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NASA to Feature Aeronautics and Space at EAA Convention

NASA returns to Oshkosh, Wisconsin, July 29-Aug. 5 for the 36th Annual Experimental Aircraft Association (EAA) International Fly-In Convention and Sport Aviation Exhibition with a new exhibit entitled "The Leading Edge in Aeronautics and Space Technology." Other highlights of NASA's participation include a special convention appearance by astronaut Marsha S. Ivins, the return of technical forum speakers, and an expanded NASA craftsmanship exhibit.

The three NASA aeronautics field centers supporting the overall NASA exhibit this year are Lewis Research Center, Cleveland; Langley Research Center, Hampton, Virginia; and Ames Research Center, Mountain View, California, which includes Dryden Flight Research Facility at Edwards Air Force Base. The Marshall Space Flight Center, Huntsville, Ala., and the Johnson Space Center, Houston, are also providing exhibit materials.

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The Goddard Space Flight Center, Greenbelt, Maryland, will provide its SARSAT van, a mobile exhibit telling the story of the Search and Rescue Satellite system. Also on display will be the popular AEROVAN travelling exhibit.

More than two dozen NASA speakers will conduct technical forums throughout the convention, ranging from "A Look at Advanced Cockpit Displays" to "The Changing Atmosphere" to "Space Station and its Electrical Power System."

Astronaut Ivins, an EAA member, will make a special audio-visual presentation Saturday evening, July 30, in the EAA Theater in the Woods. Ivins is a member of the 99's (International Women Pilot's Association) and the International Aerobatic Club. She was employed as a NASA aerospace engineer at Johnson Space Center in 1974 and was selected as an astronaut candidate in May 1984. Since qualifying for assignment as a mission specialist on future Space Shuttle flightcrews, she has worked on a variety of Shuttle-related projects including the review of Orbiter safety and reliability issues.

Throughout the 8-day convention, visitors to the NASA exhibit will be treated to a wide range of display topics and artifacts, from "improving materials" to "hypersonic flight."

Outside, in front of the NASA exhibit building, will be an unusual exhibit for an airshow — an Air Force pickup truck powered with a new type of engine. A joint technology development project between NASA and the Department of Energy has resulted in a promising technological advance. Imagine a television commercial for a car with a revolutionary new engine — one that uses no muffler, has no noxious exhaust, may never need an oil change, has very few moving parts and delivers high miles per gallon on anything from the cheapest gas to kerosene or home heating oil. The concept of the Stirling Heat Engine has been around for more than a century, but now for the first time, aerospace technologies have developed the high-temperature materials and sealing techniques that permit the concept to be transformed into a practical engine for a number of applications. A Stirling Engine, for example, is an option for use as an electrical 

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power generator for the second phase of NASA's international Space Station.

Inside the exhibit building, visitors will wind their way through exhibits with subtitles like Improving Materials, Ever-Increasing Power, Advancing Aerodynamics and Controls, Vertical and Short Takeoff and Landing Aircraft, Hypersonic Flight, Safety in Flight, and Space Exploration and Utilization.

Under the heading of Ever-Increasing Power, the news-making advanced turboprop is displayed. The turboprop concept, to reshape the propeller for increased fuel efficiency at jet speeds, has been successfully flight tested and recently won the prestigious Collier Trophy. The trophy is awarded annually for demonstrated achievement in improving the performance, efficiency or safety of air and space vehicles.

Because of its popularity and importance, Safety in Flight has become a yearly topic. This year an exciting new idea called the takeoff performance monitoring system is featured, as is a summary of results from the agency's multi-year lightning research program, recently concluded. The takeoff performance monitoring system is an information processing and graphics display system designed to aid pilots in their decision to continue or abort a takeoff. The award-winning concept is being enthusiastically received by pilots and the aerospace industry.

Among the "shocking" results recorded from the lightning research is that lightning strikes are encountered at nearly all temperatures and altitudes and can occur in non-thunderstorm clouds. Operational data had previously suggested that lightning was a concern primarily at or below the freezing level. Other revealing results are presented. The objective of the program, in which an instrumented and lightning-hardened fighter-type jet was purposely flown into thunderstorms to be struck by lightning, was to characterize the nature and effects of airborne lightning on advanced, low-voltage electrical and electronic systems. Now that the work is near completion, NASA can send one of its lightning researchers to Oshkosh during the lightning season,
for the first time, to serve as a forum speaker on its lightning work.

As the "Space Exploration and Utilization" exhibit area is entered, the visitor is reminded that the United States now has a national space policy that calls for U.S. leadership in space in the next century. Three major goals are expanding the human presence beyond Earth orbit and into the solar system, creating opportunities for U.S. commerce in space and continuing the national commitment to a Space Station.

Space Shuttle Discovery is being readied for the first reflight of the Shuttle system since the Challenger accident two and one-half years ago. This critical event is highlighted in an exhibit area subtitled Return to Flight. A 1/15th Shuttle model in launch configuration will be displayed, supported by photographs depicting the Shuttle recovery effort and STS-26 launch preparations.

A model of the Space Station is the centerpiece of an exhibit updating the Space Station status, while other exhibits illustrate new space technology programs, space science programs and atmospheric science programs like the mission over the South Pole to study the ozone hole.

Back by popular demand is an expanded NASA craftsmanship exhibit, operated by technicians from the Langley and Lewis Research Centers. The exhibit highlights fabrication crafts with displays of selected metal and composite structures, aeronautical models, test equipment and data measurement hardware.

For 73 years the research centers of NASA and its predecessor agency, the National Advisory Committee on Aeronautics, or NACA, have led the world in aeronautical research and development. Today, working closely with industry and universities, NASA scientists and engineers continue that tradition, maintaining the leading edge in all the aeronautic disciplines of aerodynamics, structures, propulsion, and
flight systems for advanced high-performance aircraft, transport aircraft, and rotorcraft, covering the speed regime from hover to hypersonic flight.

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NOTES TO EDITORS:

1. To reach a NASA public affairs representative at the EAA convention, phone 414/433-1922 or 414/235-5424.

2. An informal news media briefing with astronaut Marsha S. Ivins is jointly planned by EAA and NASA for 1:30 pm, Saturday, July 30, outside the NASA exhibit building. At 9:15 pm, Ivins is scheduled to address the audience at the EAA Theater In The Woods.

3. AEROVAN and SARSAT spokespersons will be available for interviews during exhibit hours at their respective mobile exhibit vans in front of the NASA Exhibit Building.