



Honeywell HG 1700 RLG **World's Leading Tactical Grade IMU's** HG 1930 MEMS
Distributed Exclusively by **LKD AEROSPACE**



Global Navigation Satellite Systems
Engineering, Policy and Design



 USA GPS ▶	 EUROPE GALILEO ▶	 RUSSIA GLONASS ▶	 CHINA BEIDOU ▶	 REGIONAL/AUGMENTATION RNSS/SBAS ▶
---	---	---	--	--

HOME NEWSLETTER GNSS NEWS EVENTS INDUSTRY NEWS WEBINARS MAGAZINE ADVERTISE SUBSCRIPTIONS CONTACT

NEXT ISSUE: NOVEMBER/DECEMBER 2016

Navigating in Space: Taking GNSS to New Heights

Satellite Selection for Aviation Users of Multi-Constellation SBAS

GNSS & The Law: Legislative Situation in India Regarding Satellite Navigation

» ONLINE PREVIEW

» SIGN UP FOR A FREE SUBSCRIPTION
(ALLOW 6 TO 8 WEEKS TO RECEIVE YOUR FIRST ISSUE.)

INSIDE GNSS MAGAZINE

CURRENT ISSUE ONLINE

CURRENT DIGITAL EDITION

DIGITAL EDITION ARCHIVE



WEBSITE GUIDE

ADVERTISE

MEDIA KIT

CONTACT

MAGAZINE

CURRENT ISSUE

PAST ISSUES

SUBSCRIPTIONS

SUBSCRIPTION SERVICES

FREE SUBSCRIPTION

CHANGE

QUESTIONS

CANCEL

E-NEWSLETTER
SUBSCRIPTION

COMPANY INFORMATION

ABOUT US

CONTACT US

STAFF PROFILES

CONTRIBUTING EDITORS

CONTRIBUTING WRITERS

EDITORIAL ADVISORY
COUNCIL

GNSS INDUSTRY

EVENTS

INDUSTRY NEWS

COLUMNS & EDITORIALS

GNSS & THE LAW

GNSS HOTSPOTS

GNSS SOLUTIONS

GNSS WORLD

HUMAN ENGINEERING

THINKING ALOUD

WASHINGTON VIEW

BRUSSELS VIEW

WORKING PAPERS

BOOK REVIEWS

ONLINE FEATURES

DIGITAL EDITION

SIGNALS NEWSLETTER

WEB SEMINARS

RSS FEEDS

 GNSS NEWS

 GNSS EVENTS

NovAtel's Annual Journal of GNSS Technology

INSIDE GNSS NEWS



Source: U.S. Air Force.

(Click image to enlarge.)

GAO: New GPS Ground System, Not GPS III Engineering, Primary Cause for Delays

Latest News

Dee Ann Divis

November 30, 2016

Share via:  [Slashdot](#)  [Technorati](#)  [Twitter](#)  [Facebook](#)

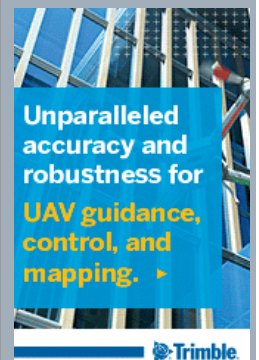
Government watchdogs said in a new report that schedule slippages in the new GPS ground system — which in October had another four months added to its repeatedly extended schedule — are more of a factor in delays to GPS modernization than technical problems with the satellite's payload.

The payload issue pushed back the GPS III satellite program by two years, the Government Accountability Office (GAO) wrote. But the satellite program's dependence on the Global Positioning System Next Generation Operational Control System (GPS OCX) "proved to be a greater challenge to sustaining and modernizing the GPS system," the GAO wrote in its November 2016 report Weapons Systems Requirements: Details Systems Engineering Prior to Product Development Positions Programs for Success.

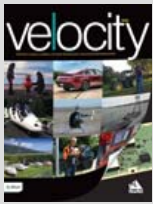
Linked Programs

Block 1 of the OCX system is required for the operation of both old and new GPS III satellites as well as new constellation capabilities. However, Block 1 won't be delivered, however, until near the end of 2021 — during the first quarter of fiscal year 2022 (FY22). Federal fiscal years begin on October 1 of the preceding calendar year.

