Technology Notes

AIRCRAFT

Double Delta for Hypersonic Transport

Recently a variable-sweep aircraft design won out over a fixed "double delta" configuration as the choice to be the country's first supersonic transport plane. Now General Dynamics Corp., which makes the variable-sweep F-111 fighter, has selected the double-delta design as "most promising" for the 4,000-mph hypersonic transport that will follow the SST.

In a study for the National Aeronautics and Space Administration, four designs were considered, including double delta, variable-sweep, single delta with a horizontal tail, and a scramjet configuration similar to the double delta. The configuration selected by General Dynamics has a front delta with a leading edge angle of about 85 degrees, flaring out to about 65 degrees.

A major problem yet to be solved, said the report, is the cost of the liquid hydrogen used for fuel, which must be cut by 90 percent to make operating costs comparable with those predicted for the supersonic transport.

AUTO SAFETY

Federal Standards Compromised

The 1968 model automobiles will be safer—not as safe as they might be, but safer than the automakers wanted to make them.

The compromise standards, announced in Washington after Government safety experts bowed, at least partially, to the anguished cries from Detroit, require: seat belts for all passengers and shoulder straps for the front seat; shock-absorbent steering wheels; rupture-resistant fuel tanks; shatter-resistant windshields and windows; windshield defrosters and two-speed wipers; warning lights in case of brake failure. Three of the 23 standards first proposed were dropped: those requiring headrests to prevent whiplash injuries to the neck, and setting qualifications for tires and wheel rims.

The Government said it would need further technical information before it could set such standards.

Of the 20 standards adopted, six contain provision for amendment within the next three to five months. Compliance with the standards could push up auto prices some $50 each, it was estimated.

INDUSTRY

SST Bills: Everybody Pays

The airlines seeking to buy planes are now being asked to pay part of the cost of the prototype supersonic transport.

U.S. airlines have ordered 114 SST's, with deposits of $100,000 per plane. These funds, however, are not to be used for initial construction costs. Instead, the airlines are being brought in "as a third partner" together with the Government and the contractors. The likeliest arrangement is a 90-10 Government-producer cost-sharing, with the airlines contributing probably a piece of the 90, through a second deposit. Negotiations just started may last two months.

DESALINATION

Biggest Yet Desalting Plant

The U.S. Government and Mexico are studying the feasibility of constructing a billion-gallon-a-day desalination plant, nearly seven times as large as any previously contemplated.

Dr. Jack A. Hunter, who was sworn in as director of the Interior Department's Office of Saline Water last week, said such a plant might serve California and Arizona and the Mexican states of Sonora and Baja California. The International Atomic Energy Agency is also participating in the study, he told a Congressional committee.

COMMUNICATION

Laserphones vs. the Weather

The effects of weather on communications over a laser beam are being measured by the U.S. Air Force, using two ultra-compact, portable laserphones.

Atmospheric phenomena such as fog and heavy rain have severely limited the range of prototype systems. In really bad weather the best obtainable was only "several thousand feet."

At Wright-Patterson Air Force Base in Ohio, engineers are trying to measure just how much harm is done by particular kinds of interference. One laserphone system being used in the tests was designed by International Business Machines, and consists of a pistol-shaped transmitter and a lapel microphone. Speaking into the mike modulates the laser beam, which is then focused through a lens in the receiver and reconverted into sound. The other system, designed by Radio Corporation of America, uses a box-like transmitter with a built-in mike.

AUTO SAFETY

Collisions by Computer

A crash-conscious computer which can "draw" mathematically accurate pictures of auto collision victims crunching into their own steering wheels and dashboards is helping scientists evaluate seat belts and other safety devices.

At the Cornell Aeronautical Laboratory, Buffalo, N.Y., the characteristics of a man-like dummy (shape, weight, height, flexibility and position) are combined in the computer with those for a car seat, floor board, steering wheel, dashboard and safety belt or shoulder harness. When numbers indicating impact or deceleration forces are added, the computer can calculate the movements of the dummy in thousandth-of-a-second intervals.

The output of the computer includes a series of drawings showing the dummy in sequential positions. Recently, the computer began drawing its pictures on motion picture film, literally making movies of its own simulated accidents. The results reportedly compare well with actual simulations using models.

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