

**INCIDENT**

<b>Aircraft Type and Registration:</b>	Boeing 767-300 ER, V8-RBH	
<b>No &amp; Type of Engines:</b>	2 Pratt & Whitney 4060 turbofan engines	
<b>Year of Manufacture:</b>	1993	
<b>Date &amp; Time (UTC):</b>	3 March 2007 at 1630 hrs	
<b>Location:</b>	London Heathrow Airport	
<b>Type of Flight:</b>	Commercial Air Transport (Passenger)	
<b>Persons on Board:</b>	Crew - 11	Passengers - 189
<b>Injuries:</b>	Crew - None	Passengers - None
<b>Nature of Damage:</b>	Failure of No 1 wheel hub	
<b>Commander's Licence:</b>	Airline Transport Pilot's Licence	
<b>Commander's Age:</b>	56 years	
<b>Commander's Flying Experience:</b>	16,635 hours (of which 7,654 were on type) Last 90 days - 162 hours Last 28 days - 60 hours	
<b>Information Source:</b>	Aircraft Accident Report Form submitted by the pilot, and metallurgical examination of components	

**Synopsis**

During the takeoff run the aircrew noticed that a BRAKE TEMP warning light was illuminated. The STATUS page showed that the temperature of the No 1 brake was rapidly increasing. The takeoff was rejected at around 90-100 kt and the aircraft was successfully stopped and turned off the runway. The passengers disembarked normally.

The No 1 wheel hub was found to have failed. The heat and mechanical damage to the hub was such that it was not possible to determine the precise cause of the failure.

**History of the flight**

The aircraft was on its takeoff run on Runway 27L when the BRAKE TEMP warning light was seen to be illuminated. No other warnings or captions were observed. The crew checked the STATUS page and this indicated that the No 1 brake was hot (level 6), and getting hotter (level 7).

Initially the crew thought that there was a binding brake, but as the temperature was high and increasing rapidly, the takeoff was aborted at around 90-100 kt. The aircraft was successfully stopped and turned off the runway on to a taxiway. The No 1 brake temperature subsequently rose from level 7 to level 9. The fire services were requested and, although there was no fire, the wheel was sprayed with water as a precaution.

The passengers disembarked normally and no-one was injured. The No 1 wheel was found severely damaged and was replaced before the aircraft was towed to stand. The aircraft was subsequently ferried to the operator’s base station for further maintenance.

In his report the commander noted that there is no EICAS message or aural warning to alert the flight crew of this fault.

