Lockheed Martin C-5M Super Galaxy Sets World Aviation Records

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A joint U.S. Air Force and Lockheed Martinflight crew flying a C-5M Super Galaxy strategic transport claimed 41 world aeronautical records in one flight on September 13.

The flight from Dover AFB broke eight existing world marks and established standards in 33 other categories where there had been no previous record attempt. The records were set in the Class C-1.S, Jet category for altitude in horizontal flight, altitude with payload, time-to-climb, time-to-climb with payload and greatest payload to 2,000 meters. The aircraft carried a payload of more than 80,000 kg (the actual measured payload weight was 176,610 lb) to an altitude of more than 41,100 feet in 23 minutes, 59 seconds.

"These records are simply a reflection of the capability of the Super Galaxy," said Lorraine Martin, Lockheed Martin C-5 Program vice president. "These records are not just for show. They demonstrate conclusively the C-5M's ability to quickly get the warfighter out of harm's way while carrying a larger payload than any other U.S. airlifter. This flight also showed the Super Galaxy can operate with that payload at operational altitudes. The C-5M is strategic airlift redefined."

The Class C-1.S Jet category is for aircraft weighing from 250,000 kilograms (551,155 pounds) to 300,000 kg (661,386 lb). The C-5M had a takeoff weight of 649,680 lb, which included fuel, crew weight, necessary equipment, and the payload, which was loaded on 29 standard U.S. military 463L cargo pallets. All C-5s are capable of carrying 36 pallets.

The flight set a new record for altitude with payload of 41,188 feet. It also set marks for time-to-climb and time-to-climb with 35,000 kg (77,162 lb), 40,000 kg (88,185 lb), 45,000 kg (99,208 lb), 50,000 kg (110,231 lb), 60,000 kg (132,277 lb), 70,000 kg (154,323 lb), and 80,000 kg payload. The flight took 4 minutes, 13 seconds to reach 3,000 m (9,843 ft) altitude; 7 min., 27 sec to get to 6,000 m (19,685 ft); 13 min., 8 sec. to fly to 9,000 m (29,528 ft); and 23 min., 59 sec to fly to 12,000 meters (39,371 ft).

The flight also broke existing class records for altitude in horizontal flight (41,116 ft) and altitude with 35,000 kg, 40,000 kg, 45,000 kg, 50,000 kg, 60,000 kg, and 70,000 kg payload (41,188 ft). The mission broke the record for greatest payload (80,036 kg/176,610 lbs) to 2,000 meters (6,562 ft) as well.

All of the records will first be certified as United States national records by the National Aeronautic Association, the nation's oldest aviation organization. The NAA, based in Arlington, Va., is the U.S. representative to the Federation Aeronautique Internationale (FAI), the sanctioning body for all world aviation records. Formal approval of the C-5M records by the Lausanne, Switzerland-based FAI is expected to take several weeks.

The C-5M is the product of two major upgrade programs. The Avionics Modernization Program (AMP) modifications replace the C-5's analog avionics in the Galaxy with a commercially available, digital avionics suite along with an integrated architecture that allows for upgrades. The entire system is designed to increase safety, ease crew workload and enhance situational awareness.

The second phase is the Reliability Enhancement and Re-engining Program (RERP). The RERP modifications consist of more than 70 improvements and upgrades to the C-5 airframe and systems, and include installation of higher-thrust, more reliable, more environmentally friendly F138-GE-100 turbofan engines. This engine is the military version of the CF6 engine that has recorded hundreds of millions of hours on commercial airliners all over the world and that serves on Air Force One. When a Galaxy has been through both AMP and RERP, it is redesignated a C-5M.

Current Air Force plans call for Lockheed Martin to deliver 52 C-5Ms (modification of 49 C-5Bs, two C-5Cs, and one C-5A) by 2016. Three C-5Ms have been redelivered to the Air Force.

Headquartered in Bethesda, Md., Lockheed Martin is a global security company that employs about 140,000 people worldwide and is principally engaged in the research, design, development, manufacture, integration and sustainment of advanced technology systems, products and services. The corporation reported 2008 sales of $42.7 billion.

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