

Fireman's air tanks

Lighter-weight firefighter's air tanks now can be bought after several years of developing and testing them through a NASA-sponsored applications program. The air tank and complete breathing system are based on concepts and hardware developed by NASA-Johnson for astronauts in extravehicular space or on the moon.

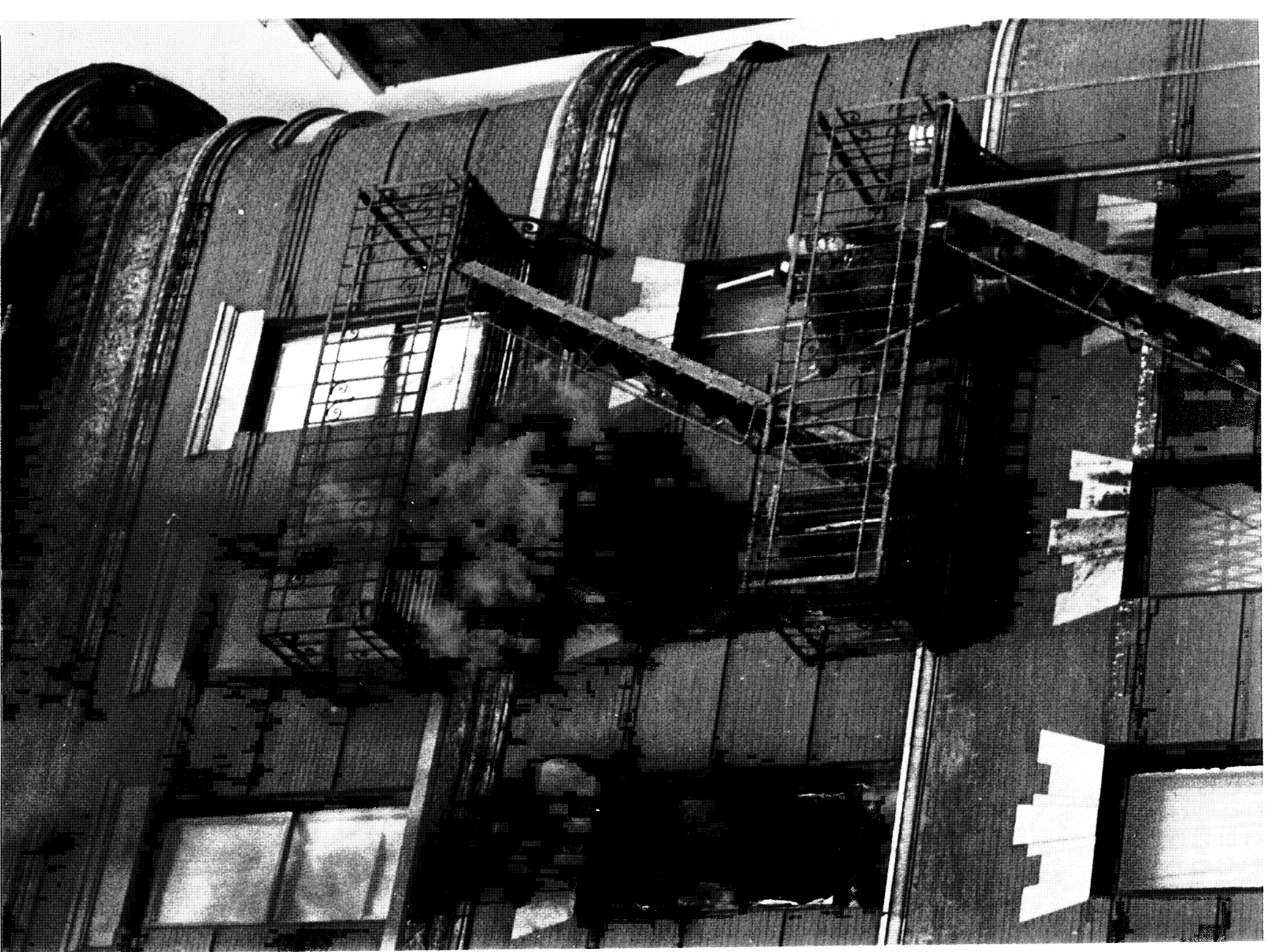
Astronauts have no choice about whether to wear breathing equipment. Firemen do. Their avoidance of conventional apparatus, because it restricts mobility and vision, can have disastrous results.

The new back pack system weighs only 20 lbs for a 30-minute air supply—13 lbs less than conventional firefighting tanks. They are pressurized at 4,500 psi, about twice that of current tanks. The back tank is made of an aluminum liner wrapped by resin-impregnated glass fibers, thus eliminating corrosion as well as lightening the load.

The tank's pack frame and harness is improved, too, with most of the unit's weight carried on the hips rather than the shoulders. A redesigned face mask permits better vision. And the warning device—to tell the fireman when he is running out of air—has been personalized so it can't be heard by others, reducing confusion in an already hectic environment.

A survey conducted by Public Technology Inc., a non-profit technology-transfer organization that works with state and local governments, confirmed that fire departments would buy such a system. Trials in Houston, Los Angeles, and New York fire departments last year helped refine the apparatus.





As a result, A-T-O Inc.'s Scott Aviation division has begun producing the breathing equipment, called "Air Pak 4.5." The apparatus was received enthusiastically when its commercial availability was announced at the fall 1975 International Association of Fire Chiefs meeting in Las Vegas. Other companies expressing interest in commercializing the NASA system were briefed at an industry workshop last November at Johnson Space Center.

Structural Composites Industries Inc. now is offering similar fiberglass-lined cylinders commercially. In a spinoff of a spinoff, The Boeing Co. may use the lighter tanks on 747s to energize emergency-escape shutes. And Martin-Marietta Corp., Denver, a NASA contractor that developed the aluminum cylinder, is using them to pressurize Navy life rafts.

Firefighters' radios

Good short-range radio communications are essential during a fire to coordinate hose lines, rescue victims, and otherwise increase efficiency. A useful firefighting tool is a new lower-cost, more rugged, short-range two-way radio now being developed.

In 1973, Public Technology Inc. defined user requirements and searched NASA technology to devise the new radio. The effort uncovered a NASA patent on an inductorless electronic circuit developed at Goddard for weather balloon communica-

tions. The unconventional circuit replaced inductances and coils in radio circuits with combinations of transistors and other low-cost components. This substitution promises reduced circuit size and cost, enhanced electrical performance, made the radio more durable, and improved maintainability by incorporating modular construction.

Twenty-five firefighters' radios are being built and field testing is planned for this year. Fire departments in Cincinnati, Houston, New York, Providence, Long Beach, Calif., and Fairfax Co., Va. now are testing the radios in actual fires.

*Astronauts' lightweight airtanks,
helmets, and two-way radios
have been spun off
to provide firefighters
better mobility, vision,
and communications.*

