



**U.S. Department
of Transportation
Federal Aviation
Administration**

InFO

Information for Operators

InFO 19005
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Flight Standards Service
Washington, DC

http://www.faa.gov/other_visit/aviation_industry/airline_operators/airline_safety/info

An InFO contains valuable information for operators that should help them meet certain administrative, regulatory, or operational requirements with relatively low urgency or impact on safety.

Subject: Global Positioning System (GPS) Week Number Rollover Event.

Purpose: This InFO serves to raise awareness of the potential for adverse effects of the upcoming GPS “week number” rollover on aviation systems.

Background: The GPS provides position, navigation and timing information to many systems used in aviation: on-board GPS receivers, Flight Management Systems, Enhanced Ground Proximity Warning Systems, Air Traffic Management Systems, and Surveillance Systems.

The GPS navigation message signal contains information about current date and time in the form of a sequential week counter (representing the number of weeks elapsed from the reference date of January 6, 1980) and of the number of seconds elapsed within the current week. GPS user devices convert this data into conventional day/month/year formats. However, the GPS navigation message format has a limit to the data field that contains the week counter and counts only up to 1,024 weeks from week zero to week 1,023. At the end of week 1,023, the counter rolls over (restarts) from zero.

Discussion: The next GPS rollover event will occur at 23:59:42 UTC on April 6, 2019. Aviation GPS receivers compliant with Technical Standard Orders and GPS interface specifications should not be negatively affected by the rollover event. Requirements for GPS user systems are provided in the official GPS interface specification issued by the United States (IS-GPS-200H), which operates the GPS constellation. Users of GPS for aviation should expect that the rollover event will be properly handled by compliant, certified aviation systems. Nevertheless, the existence of non-compliant equipment cannot be ruled out.

Recommended Action: In order to mitigate any safety risk related to the GPS rollover, owners and operators are encouraged to:

- Review their GPS operations manuals, Supplemental Type Certificate information, or contact their avionics manufacturers to determine the compliance status of their GPS device and any actions needed to ensure proper operation during or after a rollover event;
- On and after the April 5-6 event, be aware of any GPS anomalies and be prepared to utilize alternate forms of navigation, if required; and
- Report the details of any GPS rollover anomaly to the device manufacturer and the Flight Operations Group at the number below

Contact: Questions or comments regarding this InFO should be directed to the Flight Technologies and Procedures Division at 202-267-8790.