Last 90 days - 127 hours Last 28 days - 43 hours
Information Source:	Aircraft Accident Report Form submitted by the pilot and engineering examination by the operator

Synopsis

During the cruise a warning caption in the cockpit illuminated and an electrical burning smell was noted. The commander decided to divert to Manchester. During the descent the burning smell became stronger and was also reported to be in the cabin, which resulted in the commander declaring a PAN. Whilst on the approach two passengers saw sparks coming from the rear of the right engine and, when this was reported to the flight crew, the commander made a MAYDAY call. After an uneventful landing the aircraft was shut down on the runway and the passengers and crew evacuated without injury.

An engineering examination found that the right engine air intake heater adapter had overheated and mechanically failed.

History of the flight

Whilst in the cruise the cockpit ENGINE ADAPT HEAT NO 2 caption illuminated and an electrical burning smell was noted, which dissipated within seconds. The flight crew consulted the Emergency Check List which showed that no further action was required but which advised them to leave, and remain clear of, icing conditions. The commander consulted the cabin crew but they had not noticed any burning smells. He then contacted the flight crew of another company aircraft who advised him that there was significant icing between FL120 and

FL90 which they would encounter during the descent to their destination. The commander decided to divert to Manchester, which he could identify visually. He briefed the cabin crew about the intended diversion and made a passenger anouncement to this effect.

During the descent the smell returned more strongly and the cabin crew informed the flight crew that there was a strong smell in the cabin. The commander and the first officer, in turn, put on their oxygen masks. Initially they could not establish communications with each other. This was found to be the result of a microphone jack not being located in its socket, which was rectified. The commander declared a PAN and was given vectors for an ILS approach. During the approach two passengers saw sparks coming from the rear of right engine and they informed the cabin crew who, in turn, informed the flight crew. Upon receipt of this information the commander declared a MAYDAY. Following a normal landing the aircraft brought to a halt on the runway. The park brake was applied, the engines shut down and the passengers and crew evacuated the aircraft without injury.

Engineering examination

An engineering examination, carried out by the operator, showed that the right engine air intake heat adapter, part number 4100S028-03, had overheated, causing mechanical failure of the item. Both left and right engine air intake heat adaptors had been inspected and tested three days prior to this event. The unit was original fit and had operated in excess of 4,000 cycles.