OCX had already been delayed by six years to July 2021 when Under Secretary of Defense for Acquisition, Technology and Logistics Frank Kendall



Solutions and Innovation



2016



2015



2014



2013

gave OCX prime contractor Raytheon another four months to finish its work. The new delay came on top of a 24-month reprieve he granted in December 2015 and other schedule changes before that.

"Incorporation of the additional 4 months into Raytheon's schedule would result in the restructured OCX program achieving Block 1 RTO (Ready To Operate) in 1Q FY2022," Air Force spokesman Capt. Annamarie Annicelli told *Inside GNSS*.

Kendall is monitoring the program closely, holding quarterly reviews with the Air Force and Raytheon. Though the Pentagon certified to Congress that it needed OCX after a critical Nunn-McCurdy breach was declared this summer, Kendall has made clear he is ready to cancel all or some of Raytheon's contract if it again strays off course.

But additional slippages may be on the horizon.

OCX "may be delayed further because of ongoing developmental issues," according to the November GAO report. The Air Force originally told Kendall a year ago, during a Deep Dive review in December that they needed until June 2023.

The cost for the OCX program also has soared from the original \$1.5 billion (including all contract options) to some \$5.5 billion — hence the triggering of Nunn-McCurdy provisions, which could have forced the program's termination. The Nunn-McCurdy law aims to alert Congress when a program is seriously over budget and force that program's realignment.

Interestingly, the cost of the GPS III program has jumped from \$2.5 billion to more than \$3.0 billion, according the report. That puts the GPS III program close to the 25 percent cost-increase threshold that triggers a non-critical Nunn-McCurdy breach, and the requirement that Congress be notified.

Lessons Learned

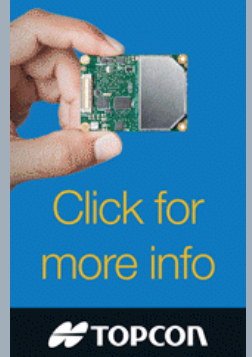
The findings in the GAO report are part of a larger look at military development programs to better understand the reasons for cost overruns and delays, including whether changing requirements are more of an issue or poor systems engineering. After looking at nine programs, including GPS III, the GAO concluded that systems engineering at the early stages is the best way to avoid problems. The report identified four factors that "frame the challenge posed by a given weapon system's requirements: acquisition approach, technology status, design maturity, and system interdependency."

GPS III, said GAO, was an example of a program where the top-level requirements posed only moderate challenges as the technology for the satellites was "assessed as mature." Moreover, systems engineering was done at the start of the program "to gain an early understanding." It is the program's interdependency with OCX that has been the primary problem.

"As a result of the OCX program's delays," GAO wrote, "the Air Force is pursuing a smaller scale program to modify the existing GPS operational control system to enable the operational use of GPS III satellites for all legacy GPS functions until delivery of the OCX Block 1, which will then permit the operational testing and use of the GPS III satellites' new capabilities. Due to OCX delays and the likely timing of the contingency operations system the Air Force may need to delay the launch of multiple GPS III satellites or launch several without fully testing them."

And OCX is not the only interdependency keeping users from benefiting quickly from GPS modernization, GAO said.

The "timing of MGUE [military GPS user equipment] capability delivery will further postpone — by about a decade — the warfighter's ability to take



advantage of the upgraded system's new military code, which offers greater resistance to jamming."

Copyright © 2016 Gibbons Media & Research LLC, all rights reserved.

**HOW MUCH
ACCURACY DO
YOU NEED?**

navitec 2016

→ 14-16 December

ESA-ESTEC

The Netherlands

[Register Now](#)

[HOME](#) • [SUBSCRIPTION SERVICES](#) • [ADVERTISE](#) • [CONTACT US](#)



Copyright © Gibbons Media & Research LLC. All rights reserved.

1574 Coburg Road No. 233 • Eugene, Oregon 97401-4802 • United States

Telephone 408-216-7561 • Fax 408-216-7525

Problems viewing this page? **CONTACT OUR WEBMASTER.**