Airplane

The Safest Plane

Technology exists that might make flying safer. The cost isn't even that high. So why doesn't it happen?

By Adam Bryant
Illustration by Ed Lam

WOULD YOU BE WILLING TO pay 35 cents more for a safer flight? How about another $5 for each round-trip ticket? What about $30?

Why not, if that's all it would cost to add another warning system for pilots, to install more sophisticated radar at airports or to screen luggage for explosives? No one wants to share the fate of the doomed passengers on last year's T.W.A. Flight 800 or on the Valujet plane that crashed into the Everglades. Those disasters and others have prompted a number of recommended safeguards, many of which have been collected and realized on the fantasy jet to the right. With the help of industry experts, we have assigned a cost to each upgrade for the nation's busier airports and fleet of 5,000 jets, and spread out the expense over the roughly 850 million round-trip tickets expected to be sold over the next five years. The cost to each passenger for all this insurance (excluding the antimissile system, an exotic notion to all but a few people): about $60 a trip.

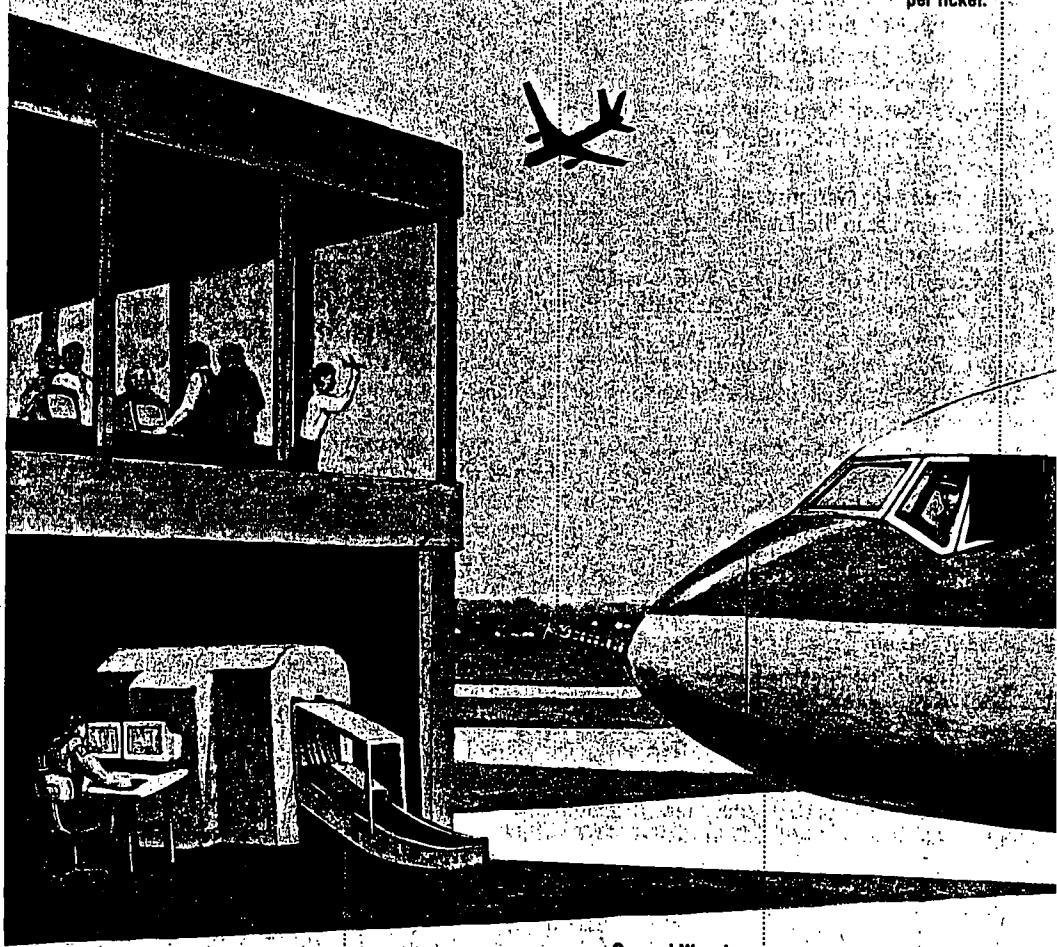
A small price to make the skies safer and save lives, right?

