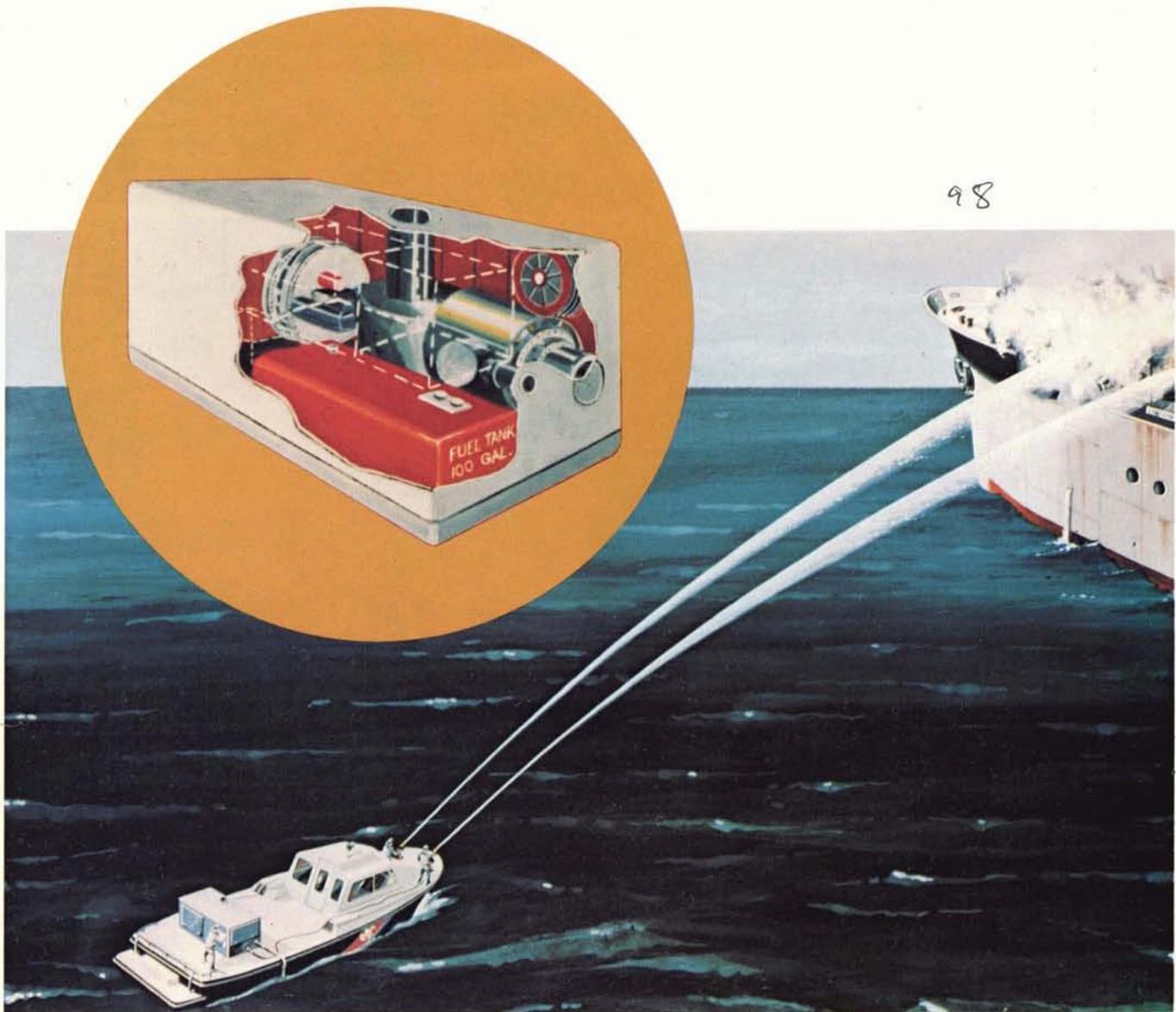


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which delivers 2,000 gallons of sea water per minute, a quick starting gas turbine, hose, monitors, nozzles, protective suits, and other equipment.

NASA's Marshall Space Flight Center is directing the project, drawing on its experience in high-capacity rocket engine pumps, lightweight materials, and compact packaging acquired during the Skylab program. Northern Research & Engineering Corp., Cambridge, Mass., is building the module under NASA contract. A prototype is scheduled for acceptance and service testing this year.

