T-50 Aircraft Reaches Significant Technical Milestones

The supersonic T-50 Golden Eagle advanced jet trainer has attained several significant technical milestones, including reaching maximum load factors, maximum operating speed, beginning stores separation testing and completing its second lifetime of structural durability testing.

The T-50 is being developed by Korea Aerospace Industries (KAI) with assistance from Lockheed Martin. The Republic of Korea Air Force (ROKAF) is conducting the flight test program from Sacheon Air Base, South Korea, with support from the aircraft contractors.

"Each of these accomplishments further proves the T-50 to be a dynamic, durable and reliable aircraft, confirming our confidence in the design and configuration," said Jang, Sung Sub, KAI's Aircraft Development Center director. "The T-50 program continues to meet all of its technical and performance expectations."

The T-50 flight test program achieved a monthly high of 70 sorties during December 2004 using three aircraft. The flight test program is now approximately 70 percent complete.

T-50 Reaches Maximum Load Factors

The T-50 reached its maximum design load factors of +8gs (eight times force of gravity) and -3gs (violent pushover maneuver) on Dec. 27 and Dec. 29, 2004, respectively. These maximum design load factors correspond to those of modern high-performance fighter aircraft.

T-50 Reaches Maximum Speed

The T-50 reached its maximum operating speed of 675 knots calibrated air speed (KCAS) on Dec. 10, 2004. This speed is significant in that it represents the highest dynamic air pressure on the aircraft. The speed corresponds to 815 knots true air speed and Mach 1.3 (1.3 times the speed of sound).

Though the maximum operating speed is not normally used in the advanced jet training role, higher speeds are necessary during combat maneuvers with the A-50 Lead-In Fighter Trainer, which shares the T-50 airframe and propulsion system. Higher speeds are also relevant should the design evolve from a trainer to a light combat aircraft.

The design speed limits for the T-50 are 730 KCAS and Mach 1.5, although there are no plans to validate these higher speeds during the current Full Scale Development program.

T-50 Begins Stores Separation Testing

The T-50 began stores separation testing in October 2004 with the release of a 150-gallon fuel tank, the first airborne store separation for the aircraft.

The successful separation validates the emergency jettison function, allowing the tanks to be used for the remainder of the flight test program when needed. This additional fuel leads to more airborne time per sortie and, in turn, more accomplishments during flight testing.

T-50 Completes Second Life in Structural Durability Testing

The T-50 successfully completed its second lifetime of structural durability testing during 2004.

Durability testing, also known as fatigue testing, is used to validate the aircraft's design structural service life (8,334 hours) based on a demanding flight spectrum representing expected flight usage. The first such testing was conducted between July 2002 and April 2003. After a thorough tear-down inspection, the test vehicle was subjected to a second service life testing (an additional 8,334 hours) between August 2003 and October 2004.

"Having completed two lifetimes of durability testing, we are confident the airframe will be problem free for well over the planned service life," said Jang. "All ground structural testing is now complete."

BACKGROUND INFORMATION

The T-50 is the only supersonic trainer in development or production. It has the performance, handling qualities,

cockpit and advanced systems necessary to train pilots to fly both today's advanced fighters and the next-generation of combat aircraft.

The T-50 Golden Eagle is being developed by KAI for the ROKAF. Lockheed Martin is providing technical expertise for the FSD program and is responsible for developing the T-50 avionics system, flight control system and wings. KAI and Lockheed Martin have an agreement for joint international marketing of the T-50. The program entered the transition-to-production phase with initial contract from the ROKAF awarded to KAI in December 2003. The first production aircraft is expected to be delivered in late 2005.

Korea Aerospace Industries Ltd. is the Republic of Korea's national aerospace company, established in 1999 with the consolidation of Samsung Aerospace, Daewoo Heavy Industries and Hyundai Space and Aircraft Co. KAI lines of business include fixed-wing aircraft, helicopter aircraft and satellites. Its major products are the KF-16, KT-1 basic trainer, T-50, SB427 helicopters, UAVs, aerostructures and KOMPSAT satellite program.

Lockheed Martin Aeronautics Co., a business area of Lockheed Martin, is a leader in the design, research and development, systems integration, production and support of advanced military aircraft and related technologies. Its customers include the military services of the United States and allied countries throughout the world. Products include the F-16, F/A-22, F-35 JSF, F-117, C-5, C-130, C-130J, P-3, S-3 and U-2. The company produces major components for the F-2 fighter, and is a co-developer of the C-27J tactical transport and T-50 advanced jet trainer.

Headquartered in Bethesda, Md., Lockheed Martin Corp. employs about 130,000 people worldwide and is principally engaged in the research, design, development, manufacture and integration of advanced technology systems, products and services. The corporation reported 2004 sales of $35.5 billion.

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