Not necessarily. There is an industry rule of thumb that the number of passengers will drop 1 percent for every 1

Adam Bryant covers the airline and aerospace industries for The Times.

Antimissile System
A device for the really paranoid: to ease the fear of travelers who think a missile brought down T.W.A. 800, install an antimissile system on each jet. Cost: $25 billion, or $29.41 per round-trip ticket over five years.

Pilot Scrutiny
Make pilots' long-term performance records available to all airlines so they can better weed out applicants with questionable histories. Cost: $1.2 million, or less than a penny per ticket.



Improved Security
The bomb theory behind the downing of T.W.A. 800 has largely been ruled out, but airport security remains geared toward a hijacker's weapon, rather than a terrorist's bomb. Install devices to screen every piece of luggage, including carry-on bags, for hard-to-detect explosives. Cost: $26.46 billion, or $31.13 per ticket.

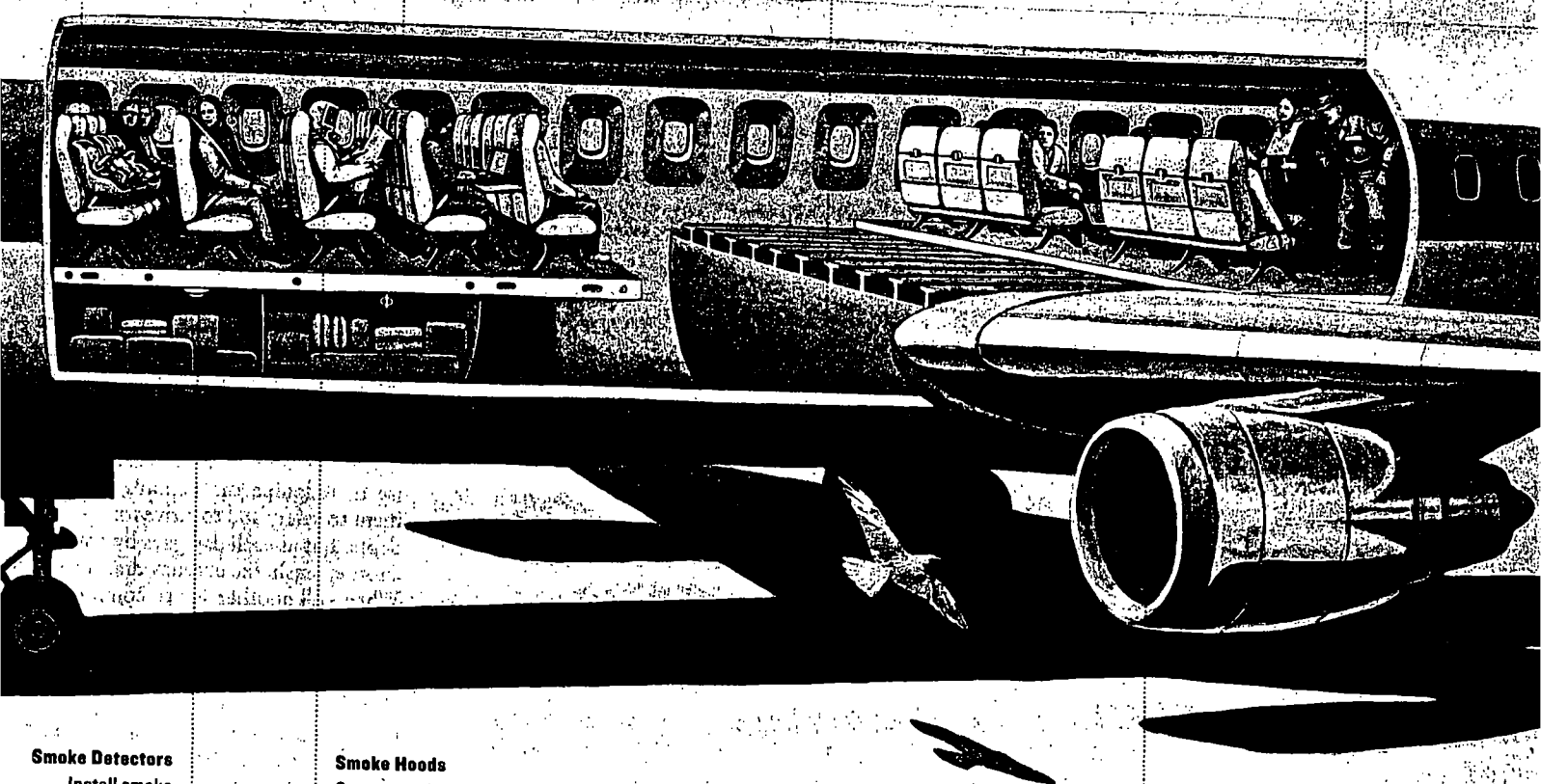
Ground Warning Devices
Install enhanced ground-proximity warning systems. Current systems warn pilots when they are too close to the ground. The enhanced versions warn them if they are headed for a mountain. Such a system might have prevented the American Airlines crash in Cali, Colombia, in 1995. Cost: $300 million, or 35 cents per ticket.