Videofile for Law Enforcement

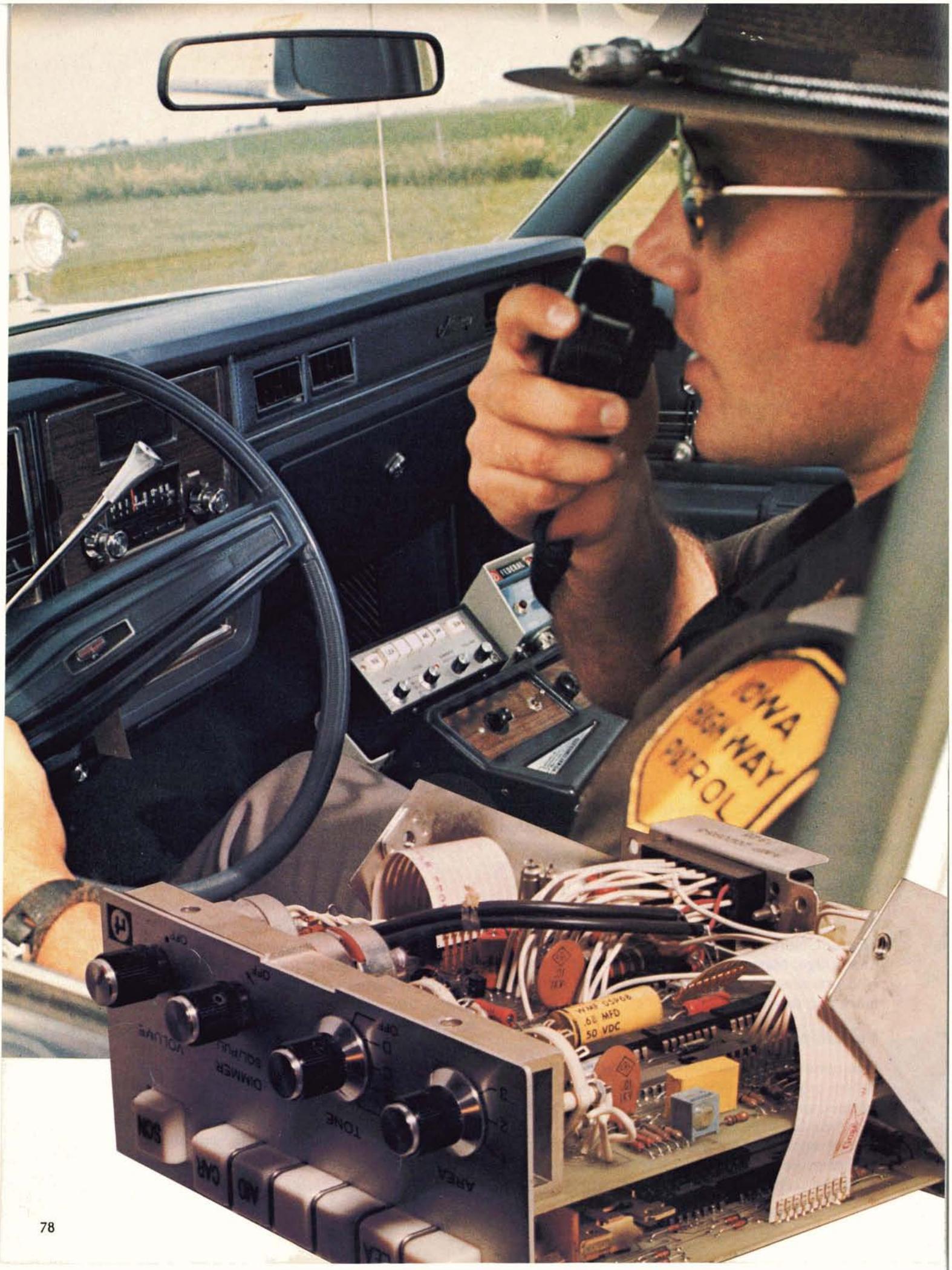
Components of a videotape storage and retrieval system originally developed for NASA have been adapted as a tool for law enforcement agencies.

Ampex Corp., Redwood City, Cal., built a unique system for NASA-Marshall. The first application of professional broadcast technology to computerized record-keeping, it incorporates new

NASA and the U.S. Coast Guard are jointly developing a lightweight, helicopter-transportable, completely self-contained firefighting module for combating shipboard and dockside fires. The project draws upon NASA technology in high-capacity rocket engine pumps, lightweight materials and compact packaging.

equipment for transporting tapes within the system. After completing the NASA system, Ampex continued development, primarily to improve image resolution.

The resulting advanced system, known as the Ampex Videofile, offers advantages over microfilm for filing, storing, retrieving, and distributing large volumes of information. The system's computer stores information in digital code rather than in pictorial form. While microfilm allows visual storage of whole documents, it requires a step before usage—developing the film. With Videofile, the actual document is recorded, complete with photos and graphic material, and a picture of the document is available instantly.



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