

Military Techniques May Land Big Airliners Softly

ANN ARBOR An airliner, carrying scores of passengers, has just developed mechanical failure and is rapidly going out of control. A crash is unavoidable.

The pilot pushes a button and, almost instantly, the fuselage lets go of engines, wings, and tails.

Then it stows itself with drag chutes and moments later, it is floating down gently and safely with larger parachutes.

A scene from science fiction?

NOT ENTIRELY, according to two safety researchers who point out that such a concept has already been experimentally tested with helicopters.

They emphasize that no serious attention has been given to mid-air emergency evacuation in future civil air transportation. They argue that today's military and aerospace technology would and should be adapted for the "general population."

The need is both obvious and urgent, says Dr. Richard G. Snyder and Air Force Col. John P. Stapp (M.D.)

Projections are that 2,000 passenger fatalities a year are possible by the mid-1990s, at least 15,000 persons in the 1980s, and as many as 60,000 a year within three decades.

Snyder is head of the biomedical department of the University of Michigan's Highway Safety Research Institute, and Stapp is chief medical scientist of the National Highway Safety Bureau in Washington.

SPEAKING AS individual scientists, Snyder and Stapp point out that several factors

are likely to aggravate the safety problems in the future. Accidents, and accompanying fatalities, "may be expected to increase substantially due to the introduction of larger aircraft, the increasing density and overtaxing of the present air traffic control system, and incidence of mid-air structural failures of aircraft."

Much work needs to be done, the two researchers explain. "For one thing, the physiological effects on passengers exposed to extreme environments during flight are influenced by many factors. Yet

little is known about "the range of tolerances for infirm, infirm, or elderly individuals in such a hostile environment."

Existing data are for physically fit, healthy young males, mostly from the military air crews who have experienced the high-altitude environment in the past.

ALSO, SNYDER and Stapp continue, advances in techniques for emergency evacuation in flight have been confined largely to military and aerospace requirements. Examples include the

rocket-propelled ejection seat, a standard method of escape from many military planes, and the protective "capsules" which separate the pilot from the disabled aircraft.

Still another technique considered is the separable "crew compartment" which can be ejected as a single unit from the airplane.

Some of these techniques, according to Snyder and Stapp, can be applied to commercial airliners.

"Perhaps the most promising concept for mid-air emergency evacuation appears to be a combination of several techniques: (1) Using techniques to sever wings, fuselage, engines, or tail if on fire or required by emergency; (2) Deploying drag chutes to slow and stabilize the passenger-crew fuselage 'capsule' and (3) Deploying larger parachutes to float the fuselage section to the ground gently and within safe limits."

IN SUCH a system, Snyder and Stapp note, "the passenger remains in his seat-cabin environment to avoid the extreme

environmental conditions he might be subjected to in an open-seat ejection. Even the largest airliner could be lowered with a minimal ground-impact velocity.

"Emergency oxygen systems would still be available to occupants, could be kept tolerable during brief exposure of descent, and impact forces could be kept minimal."

Such a concept has already been experimentally tested in helicopters, and "could well be adapted to air transport aircraft," Snyder and Stapp say.

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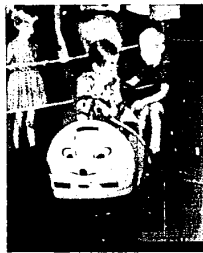


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