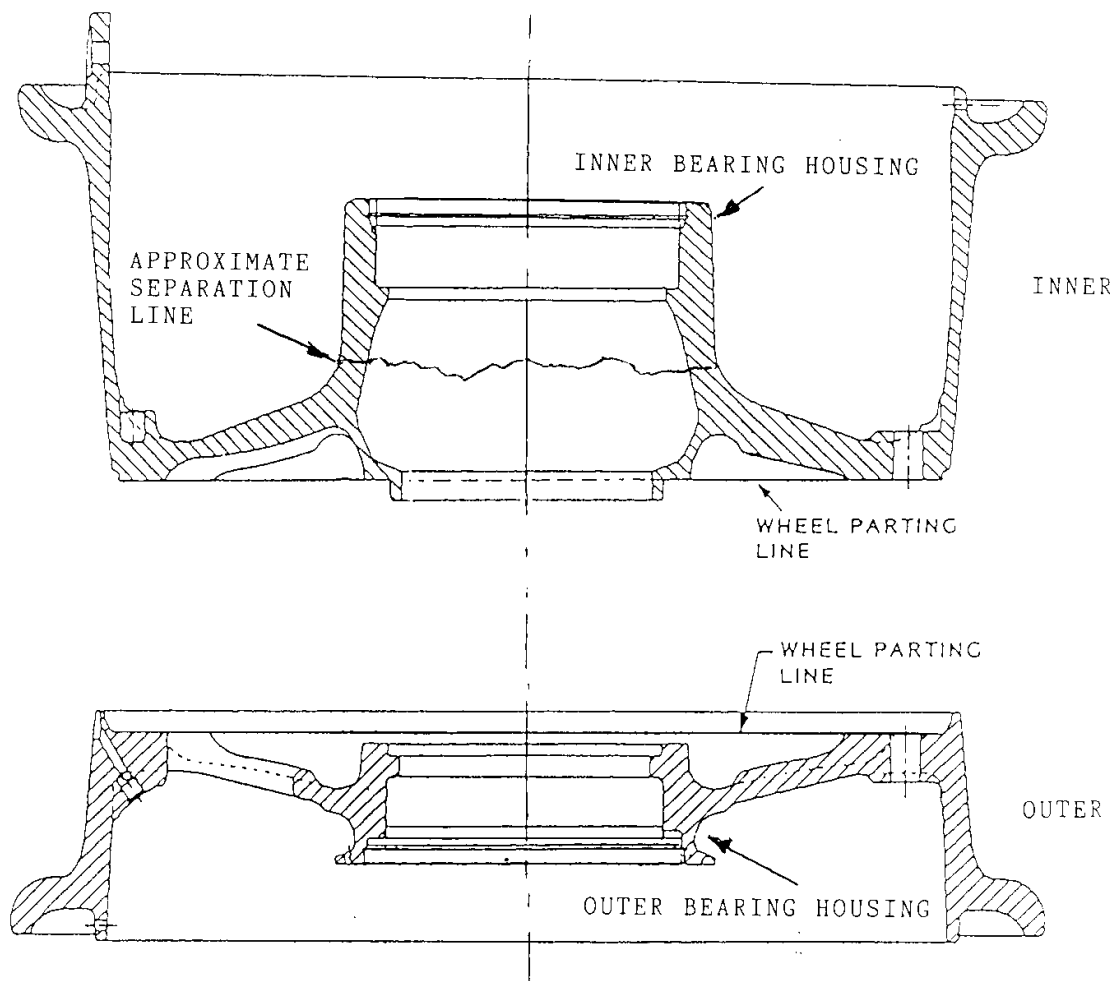
**Wheel information**

The wheel hub is in two parts. The outer hub houses the outer bearing and the inner hub, which is deeper, houses the inner bearing, (see Figure 1).

The inner and outer wheel hubs were both manufactured in 1994. The wheel was last inspected and installed in December 2006, and since then had completed 1145 flying hours and 205 cycles.

**Engineering investigation**

A large, almost-cylindrical section of the inner hub had become detached (see Figures 2, 3 and 4). The approximate location of the separation of the inner hub into two parts is also shown in Figure 1. The wheel was disassembled into its inner and outer hub parts and subjected to a detailed metallurgical examination. The conclusions from the examination were:



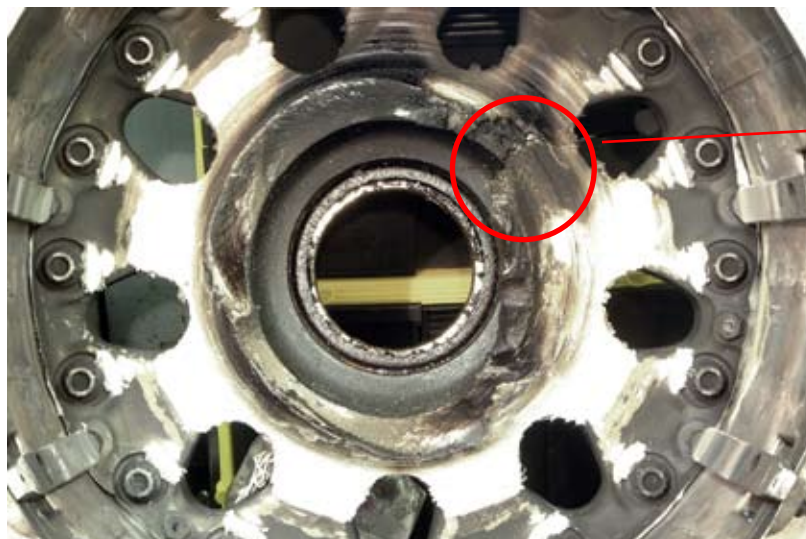
**Figure 1**



Figure 2



Figure 3



Region of  
initial failure

Figure 4

*Photos:  
Hugh Tyrer Consultants*

- a) the inner bearing housing had become detached and had severely overheated during contact with the main part of the inner hub. This was likely to have been the cause of the temperature warnings;
- b) the initial failure of the inner hub had taken place in the region shown by the in Figure 4;
- c) the likely cause of the failure was probably fatigue, or stress corrosion, or a combination of both;
- d) a precise assessment of the failure to the hub was impossible due to the extensive heat and

mechanical damage. The assessment was also made more difficult by the rapid cooling of the hub that occurred as a result of the water applied by the fire service;

- e) There was no evidence of a failure to either the inner or outer bearings.

#### **Comment**

Whilst the wheel had been manufactured in 1994 it should not have failed in service. Since the precise cause could not be determined, no safety action or recommendation can be made.