Children's Safety Seats
Put every child in a seat. The 50 percent discounts for children recently announced by major airlines will put more babies in seats, but parents still have a choice. If the rules were changed to require all children under 2 to be strapped into their own seats, the airlines would rejigger fares to get most families back on planes. Cost: Modest increases for parents with young children.

Grown-Ups' Safety Seats
Install stronger seats that can withstand 40 G's of force, instead of the current 16 G's. Build the seats with shoulder harnesses and higher backs, and have them face backward to support the head and neck in case of a crash. Cost: $2.85 billion, or $3.35 per ticket.

Fuel-Tank Safeguards
Guard against explosive mixtures by, among other things, completely filling a plane's belly tank. Because fuel is chilled in underground storage tanks, the cold fuel in the plane's tank could hold down temperatures and reduce the chance of fumes exploding. The National Transportation Safety Board suspects that a mechanical failure ignited vapors in a tank on T.W.A. 800. Cost: $10 billion, or $11.76 per ticket.

More Rigorous Safety Briefings
Many lives have been lost because pilots grow complacent and passengers do not pay attention to briefings. Train flight attendants to focus passengers' attention on safety briefings by shouting like drill sergeants. Maybe there should even *be* a drill sergeant to bark at pilots to stay alert. Nominal cost for additional training.



Smoke Detectors
Install smoke detectors and fire-suppression systems in the cargo area and p ıger cabin to prevent fires like the › that brought down the Valujet DC-9 last year. Cost: $1.61 billion, or $1.89 per ticket.

Smoke Hoods
Store a smoke hood in every seat back. Some experts think passengers would spend too much time fumbling with the hoods instead of exiting the plane if there were a fire, but flight attendants could give demonstrations to prepare travelers. Cost: $86 million, or 10 cents per ticket.

Bird Protection
Build tougher engines. Birds of a certain size or number can do considerable damage to engines and have caused many accidents over the years. Blades made with stronger composites would stand up better to ornithological intrusions. Cost: $6.38 billion, or $7.51 per ticket.

Wing De-Icers
Install more sophisticated ice detectors and de-icers. Ice can disrupt airflow over a wing cripple its performance, a condition that has caused deaths. New devices can help insure that a plane is free of ice. Cost: $98 million, or 12 cents per ticket.

Upgrade Radar
Install better navigational equipment. There are a number of more advanced systems available to warn air traffic controllers and pilots about wind shears, potential runway collisions and other hazards. Cost: $4.8 billion, or $5.65 per ticket.

