

AERONAUTICS

USSR Builds Super-Plane

► THE SOVIET UNION has gotten the jump on the United States' C-5A super-air-transport program by stunning the Paris Air Show crowd with their huge Antonov An-22 cargo plane.

A "stretched" passenger version of the 250-ton airliner will carry as many as 700 people, announced Oleg Antonov, designer of the plane. The cargo aircraft is 187 feet

long, with a 210-foot wingspan. The cargo hold is 105 feet long and 14 feet wide.

A decision for a contractor to build the U.S. Air Force C-5A is expected sometime between July 15 and Sept. 1. One of the three manufacturers competing for the contract (Boeing, Lockheed, and Douglas) estimated that if the work went forward without a hitch, it would take two years to have such a plane in the air.

Antonov predicted a similar length of time before the passenger version of the "22" would be in full production.

On the other hand, the competing C-5A companies have tended to agree that there will be little or no market for such a large passenger plane, at least not for 10 to 20 years. Limitations of present airport facilities, problems of weight, space, and even the time required to load and unload 700 passengers all remain to be solved, with airlines still facing traffic problems for today's "small" airliners.

The Antonov 22 eliminates at least one of these problems—landing space—but does it by sacrificing speed and power. Four double-prop turbo-jet engines enable it to land in less than 4,300 feet, but cruising speed is a low 403 mph. The C-5A designs now being studied by the USAF use pure jet engines allowing an extra 150 mph but requiring another 1,000 feet of runway. A more likely possibility in the near future is a stretched version of an existing U.S. aircraft.

Douglas Aircraft Company, for example, has suggested three different modifications of the DC-8 jetliner, raising its capacity from 178 passengers to as many as 251. Boeing's nomination, which would hold 275 people, is called the 820, made out of an altered 320C cargo plane (capacity: 190).

• Science News Letter, 88:15 July 3, 1965



Lockheed—Georgia

'VISOR' OPENING—Army vehicles are shown at the rear doors of the big C-5A wooden mockup at Lockheed's plant at Marietta, Ga., which is being proposed for the U.S. Air Force. The "visor" nose rises upward preventing stress on one side of the fuselage, and is self-aligning.

SPACE

Mariner 4 Nears Mars

► A GROUP of space scientists has been on the alert for the past few months, waiting for Mariner 4 to reach Mars, and they have taken special precautions to make sure nothing goes wrong at the last minute.

Only three of more than two dozen U.S. space tracking stations around the world are keeping tabs on Mariner (Goldstone, Calif.; Johannesburg, S. Africa; and Canberra, Australia), but three more "backup stations" are being constructed at the same latitudes as the primary stations, just in case there is trouble on the ground. The backups are located at Goldstone (a second site called "Echo"), at the Woomera Missile Range in Australia, and near Madrid, Spain.

To make sure that Mariner will "understand" when it is signaled to aim its television camera at Mars, scientists plan to follow each of the commands from earth with a backup command that the spacecraft will ignore only if it is performing properly.

For example, when Mariner nears Mars, wide-angle sensors aboard the spacecraft will be commanded to look for the planet and then keep pointing at it regardless of the movement of the vehicle. This is how the TV camera will be aimed. After the command is transmitted, scientists on earth will have to wait for 11 minutes while the signal travels millions of miles through space, and another 11 minutes for a returning signal to indicate that the command has been acted upon.

If no return signal is received, the backup command will be sent, causing Mariner to "re-cycle" and begin the process again.

Mariner's signals from near Mars will be so weak that almost any kind of electronic disturbance will be able to distort them or even hide them completely. Signal strength will be down to one-billion-billion-millionth of a watt.

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