

Airbus A340-313, G-VAIR

AAIB Bulletin No: 8/99 Ref: EW/C98/12/1 **Category: 1.1**

Aircraft Type and Registration: Airbus A340-313, G-VAIR
No & Type of Engines: 4 CFM56-5C4 turbofan engines
Year of Manufacture: 1997
Date & Time (UTC): 5 December 1998 at 0640 hrs
Location: 120 nm north of Lusaka, Zambia
Type of Flight: Public Transport
Persons on Board: Crew - 16 - Passengers - 257
Injuries: Crew - None - Passengers - None
Nature of Damage: Minor to overhead cabin luggage bin
Commander's Licence: Airline Transport Pilot's Licence
Commander's Age: 45 years
Commander's Flying Experience: 9,000 hours (of which 3,300 were on type)
Last 90 days - 75 hours
Last 28 days - 203 hours
Information Source: AAIB Field Investigation

History of flight

The aircraft was operating a scheduled service between London Heathrow Airport and Johannesburg, South Africa. Nine hours into the flight, with the cabin in darkness and the cabin crew members either in the crew rest area located in the middle lower deck, or in the galleys preparing the breakfast service, a passenger notified two crew members in the rear galley that there was a fire in the cabin. Both crew members looked forward into the cabin and saw an illuminated area above a central overhead cabin luggage bin (hatrack) close to the aft end of the cabin. One crew member picked up a fire extinguisher (BCF type) and went to find the suspected fire and the other notified the aircraft commander on the flight interphone system.

On reaching the location, the closed overhead bin in the area of seat rows 60/61D, the crew member could see that there was a source of fire and smoke coming from the narrow gap between the top of the closed overhead bin door and the cabin ceiling. She attempted to discharge the extinguisher into the bin through the narrow gap but found reaching up difficult and was unable to exert enough pressure on the handle to break the seal. A nearby passenger took over the

extinguisher and discharged the contents into the overhead bin smothering the area of the fire. He was handed a second extinguisher and discharged this one into the same area. The fire was extinguished but a considerable amount of smoke and extinguishant started to drift across the cabin. More extinguishers were brought by supporting crew members and, once the overhead bin door had been opened and were used in the overhead bin and the surrounding areas to ensure that the fire could not spread. Several smokehoods were brought to the scene but in the event none of these was used. Crew members instructed the passengers in the area to keep their heads down low because of the presence of smoke and fumes.

The commander, when informed of the fire, sent the relief pilot, who was occupying the co-pilot's seat, back to the cabin to assist. The relief pilot collected the portable fire extinguisher from the flight deck but left the smokehood in its stowage. The commander made a Public Address (PA) announcement to the passengers informing them that there was a fire in the cabin and asking for their compliance with any instructions given by the crew. The first officer, summoned from the adjacent crew rest area, entered the flight deck and both pilots carried out the "Smoke/Toxic Fumes Removal" drill from the checklist. The members of the cabin crew that were in the crew rest area entered the cabin to assist their colleagues.

The fire was now out and the crew were able to reach the debris and dampen it to prevent any possible re-ignition. The damage extended to clothing and bags within one compartment of the overhead bin (Figure 1). The commander was informed that the fire was out and the cabin safe so he decided to continue the flight to the original destination. The contents of the overhead cabin luggage bin were removed to the rear galley area and placed into plastic bags and sealed. Upon arrival at Johannesburg the sealed plastic bags were given the Airport Police and, it is understood, were subsequently given to the South African Police for forensic investigation.

Fire training

The aircraft carries a total of 12 fire extinguishers, all of the Halon (BCF) type, located throughout the cabin. All crew members receive initial training in the use of fire fighting equipment and recurrent training at three year intervals. Annual refresher training in the use of all safety equipment is also a requirement. Smokehoods are carried for each cabin crew member and there are also two located in the flight deck area; the purpose being to protect the crewmember from smoke inhalation and from toxic BCF fumes.

The airline employed a third party organisation to conduct training in the use of fire fighting equipment. The use of Halon (BCF) fire extinguishers is presently restricted to actual fires onboard and is not used solely for training purposes. This is a voluntary agreement in recognition of the environmental damage caused by Halon gas discharge. These extinguishers have a trigger mechanism and a considerable force is required to break the seal on first use. The training programme undertaken by the crew members did not allow for actual experience of the force required to break this seal, neither were crews given the opportunity to experience the effect of back pressure from the discharge of a full cylinder. Instead briefings were given to crewmembers on what to expect in the real situation and practical experience was given using a water filled extinguisher on which the seal had already been broken.

Engineering investigation

The aircraft was examined by the operator's engineering staff at Johannesburg who declared it fit to return to London as a revenue flight, but with the fire affected overhead cabin luggage bins taken

out of use. A detailed examination of the aircraft was carried out by the AAIB and the operator following its return to the UK. This examination showed positive evidence that the fire was initiated within the overhead bin and not by any of the aircraft's systems external to it (Photograph 1). It is understood that a forensic examination of a bag that contained cosmetics and a ladies handbag which had been located at the aft end of the overhead cabin luggage bin (Figure 1) was carried out in South Africa, but no report on the results of this examination has been received. It is not known where the other items from the overhead cabin luggage bin were taken or if an examination was carried out. If any information becomes available this will be reported in a future bulletin.

Discussion

The prompt action of the first crew member in collecting the extinguisher and going to the scene ensured that the fire was tackled as soon as possible. The other crew members correctly followed up with extra equipment and ensured that the flight deck crew were informed. The fire was in a contained area and quickly extinguished. Crews are trained to use smokehoods in the event of having to fight a fire; the time taken to put one on is about 30 seconds. On this occasion, as may often be the case, speed of action was essential and this was difficult to reconcile with donning a smokehood. The back up crew members were prepared to put on hoods but in the event the fire had already been extinguished by the prompt action of the first crew member at the scene.

The fire and smoke training given to the crew members did address the problems associated with the use of real extinguishers (as opposed to practice water filled ones without a sealed trigger) by means of extra briefings. On this occasion the crew member was still unable to operate the extinguisher unassisted. Given the successful outcome of what constituted a serious emergency no recommendations are presently considered to be necessary.