Better Black Boxes
Flight-data recorders, or black boxes, help explain why a plane crashed and may prevent a similar accident. Relatively little information was recorded on the USAir plane that crashed mysteriously near Pittsburgh in 1994. The most advanced black boxes record so much about a plane's movements that not much is left to guesswork. Cost: $325 million, or 38 cents per ticket.

Tighten Maintenance Checks
To guard against counterfeit parts' being used in repairs, require each part to be accompanied by paperwork tracing it back to its original F.A.A.-approved manufacturer. Cost: $50 million, or 6 cents per ticket.

percent rise in fares. Some people will pay $430 for a ticket, for example, but not $435, whereas others see $450 as their limit. And if people decide that air fares are too high and instead drive several hundred miles, they will face greater risks of dying in a car accident on the nation's highways. Good ideas, in other words, may not translate into good public policy.

The same logic is behind the Federal Aviation Administration regulation that enables children under 2 to sit on their parents' laps rather than requiring that they be strapped in. If parents had to buy seats for their babies, even with steep discounts many families might be priced out of the air and take to the more dangerous roads instead.

Other reasons, all studies in logic, also slow the pace of developing safety improvements. Even though travelers might want to pay extra for some of these upgrades, the F.A.A. decides whether the benefits of installing new devices justify their costs, using a U.S. Department of Transportation formula that places a value of $2.7 million on a human life.

In some cases, the technology is still being refined. And even though the cost may be small to each passenger over five years, who will put up the money in the first place? These days, legislators are increasingly looking to the industry and its passengers as easy tax targets, not as big capital drains.

Perhaps emotion should trump logic when it comes to aviation safety, and planes should be made as safe as possible. That certainly seems to be the new standard after a passenger jet crashes, when aviation officials typically promise to redouble the nation's commitment to safety and to strive for no accidents. But as each day goes by without another crash, the urgency drains away. When still another safety commission confirms the obvious — that flying is indeed safe but could be safer — its report is quickly forgotten. Momentum is dissipated by disagreements among Government agencies and airlines and other industry groups over which safety improvements to implement first.

Granted, it is not an easy choice, since no one can predict the most likely cause of the next crash. But adopting every good idea — and there are many beyond those mentioned on these pages — is not much of a choice either: planes would grow so heavy and expensive that hardly anyone could afford to fly anymore.

Then again, that may be the quickest and easiest way to reduce the accident rate to zero. ■

ILLUSTRATION BY ED LAM

Schedule Proposal 3-11-99

_____ACCEPT _____REJECT _____PENDING

TO:	Stephanie Streett
FROM:	Bruce Reed
REQUEST:	For the President to announce the award of contracts to manufacture more than 150 new FAA-certified explosive detection devices for installation at airports throughout the United States.
PURPOSE:	To amplify the President's commitment to airport security and to help combat terrorism in our Nation.
BACKGROUND:	In 1996, the White House Commission on Aviation Safety, led by Vice President Gore, recommended that the FAA purchase innovative security equipment to help insure the safety of the flying public. This announcement would be the purchase of 21 FAA-certified explosives detection systems and 135 trace explosives detection devices, which add to the multi-year deployment of innovative security equipment recommended by the Commission. In FY99, FAA has $100 million to continue this deployment, and the President requested $100 million in his FY2000 budget.
PREVIOUS PARTICIPATION:	None.
DATE AND TIME:	March or early April
BRIEFING TIME:	10 minutes.
DURATION:	30 minutes.
LOCATION:	Roosevelt Room.
PARTICIPANTS:	The Vice President Secretary Rodney Slater FAA Administrator Jane Garvey Senators Lautenberg and Boxer and others

	Airline CEO's, equipment manufacturers, and members of the aviation and airport industry.
OUTLINE OF EVENTS:	Remarks by participants.
REMARKS REQUIRED:	To be provided by speechwriting.
MEDIA COVERAGE:	Open press.
FIRST LADY'S ATTENDANCE:	No.
VICE PRESIDENT'S ATTENDANCE:	Yes.
SECOND LADY'S ATTENDANCE:	No.
RECOMMENDED BY:	As indicated above.
CONTACT:	Karen Kullman 6-5165.
ORIGIN OF PROPOSAL:	Domestic Policy Council.

