

No. 2829

# GPS Position Spike and Operational Work-Around

## Applicability

This Service Letter applies to FMS, GNSS, GPS, and GLS models listed in the following table.

Product	Model	Part Number	Mod Strike
FMS	1C	1017-3X-XXX and 1017-4X-XXX	14
		1017-6X-XXX and 1017-7X-XXX	N/A
FMS	1C+	10172-3X-XXX and 10172-4X-XXX	16
		10172-6X-XXX and 10172-6X-XXX	N/A
FMS	1Csp	1019-3X-XXX and 1019-4X-XXX	13
		1019-6X-XXX and 1019-7X-XXX	N/A
FMS	1Csp+	10192-3X-XXX and 10192-4X-XXX	15
		10192-6X-XXX and 10192-7X-XXX	N/A
FMS	1K	1116-3X-XXXX and 1116-4X-XXXX	2
		1116-6X-XXXX and 1116-7X-XXXX	N/A
FMS	1K+	11162-3X-XXXX and 11162-4X-XXXX	4
		11162-6X-XXXX and 11162-7X-XXXX	N/A
FMS	1D	1192-XX-XXX1XX	5
		1192-XX-XXX2XX	N/A
FMS	1D+	11922-XX-XXX1XX	7
		11922-XX-XXX2XX	N/A
FMS	1E	2017-3X-XXX, 2017-4X-XXX	N/A
FMS	1Esp	2019-3X-XXX, 3019-4X-XXX, 3019-7X-XXX	N/A
FMS	1L	2116-3X-XXXX, 2116-4X-XXXX, 2116-6X-XXXX , 2116-7X-XXXX	N/A
FMS	1F	2192-XX-XXX1XX	N/A
GPS	1000A	1078-01	N/A
GNSS	2400	1078-02	N/A
GLS	1250	1086-01-00	N/A

## Description

There is an anomaly in the GG12 GNSS receiver module where an erroneous position spike is possible. The position spike in this context is an instantaneous and erroneous movement of GPS computed position, followed by an almost instantaneous movement back to the correct computed GPS position. The size and location of the position spike is dependent upon several factors. For most operations, the probability of encountering a position spike anomaly is small. This spike will last for approximately one second and will impact FMS position as well as the computed ANP (Actual Navigation Performance) or Q value. After a GPS position spike, the internal GNSS receiver module will quickly return to normal operation but the FMS may demonstrate side affects that last for up to five minutes.

## Service Letter

The following procedures provide steps to identify the occurrence of an anomaly and verify that it is the result of a position spike, and to conduct an operational work-around to quickly restore FMS position accuracy. These procedures should only be used when flight conditions permit a crew member to safely address the problem.

### **Identify and Verify the Occurrence of an Anomaly (Spike)**

1. Look for any of the following:
  - A FMS POSITION UNCERTAIN (ANP or Q larger than RNP) message.
  - FMS displayed guidance or steering which reacts to an unanticipated change in FMS position and may initiate an unexpected turn.
  - A significant difference between the GNSS and FMS position on the DATA 3/4 page.
2. Verify the GNSS sensor is healthy by checking the GNSS sensor page for the following:
  - GNSS status is NAV
  - INTEG is RAIM or RADIO

**NOTE:** After a GPS position spike, the aforementioned FMS symptoms may be observed but the GNSS sensor will instantaneously return to normal/correct behavior.

**NOTE:** For customers with the GPS-1000A product, the FMS will display GPS in place of GNSS on the applicable CDU pages.

### **GPS Position Spike Operational Work-Around Procedure**

Once a GPS position spike is verified, the following procedure resets the FMS system position and brings ANP (or Q) back to normal and expected values.

1. Go to DATA 3/4 page.
2. Press line select key (LSK) [1L] (FMS Position). The DEFINE POS page will appear.
3. Press LSK [2R] to highlight the GNSS position and bring up the GNSS POS prompt on LSK [3R].
4. Press LSK [3R] to highlight ACCEPT on LSK [5L].
5. Press LSK [5L] to accept the GNSS position. The FMS position will be reset to the current GPS position. ANP (or Q) will quickly drop back down to values that will clear the POSITION UNCERTAIN message. Normal FMS navigation may be resumed.

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