

# **CASE STUDY 9**

## **LATE GEAR RETRACTION**

### **PROBLEM**

FDS were validating data from an Airbus 320 flight departing for Scandinavia. During the flight an event was detected for 'late gear retraction'.

### **INVESTIGATE**

An FDS analyst examined the event and discovered that the landing gear been retracted after take-off at the correct height but had subsequently been extended and then left extended for 36 seconds.

The team also identified that the aircraft had been slowed to below VLO, (landing gear operating speed) before gear extension, suggesting this was a deliberate action by the aircraft crew. In collaboration with the airline Flight Safety Officer, FDS investigated reasons for this late gear operation.

One channel for investigation was the possibility that the wheelbrakes had overheated and were lowered in order to cool them. The parameters for brake temperature were examined and it was found that the temperatures on brakes 3 and 4 (right hand gear) were higher than those on brakes 1 and 2 (left hand gear). The aircraft dataframe scaling was confirmed as correct.

The data also showed that the pilots' ECAM display to the wheel page. The pilot actions in lowering the gear would be appropriate for high wheelbrake temperatures.

A plan of the taxi route was produced to check for any possible cause of hot brakes e.g. tight turns predominately in one direction.

There was no indication to support this, so for comparison, FDS looked at the inbound flight which revealed the same pattern of hotter brakes on the right hand side during the landing roll and taxi in. Other previous flights for this aircraft were analysed and a pattern was discovered.

### **SOLUTION**

Once the investigation had been completed, FDS notified the airline and suggested a maintenance investigation into possible binding of the right hand brakes.

Subsequent flights were monitored and there was no repeat of the event, suggesting that follow up maintenance action had been carried out.