

*These Boeing 747 escape chutes, for rapid evacuation of passengers in a ground emergency, are inflated by filament-wound pressure vessels, 60 percent lighter than earlier inflation cylinders.*

*Changeover to the new bottles, spinoffs from rocket motor casing technology, saves 200 pounds per airplane.*



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The Videofile is particularly valuable for law enforcement agencies because of its exceptional reliability and its compactness; it needs only a fraction of the space required by manual filing systems and it affords large savings in the record-keeping process. Videofile saves time as well as space. Fingerprints, photographs, and complete dossiers stored on videotape are immediately available for real-time viewing at any one of the agency's substations equipped with a TV-like console.

Videofile is being used by a growing number of law enforcement groups in the U.S. and Canada, but its utility is not limited to police work. American Republic Insurance Co. uses it for claims and rate analysis and it is in service with the Southern Pacific Railroad for filing half a million freight waybills monthly.

*NASA technical information on flat conducting cable, widely used in spacecraft, contributed to the design of an improved communications system for police patrol vehicles.*

### Air Safety Spinoffs

Weight saving—even a matter of a few pounds—is an important consideration in airplane design and construction. Boeing saved 200 pounds simply by substituting a new type of compressed gas cylinder on their 747 commercial airliners.

For quickly evacuating passengers in the event of a ground emergency the 747 escape chutes allow passengers to slide to safety from the two-story height of the cabin deck. The chutes pop out of exitways and are automatically inflated in seconds by compressed air stored in pressure vessels.

Boeing's weight saving resulted from a recent changeover to a new type of pressure vessel built by Structural Composites Industries Inc. of Azusa, Cal. The company employs technology originally developed for rocket motor casings; the cylinders are constructed by winding fibers around an aluminum liner. This technique offers high strength for very low weight—in this case 60 percent less than the pressure vessels earlier used on the 747.

Another contribution to improved air safety is an underwater locator device. Called the "Pinger," it uses sonar techniques to locate aircraft crashed in water—or, more specifically, to recover the flight recorder aboard the airplane. Its recovery provides clues as to what caused the accident and suggests

measures to prevent similar future occurrences. Until recently, there was no way to recover flight recorders aboard aircraft lost in water crashes.

The Pinger, now serving 95 percent of the airline industry, provides an answer. Key element of the Pinger system is a small, battery-powered transmitter, or homing beacon, included as part of the recorder package. For as long as 30 days, the transmitter sends out an acoustic signal from water depths up to 20,000 feet. The other element of the system is a receiver, used by search crews to home in on the transmitter's signal. Originating as a U.S. Navy project, this device was refined and further developed by NASA's Langley Research Center to retrieve submerged nose cones from research rockets. NASA's contractor for the transmitter portion of the system was Dukane Corp., St. Charles, Ill. who subsequently developed the commercial version.

## Personal Alarm System

Trouble in the classroom is an unpleasant fact of modern life. Space technology can't stop the trouble from occurring, but it can prevent it from spreading.

In recognition of this, NASA and the Sacramento, Cal. Unified School District developed a personal security system based on space telemetry technology. The first application was for schools, but the simplicity and reliability of the system has made it more widely applicable.

The heart of the system is an ultrasonic pen-size transmitter. It can be used by prison guards, teachers, or others such as the handicapped and the elderly.

*A police officer demonstrates how he would use the SCAN (Silent Communications Alarm Network) security system to summon aid in a cell block emergency. The pen-size SCAN device is an ultrasonic transmitter which sends a wireless alarm signal to the ceiling-mounted receiver, connected to a central display panel. At the central console, visual and audible alarms alert other police personnel and indicate location of the trouble.*

