

# THE LOCKERBIE INVESTIGATION

## Few ounces of explosive is all it takes, says expert

By Our Science Editor  
A FEW ounces of plastic explosives and a whisky bottle of liquid explosive are all that is needed to bring down a jet, an expert said yesterday to emphasise the problems faced by airport security.

Mr Bernard Adamczewski, deputy director of the Institute for the Study of Terrorism, cited a report published this year on the blast that destroyed Korean Air Flight 858. The Boeing 707 exploded on Nov 29, 1987, off the coast of Burma with the loss of 115 lives.

"That plane was brought down by 350 grammes (12oz) of C4, a Nato plastic explosive approximately equivalent to Semtex," Mr Adamczewski said.

The explosive was hidden in a working Panasonic radio, stripped of some components, in which one battery was used as a detonator.

The North Korean terrorists boosted the blast with a whisky bottle of Pitatinny Liquid Explosive (PLX) hidden in a bag with cartons of cigarettes.

In a confession to the South Korean authorities, one of the

terrorists, Kim Hyon-hui, described how the radio was taken on board the plane.

"Baghdad airport regulations prohibit batteries from being carried on to a plane. Mr Kim (her accomplice), complaining that this was the only place where the personal items of passengers were checked, turned the radio on as a gesture of protest. The airport officials acted

as if they were sorry and permitted us to carry the radio."

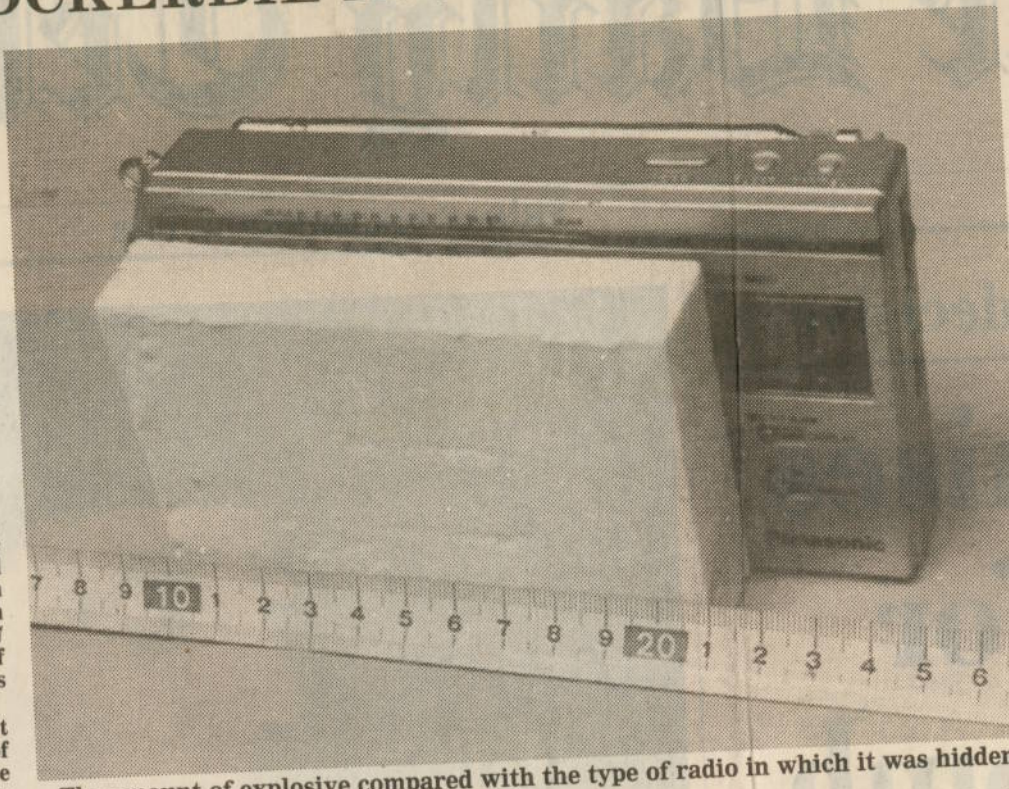
The shopping bag containing the time bomb and lemon-yellow liquid explosive was placed in the compartment above seats 7B and 7C of Flight 858. An alarm switch on the front of the radio set off a timer so that it exploded nine hours later.

En route between Baghdad and Seoul the two terrorists left

the plane at Abu Dhabi, leaving the explosives behind.

C4 can be moulded into any shape and has no smell. It is also non-metallic and thus invisible to X-rays.

"It is important to tell the public that one plane blew up because of an object 4in by 6in by 1in thick, so they know that improving security is not trivial," said Mr Adamczewski.



The amount of explosive compared with the type of radio in which it was hidden

## Britain accused of shunning airport bomb detectors

By Roger Highfield, Science Editor

BRITAIN has one of the world's leading manufacturers of bomb detection equipment but the only people protected by its products are ministers and MPs, not airline passengers. AI Security, of Cambridge, said yesterday that one of its detectors was used regularly only in Parliament.

AI Security has about 80 per cent of the world market and sells many more of its detectors abroad than in Britain, exporting 90 per cent of its products.

Mr Geoffrey Bray, its managing director, said the Government did not seem to show much interest "in helping us along our way. In fact, most of the time they seem to be throwing cold water on what we are doing".

He said there seemed to be no move by the Department of Transport to introduce bomb detection equipment at airports.

"This situation compares very unfavourably with America, where millions of dollars a year are spent on improvements in technology by the Department of Transportation," he added.

America spends \$10 million a year to develop explosives detection systems for use in airports.

In Britain, the Department of Transport in consultation with the National Aviation Security Committee has a £500,000 programme of research and development to improve aviation security equipment.

America and Britain also collaborate in this area of research.

"Governments and airline authorities must show much more urgency to solving this problem or at least minimising it by improving airline security using the latest technologies — they exist, but we are not applying them," said Prof Paul Wilkinson, head of international relations at Aberdeen University.

Existing luggage checks at airports use X-ray scanners on luggage. They rely on the vigilance of the operator to spot explosives by their shape.

A new generation of sophisticated scanners show different types of material in colour and the Department of Transport is known to be interested in these enhanced X-ray techniques.

E-Scan, under manufacture by EG & G Astrophysics, of California, codes materials by colour so that organic materials

appear as bright orange and metals as dark blue. Plastic explosives typically appear orange brown.

The machines, which can cost from \$50,000 to \$50,000 (£16,000 to £27,000), have been ordered for use in Britain.

However, the other explosives detectors, like those under development by Thermedics, AI Security and SAIC, spot explosives directly.

AI Security makes a proven explosive vapour detection system that is widely used. It claims that it can detect Semtex, the plastic explosive that may have been used to blow up Flight 103.

AI's walk-through detector in the Houses of Parliament cost £15,000, while hand-held versions cost about £6,500. The equivalent Thermedics devices cost \$250,000 and \$124,000 (£139,000 and £69,000).

However, a Department of Transport spokesman said: "We have not yet found an explosive vapour detector which could be used effectively at airports."

The SAIC device, which costs about \$1 million (£555,000), is suitable only for screening luggage.

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## SCIENCE & TECHNOLOGY

prehistory — a

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