



Spinoff 1981

An Annual Report

National Aeronautics and
Space Administration

Temper Foam

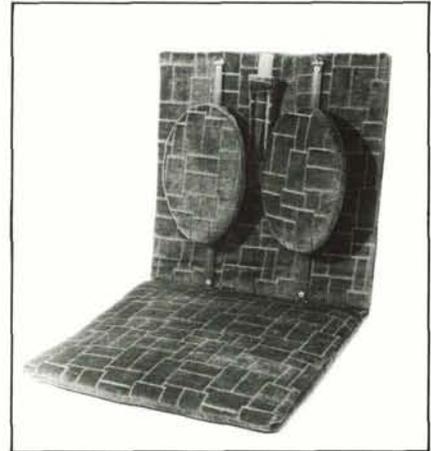
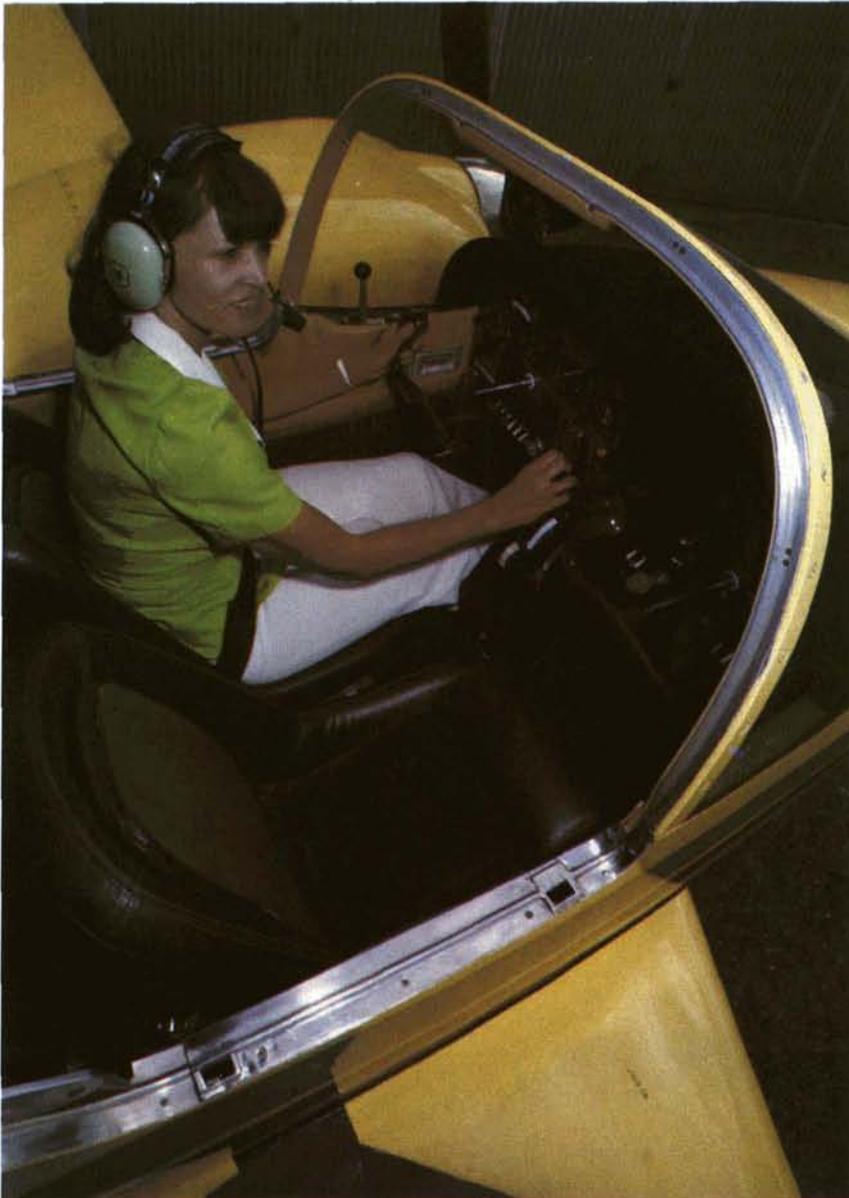
More than a decade ago, in a program designed to improve crash protection for airplane passengers, Ames Research Center developed a foam material with unusual properties. Used for padding aircraft seats, the material—now known as Temper Foam®—not only provides better impact protection but also enhances passenger comfort on long flights because it distributes body weight and pressure evenly over the entire contact area. Called a “memory foam,” it flows to match the contour of the body pressing against it and returns to its original shape once the pressure is removed. As a shock absorber, a three-inch foam pad can absorb the impact of a 10-foot fall by an adult.

