F-111 Maneuverability - The first flight of a variable sweep wing F-111 with the NASA-developed Supercritical Wing installed is expected to occur this month. The NASA/USAF Transonic Aircraft Technology Program will examine the improved maneuverability that could be attained with the Supercritical Wing on military type aircraft in the transonic speed ranges.

Final flight data reports are being completed on an F-8 aircraft equipped with the NASA-developed Supercritical Wing. The flight results have shown that the new wing produces higher aircraft speed and greater range without any increase in fuel consumption. Economical long-haul transportation is the potential civil application. (Flight Research Center, 805/258-3311)

General Aviation - Facilities checks are being completed prior to the start of a NASA general aviation aircraft crashworthiness study at the Langley Research Center. Using the former Apollo Program Lunar Landing Research Facility, the program will test the structural strengths and weaknesses of light, general aviation planes. Such tests will provide data to permit a better understanding of how structures behave during crashes so that structures can be designed for greater safety. The safety and utility of single- and twin-engined general aviation aircraft are being improved by NASA studies and tests such as this crashworthiness series. (Langley Research Center, 703/827-3966)
Less Hazardous/Less Expensive - The first flight of the F-15 Remotely Piloted Research Vehicle was successfully air launched from a B-52 flying at 45,000 feet in a program to obtain high angle of attack data, including post stall-pre-spin information. The 3/8's scale model of the USAF's F-15 fighter was flown with the test pilot in a ground cockpit, using telemetry and radar. A parachute was deployed to slow the RPRV descent. A helicopter grabbed the parachute in flight to recover the RPRV for future flights. The first flight achieved 100 per cent of its test objectives. The new RPRV test concept is providing a less hazardous and more economical method of flight testing experimental aircraft and spacecraft. (Flight Research Center, 805/258-3311)

# # #

VTOL Proof of Concept - Phase IIB of the tilt rotor research contract, a joint NASA/Army project, is expected to be initiated this month. This phase of the contract covers final design, fabrication, and delivery of two Tilt Rotor Research Aircraft. In addition to "proving the concept," the research program will explore the limits of the operational flight envelope and assess the application of the technology to military and civil transportation needs. The combination of longer ranges and higher speeds (potentially in excess of 400 knots) with the utility of the helicopter shows considerable promise for Army air mobility missions as well as improving short-haul air transportation and reducing airport congestion for civil applications. (Ames Research Center, 415/965-5091)
Quiet STOL Nacelles - As part of research on STOL propulsion, a TF-34 engine will undergo noise and performance tests in a new Lewis facility. The engine will be run in a nacelle treated with special sound muffling material. Results from the test will aid in designing nacelles which reduce noise but do not significantly hamper the aerodynamic performance of short-haul jet planes planned for the future. (Lewis Research Center, 216/453-6415)

# # #

STOL Avionics - Ames is conducting flight acceptance tests for the STOLAND avionics system recently installed on the C-8 Augmentor Wing Research Aircraft. When complete, the STOLAND system and the aircraft will begin a joint DOT/NASA STOL operating experiments program. (Ames Research Center, 415/965-5091)

# # #

Noise Pollution Alleviation - Construction work on the Langley Aircraft Noise Reduction Laboratory is about 70 per cent complete; much work still must be done to outfit the interior with equipment and simulation facilities. The lab will be the most complete noise study facility in the U.S. when it is completed in February, 1974. Research to be conducted there is expected to help alleviate noise pollution problems associated with airports and to gain knowledge about human responses to aircraft noise. (Langley Research Center, 703/827-3966)

# # #

- more UPDATE -
**Hypersonic Flight** - FRC is presently completing the planned unpowered (glide) flights of the X-24B, an experimental craft that could be the forerunner of future hypersonic (Mach 5+) aircraft capable of cruising at the edge of space (100,000 to 125,000 feet). During October, the Center expects to begin rocket-powered flights that will eventually attain speeds of 1,000 mph and altitudes of 80,000 feet. (Flight Research Center, 805/258-3311)

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**Vortex Flight Studies** - Plans are being readied for flight tests at the NASA Flight Research Center to determine the effects on smaller aircraft of the trailing vortex streaming from behind larger aircraft. The Center is also investigating ways of marking these hazardous vortices so that other pilots can see them in sufficient time to avoid them. (Flight Research Center, 805/258-3311)

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**Vortex Lab Studies** - Integrated Systems Review and Operational Readiness Review of the Langley Vortex Flow Facility has been held. All systems were found satisfactory by the review panel and the shakedown runs have begun. It is estimated that the facility will be in full operation in October. (Langley Research Center, 703/827-3966)

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**STOL Hybrid Propulsive Lift** - The Lockheed Aircraft Corporation, Lockheed-Georgia Company was awarded a contract to investigate the aerodynamic and acoustic characteristics of small scale models of hybrid propulsive-lift aircraft, utilizing an internally blown flap system combined with upper surface wing blowing and an

- more UPDATE -
above-the-wing engine installation. (Ames Research Center, 415/905-5091)

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**Increased Engine Lifetime** - Advanced technology tests of turbine engine bearings indicate improvements in engine performance to lifetimes of 20,000 hours at 3 million DN (bearing load measure) from the present level of 10-15,000 hours at 2 million DN. (Lewis Research Center, 216/453-6415)

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**Composites Structures Flight Testing** - Approximately 500 flight hours have been accumulated on a set of graphite-epoxy composite spoilers installed on a Pacific Southwest Airline 737 transport aircraft. Seven additional ship-sets of four spoilers each have been installed and are in service on Pacific Southwest, Aloha, New Zealand, and Lufthansa Airlines. The planned accumulation of flight service experience over the next five years will be a significant step in evaluating the integrity of flight service composite-material structures and in developing maintenance experience. (Langley Research Center, 703/827-3966)

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**NASA 15th Anniversary** - NASA has continued the long and successful record of its predecessor agency, the National Advisory Committee for Aeronautics, in preserving the role of the United States as a leader in civil and military aeronautical technology.

- END UPDATE -