



1200 E. 151st Street
 Olathe, KS 66062
 913-397-8200

SERVICE ADVISORY

NO.: 1619 Rev A

TO: Owners and Operators of Garmin GTN 6XX/7XX Navigators
DATE: March 4, 2016
SUBJECT: Changes in the Display of Steering and Navigation Information

AFFECTED PRODUCTS

GTN 6XX/7XX series navigators with software version 6.00 and later are affected.

DESCRIPTION

GTN software version 6.00 and later provide an improved methodology for computing GPS steering and navigation paths. This improvement makes the GTN consistent with the Garmin Integrated Flight Decks and complies with the requirements of DO-229D. This change provides improved path definition on the moving map and provides Course Deviation Indicator (CDI) guidance during the transition between flight plan legs.

This is a change from previous versions of the GTN. GTN users need to be aware of how these changes affect the display of navigation on the GTN and on externally interfaced HSIs and CDIs.

Pilot Action

The following table describes the change in the GPS navigation function.

Table 1 – Navigation Changes Between GTN v5.13 and v6.11

Function	Prior to GTN v6.00	GTN v6.00 and subsequent
Moving map depiction of a flight plan route (See Figures 1 & 2)	<ul style="list-style-type: none"> • Solid straight lines between flight plan waypoints. • Active leg is shown in magenta. • Future legs are shown in white. • Prior legs are not depicted. 	<ul style="list-style-type: none"> • Solid curved line transitions between flight plan legs. • Active leg including curved transition is shown in magenta. • Future legs are shown in white. • Prior legs are shown in light gray. • If on an off-route Direct To only that Direct To course is shown unless graphically editing the flight plan in which case the flight plan route and off-route Direct To rout are shown.
CDI Guidance for GPS navigation along a flight plan route	CDI guidance provided for the straight line course between flight plan waypoints. CDI guidance corresponds to the flight plan depiction shown by solid lines on the moving map	CDI guidance is provided for the full flight plan path including curved transitions between flight plan legs. CDI guidance corresponds to the flight plan depiction shown by solid lines on the moving map. CDI

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	and the DTK indication between waypoints on the flight plan.	guidance does not correspond to the DTK indication between waypoints on the flight plan while on curved segments.
Roll Steering commands (provided to roll steering capable autopilots)	Roll steering commands are provided for the path including the transitions between flight plan legs as depicted by the dashed magenta lines.	Roll steering commands are provided for the path including the transitions between flight plan legs as depicted by the solid flight plan line.
Heading Legs to Intercept a Course (See Table 2)	No CDI guidance is provided along the heading leg until reaching the centerline of the course to be intercepted. For and autoslewing HSI the course pointer is slewed to match the heading on the heading leg and snaps to the course for the leg being intercepted upon reaching the centerline of that leg. Roll steering is provided along a path that includes the heading leg and transition to the next course.	No CDI guidance is provided along the heading leg until reaching the start of the turn to transition to the next course to be intercepted at which point CDI guidance is provided relative to the turn (not the course being intercepted). For an autoslewing HSI the course pointer is slewed to match the heading on the heading leg and snaps to the course for the leg being intercepted upon reaching the start of the turn to transition onto the leg being intercepted. Roll steering is provided along a path that includes the heading leg and transition to the next course.

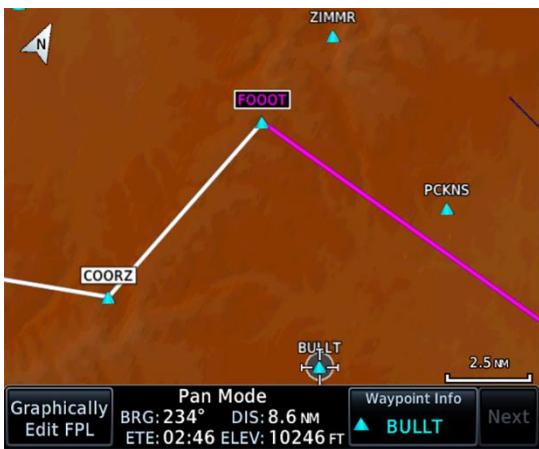


Figure 1- Main Map Turn Not Smooth, GTN v5.13



Figure 2- Main Map Turn Smoothing, GTN v6.11

As of GTN v6.11 the previous legs of the flight plan will be shown on the main map. Additionally, when the pilot is navigating on an off-route direct-to, the ability to graphically edit the active flight plan, or the direct-to, is available.