Airplane Security

FAA To Purchase Additional Security Equipment

Question: What equipment is the FAA procuring and how will this enhance security?

Answer: The FAA will purchase more than 150 additional security devices for the nation's airports, continuing to implement a recommendation by the White House Commission on Aviation Safety and Security. Recognizing that terrorism is a national security issue, the federal government has funded the purchase of the world's best equipment to safeguard civil aviation, while the air carriers have been responsible for the equipment's operation and maintenance. Congress provided 157 million for advanced security equipment for FY 1997 and FY 1998, and an additional $100 million was requested by the White House for FY 1999 to continue the deployment and enhance the baseline of security in the nation's major airports.

InVision Technologies, Inc. from Newark, California has developed the only, FAA laboratory certified and operationally accepted by the airline industry, Explosive Detection System (EDS), CTX-5500 DS, for screening checked baggage. The initial contract award for EDS to InVision was in December 1996. An additional 21 units will be procured for a total of 95 systems procured to date. Currently 74 systems are deployed in 28 of the major airports with 16 domestic air carriers and many foreign air carriers operating and maintaining the equipment. For security reasons, the airports and air carriers will not be identified. The Security Equipment Integrated Product Team (SEIPT) consisting of FAA personnel in partnership with air carrier and airport industry representatives determine the deployment sites and schedule to enhance the level of security by raising the baseline to meet the evolving threat. A competing EDS was certified by the FAA in the laboratory recently and will be evaluated operationally. Two additional EDS products are scheduled for FAA certification testing in April. The FAA plans to procure an additional 19 EDS from all competitors by September 30.

The other technology is the Explosives Trace Detection (ETD) device. In November 1996 the SEIPT initiated procurement and deployment of ETDs to screen carry-on bags at checkpoints in 80 of the major airports. The SEIPT in partnership with the air carriers domestic and foreign have procured 461 ETDs from 5 different vendors and have deployed 396 in 50 airports with 30 air carriers operating and maintaining them. The FAA will procure an additional 135 Ionscan-400 ETDs from Barringer Instruments, Inc. of Warren, New Jersey. The Ionscan-400 ETD is the only device to meet all FAA technical performance requirements and air carrier operational suitability requirements. This will complete the deployment in 80 major airports by September 30.

U.S. Department of Transportation
Office of the Secretary of Transportation

400 Seventh St., S.W.
Washington, D.C. 20590

Air Phone Security

FAX COVER SHEET

DATE: 3/16/1999

TO: Mary Smith

FROM: Carrie Hyun

MESSAGE (IF ANY):

NO. OF PAGES, INCLUDING COVER: 4

security equipment

Recognizing that effectively combating terrorism is a vital national security goal, the federal government has funded the purchase and deployment of the most advanced equipment in the world to safeguard civil aviation. Our partners in this effort, the airlines, have taken responsibility for the operation and maintenance of the equipment. This Administration, together with the Congress, has provided $157 million for this advanced security equipment for the Nation's airports in fiscal years 1997 and 1998 and in fiscal year 1999, has provided an additional $100 million to continue this deployment, which, in quantity and quality, is unique in the world. In order to continue with this effort, this Administration has requested a third installment of $100 million in fiscal year 2000.

The White House Commission of Aviation Safety and Security recommended the government purchase "computed tomography detection systems, upgraded x-rays, and other innovative systems" to help ensure the safety of the flying public. Following this recommendation, with the funding just mentioned we have already installed such security equipment at scores of major airports, which account for over 80 % of passenger traffic. The equipment includes the tomography systems and x-rays as well as chemical "sniffers," known as trace detectors. Over 80 tomography and x-ray systems have been installed at airports around the country and over 50 more will be installed this year. Over 300 trace detectors have been installed since 1996, and 260 more will be deployed this year.