GPS Satellites Exceed 100 Years On-Orbit Service

The US Air Force's fleet of Global Positioning System (GPS) Block IIR and IIR-M satellites, designed and built by Lockheed Martin, has accumulated one hundred years of successful on-orbit operations. The 12 Block IIR and seven IIR-M satellites in service within the overall 30-spacecraft constellation have provided a reliability record of better than 99.9%.

In over 100 cumulative years of on-orbit life, this translates to less than one minute of unscheduled outage for every month of operational service, an unmatched record of exceptional performance and reliability for GPS users around the globe.

GPS provides essential services including situational awareness and precision weapon guidance for the military. It is also an information resource supporting a wide range of civil, scientific and commercial functions - from air traffic control to the Internet - with precision location and timing information.

Lockheed Martin Space Systems, Newtown, Pa., is the prime contractor for the GPS IIR program. The company designed and built 21 IIR spacecraft for the Global Positioning Systems Wing, Space and Missile Systems Center, Los Angeles Air Force Base (CA, USA). The final eight spacecraft, designated Block IIR-M, were modernized to enhance operations and navigation signal performance for military and civilian GPS users around the globe. ITT, Clifton, N.J. supplied all 21 navigation payloads for both the IIR and IIR-M spacecraft.

GPS IIR satellites have been delivering improved navigation capabilities to the US military and civil users since the first launch of a IIR satellite on July 23, 1997. The seventh IIR-M satellite, equipped with an innovative demonstration payload for a third civil signal known as L5, was successfully launched on March 24, securing a critical frequency band for the US government.

Based on the navigation user range error, which measures GPS accuracy, the Block IIR and IIR-M satellites enable properly equipped users to determine precise time and velocity, and worldwide latitude, longitude and altitude to within one meter. Air Force Space Command's 2nd Space Operations Squadron (2 SOPS) at Schriever Air Force Base, Colo., manages and operates the GPS constellation for both civil and military users.