

When the aircraft had come to rest on the runway centreline and the evacuation was in progress, the fire extinguished itself. The ATC officer had activated the crash alarm whilst the aircraft was decelerating and the Airport Fire Service, who had seen the event from their station in the Central Area, were already in position as the aircraft doors were being opened by the cabin staff. A successful evacuation was carried out although minor injuries were sustained by 7 passengers, mostly as a consequence of a tear in the forward port slide.

Although evacuation had been totally successful, a number of difficulties with the operation of the doors and slides were reported by the cabin staff.

Forward, port exit:

The door initially "jammed" partially open, without deploying the slide. The steward operated the manual slide release successfully. This slide was subsequently torn, it is thought by a passenger's high heel shoe, and was rendered unusable to the last three passengers and the crew members who were then diverted to the centre exit.

Centre, port exit:

The combined body weight of two stewardesses was needed to push this door open. It opened successfully but both were surprised that, although the portion of slide which lies along the top of the wing inflated immediately, there was a substantial delay before the remainder fell into position and inflated. It is difficult to put a time to this delay but it is believed that it probably corresponded with the normal sequencing.

Rear, port exit:

Some difficulty was experienced in forcing the door to its required 90° position, consequently the slide would not initially deploy and inflate. Only pressure from the steward's foot successfully latched the door open, following which the slide deployed and inflated normally.

Forward, starboard exit:

During the latter stages of the evacuation, the flight engineer, having been informed that the fire had extinguished, opened the forward starboard exit door which was fully armed. The door opened properly and the slide deployed but it did not inflate. Both the engineer and the captain attempted to use the manual inflation handle but it did not function.

Further Investigation

The original electrical warning and automatic activation of No 5 emergency generator was found to have been caused by a short-circuited zener diode in the No 4 AC bus low voltage detection unit. The failure warning was therefore spurious. When No 4 Main AC Bus was isolated the torque control in the braking system was lost on wheels 1 and 4 (the front outboard wheels). This would result in full brake release being applied and, therefore, loss of braking action.

The rear inboard tyre on the starboard main bogie had burst from a single severe scuff consistent with the wheel having locked during braking (there having been no anti-skid on that wheel). The braking system was subsequently tested and found to be serviceable though the servo controlling the starboard rear inner brake (position of burst tyre) was out of tolerance probably due to the impact damage that it had suffered. The discrepancy would have resulted in early brake release in the anti-skid function.

Four hydraulic hoses, serving the brakes on the rear two wheels on the starboard main bogie, were punctured. In only one case was the resulting leakage rate high enough to actuate the associated hydraulic fuse. Approximately 1 gallon of fluid was lost from each of the two hydraulic systems involved. On test, the fuses were found to operate within specification and they had last been functioned 4 months previously.

When the emergency shut-down procedure was carried out all four fire systems were actuated using the No 2 shot activating buttons. However the fire bottle serving No 1 engine bay failed to discharge. The fire bottle electrical system had last been function tested, with dummy electrical load, five months before the accident. Because, on subsequent test, the electrical circuit and cartridge operated within specification, the failure of this system under the conditions of an emergency shut-down is being further investigated.

The difficulties with the doors and slides reported by the crew were investigated. However, the difficulties were experienced with the slides armed and unreleased and therefore, once the slides had been deployed, evidence of their rigging was lost. The doors used in the evacuation were exercised (slides not armed) and no undue stiffness was evident.

During the investigation some problems were encountered with the latching open of the centre and forward doors. As the latching process coincided with compression of a rubber bumper between the door and the aircraft skin, it could prove difficult to achieve latching if the door was opened slowly with little momentum imparted to it. The difficulty of maintaining this initial opening momentum was compounded by the lack of leverage provided by the hinge-line handle. Also, if a door was pushed on its outside trailing edge as it approached latching, it was found that it could pivot on its hinge system in such a way as to prevent latching.

The slide from the forward right-hand door, which deployed but failed to inflate, was examined. As it had accidentally inflated when being manipulated by a ground engineer during recovery of the aircraft, evidence was lost to why it failed to inflate automatically and why the flight crew was unable to effect inflation by the manual system. Subsequent examination did not result in any explanation for the difficulties experienced by the crew.

The operating problems with the door and slides have been brought to the attention of the Civil Aviation Authority and have been discussed in detail with the Operator.