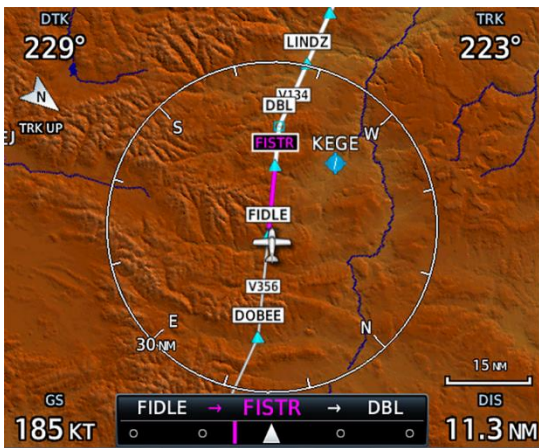


Figure 3- Previous FPL Legs, GTN 6.11

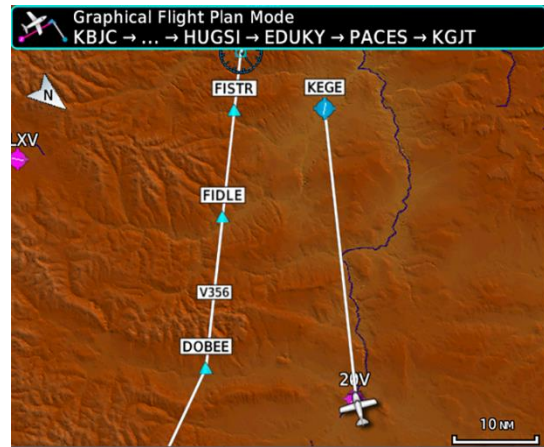


Figure 4- Graphically editing off-route DTO, GTN 6.11

Operational differences


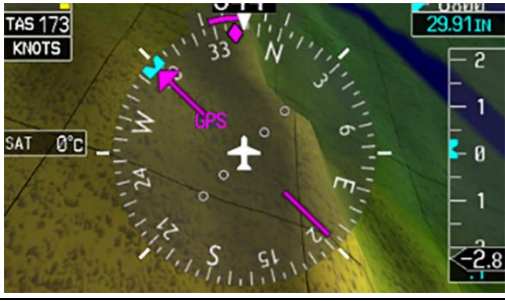



As a result of these changes in the GPS navigation function pilots may need to change their operational technique when transitioning between legs in flight plans.

Previously pilots were provided no useable CDI guidance during a turn to transition between flight plan legs or when intercepted a course. Upon reaching the later part of the transition turn many pilots would use the rate of CDI movement toward center as a means to judge the sufficiency of the rate of turn to accurately capture the subsequent course.

With this change in function pilots are provided with CDI guidance throughout the turn and may adjust the rate of turn continuously through the transition turn to maintain a centered CDI and thus accurately capture the subsequent course.

For example, if during a transition turn the aircraft heading was still 30 degrees prior to the next selected course and the CDI was approximately centered then the pilot would recognize that the course would be overshoot and might increase the rate or turn or continue the turn through the selected course to reintercept. With the new functionality a centered CDI through the entire duration of the turn is normal and should not be mistaken for an overshoot condition.

Table 2 - Sequence for Headings to Intercept a Course

	<p>On course approaching a heading leg that intercepts the next course.</p>
	<p>Immediately after sequencing to the heading leg and in a left turn to the charted 297° heading.</p>
	<p>Established on the heading leg approaching the intercept.</p>
	<p>Intercepting the curved path from the heading leg to the next course (268°).</p>
	<p>Established on the 268° course.</p>