

CABIN CREW

ALMOST 20 YEARS AGO A British Airtours Boeing 737-236 at Manchester International Airport was engulfed in flames while getting ready for take-off.

A 7kt wind carried a fire in the left engine onto and around the rear fuselage, rapidly penetrating the hull. Shortly before the aircraft came to a halt the aft right door was opened, allowing transient flames into the cabin, which developed quickly into a fire. The smoke disoriented and incapacitated the 137 passengers and crew – with some rendered helpless from the effects of inhaling toxic fumes.

Most fatalities in aircraft fire occur when passengers are overcome by heat or by the effects of smoke toxicity (or smoke inhalation) rather than from the fire itself. The toxic gases produced by burning seats, plastic, carpet and other parts of the cabin are so strong that they incapacitate passengers and crew, which impairs performance and obscures vision, and can cause death after only a few minutes of exposure.

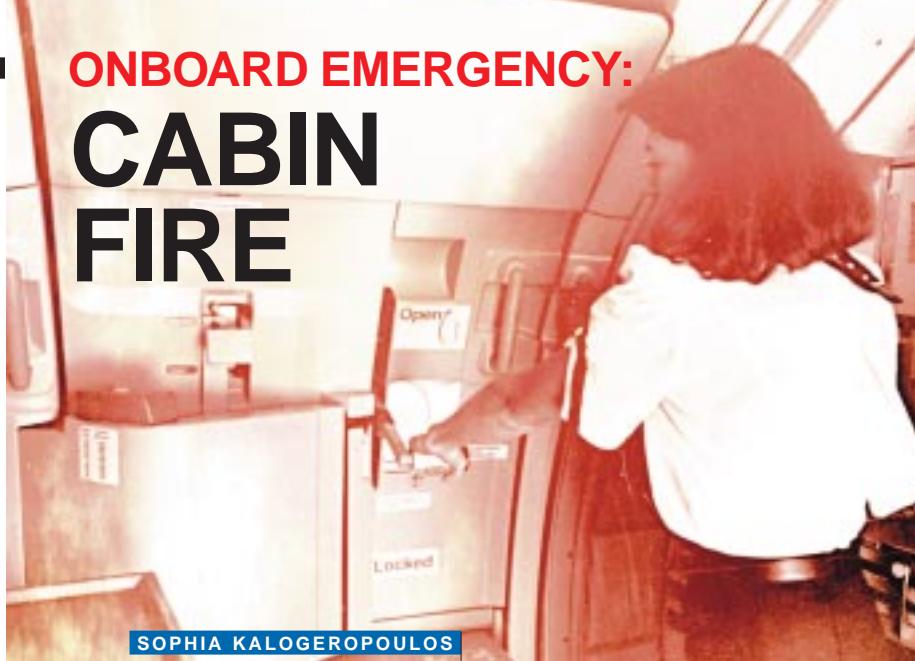
Survivors of the Manchester accident related the fear and panic created by the heat and smoke produced by the fire. Passengers saw the window panels crack and melt, then immediately panicked as the toxic smoke made each breath feel "solid" in their throats. Many passengers stumbled and collapsed in aisles, forcing others to struggle over seats and delaying evacuation. Only 45 per cent of passengers escaped before the smoke had reached them.

Action to take: A cabin fire, no matter how small, is potentially the most dangerous situation you will confront. Any sign of fire – even signs that are not visible, such as smell, smoke or sound – should always be investigated immediately.

Apply these basic procedures to all fires:

- Fight the fire; you can fight the fire by removing an element from the fire circle: (a) starve the fuel source, eg, by removing paper from a waste-bin fire. (b) remove the source of ignition by cooling the heat, eg, by dousing embers with water or a

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non-alcoholic beverage. (c) remove the oxygen from the fire, eg, smother the fire with a blanket.

- Advise the flight deck; and keep them informed on the status of the fire.
- Never leave the fire unattended; you should ask another flight attendant to report it.
- Never turn your back on a fire; always ensure scene control – check for possible re-ignition, and ensure appropriate management of passengers.

It is vital that cabin crew remain alert and conscious in the event of a fire. To limit the effects of toxic fumes, a wet cloth should be placed over your nose and mouth (a headrest cover or any other available fabric is suitable). Use water, soft drink or other non-alcoholic beverages to moisten the fabric. Some toxic gases are water soluble and will dissolve in the fabric, reducing the volume of toxic gas entering your system.

The heat and toxic gases will rise to the ceiling, so you should get as close to the floor

as possible to restrict inhalation and avoid heat. Instruct passengers to do so, if necessary.

New training options: Recently the Aviation Rescue Fire Fighting service (ARFF) joined forces with many Australian airlines to provide comprehensive fire fighting training to cabin crew.

This involves the new ACERT (air crew combined emergency response training) program. The program is designed to develop effective communication and teamwork in aircrew, and to develop flight and cabin crew role awareness. Cabin crew are trained to fight cabin, galley and toilet fires.

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To find out more about the ACERT program, contact Simon Reilly at ARFF on (02) 9556 6881.

A recent international research conference on aircraft fire and cabin safety, held in Atlantic City, New Jersey, USA, discussed the developments in aircraft fire and cabin safety research. Delegates from around the world discussed issues including, crashworthiness, evacuation, operational issues, halon replacement options, along with fire safety issues concerning systems and interior materials.

Papers can be downloaded from the FAA website at <http://www.fire.tc.faa.gov>. CASA's delegate, Bruce Byers from the Airworthiness branch, attended the conference. You can contact him on 131 757 with any questions about the conference.

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| GAS | SOURCE | SYMPTOMS |
|-------------------|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| CARBON MONOXIDE | Cabin furnishings | Tears, physical incapacitation, disorientation, headache, dizziness, dimmed vision, disturbance of judgement, coma, death from cardiotoxicity. |
| HYDROGEN CYANIDE | Wool, silk, nitrogen containing synthetics | Tears, physical incapacitation, disorientation, convulsions, nausea, vomiting, weakness, dizziness, nausea, convulsion, coma, death. |
| HYDROGEN CHLORIDE | Wiring insulation, other cabin materials | Irritation to eyes, nose, mouth. |
| CARBON DIOXIDE | Cabin furnishings | Increases respiration rate causing an increase in the uptake of other combustion gases. |