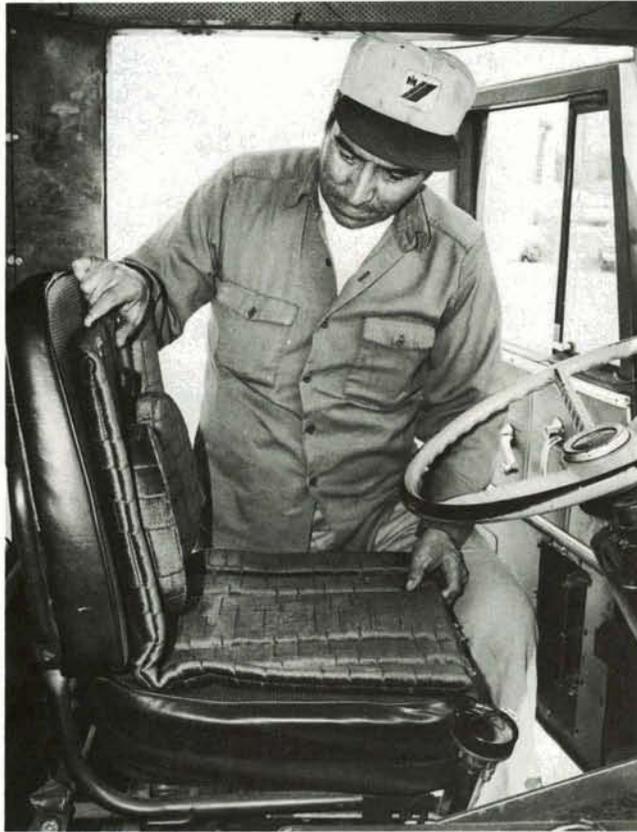
Temper Foam has become one of the most widely used spinoffs from NASA technology. Examples of its many applications include seat cushioning for transportation vehicles, padding for furniture, and a

variety of athletic equipment such as body pads and chest protectors. Medical applications include wheelchair padding, artificial limb socket lining, finger splint and hand padding for burn patients, special mattresses for the bedridden, and dental stools. Production and sales rights are owned by Temper Foam, Inc., Cincinnati, Ohio and Boston, Massachusetts. The material is manufactured under license by the Dewey and Almy Division of Grace Chemical Corporation, Woodbury, New Jersey. The distributors—Kees Goebel Medical Specialties, Inc., Cincinnati, and Alimed, Inc., Boston—sell Temper Foam in bulk form to fabricators, who trim it to shapes required by their customers.

One such fabricator is Expanded Rubber and Plastics Corporation, Gardena, California, which supplies products for some new applications illustrated by the accompanying photos.

Below left is the cockpit of the Wing Derringer, a two-place twin-engine lightplane produced by Wing Aircraft Company, Torrance, California. Its seats are





constructed of molded fiber glass and padded with Temper Foam to reduce pilot and passenger fatigue on long flights.

At left is a product known as Accu-Back,[®] manufactured by Accu-Back, Inc., Gardena, California. Accu-Back is an orthopedic seat for those who spend long periods in wheelchairs, office chairs, auto or truck seats. Responding to body heat and temperature, Accu-Back's Temper Foam cushion distributes pressure evenly, providing a custom fit for the individual back and encouraging correct spinal disc alignment. The oval-shaped parts are lumbar pads, mounted on the back panel in a slightly angled fashion to duplicate the natural contours of the back; they can be moved up and down to suit personal preference. An optional carry case makes the five-pound Accu-Back a portable back support for sporting events, the theater, in jetliners, buses or trains.

In another Temper Foam application, shown below, the material is used in the cushions of the helicopter operated by the Huntington Beach (California) Police Department for greater pilot comfort and less fatigue; department officials attest that the cushioning has enabled an increase—from one hour to two—in patrol flying time, due to reduced vibration effect. The shock absorbing qualities of Temper Foam also offer greater protection in hard landings.

[®] Temper Foam is a registered trademark of Temper Foam, Inc.

[®] Accu-Back is a registered trademark of Accu-Back, Inc.

