

GTN-650 Default Setup

- 1: COM 1 = VHF, NAV 1 = GTN-650 GPS or VLOC
- 2: COM 2 = UHF, NAV 2 = KNS-81 (TCN/VOR/ILS/LOC).
- 3: Press in COM 3 to hear audio traffic alerts.

1. **Set Map Detail Level:** Home → Map Page → Menu → Drag Slider



2. **Map Overlays:** Enable TOPO (cannot enable Terrain and NEXRAD simultaneously).

3. **Map Setup:** Set Map "Orientation" to "Heading Up," turn off "Auto Zoom."
Set Airspace to "Show All Airspaces," turn on "Smart Airspace."
Set Traffic Type to "All Traffic."

4. **Change User Fields:** From the Map Menu page (above), select **Change User Fields**. Touch each corner to set: ACTV WPT (active waypoint), DIS (distance to waypoint), DTK (desired track to waypoint), ETE (estimated time en route to active waypoint).



GTN-650 Default System Setup

1. **Check GPS Status:** Home → System → GPS Status (satellites and V/HFOM).

2. **Touch SBAS, Verify WAAS Enabled:** Required for LPV approaches.



From the System → Setup Page:



3a. **Select CDI Scale:** Set to "Auto" or change as desired (ex. 1.00 for Low Levels).

3b. **ILS CDI Capture:** Enable "Auto Switch."

4. **Nearest Airport :** Set "Hard/Soft" Runway Surface, 0' Minimum Runway Length.

5. **Set Airspace Alerts:** Home → System → Alerts → Airspace Alert Options
Enable as desired (ex. Restricted for local flights, Class B/C/D for CCX).

GTN-650 Quick Reference Guide

Database Currency: If expired, do not tap "update." Tap "continue" and notify Mx.

Currently Installed Databases	
Navigation 1705	}
Basemap 16M1	
OBST/HOT 17B3	
SafeTaxi 17S3	
Terrain 16T1	

If expired, cannot use GPS under IFR.
(Write a MAF.)

If expired, ok to use GPS under IFR.

How to...

Determine RAIM at Destination: Home → Utilities → RAIM Prediction
Enter Destination, Date/Time, and press "Calculate."

Edit/Delete Scheduled Messages: Home → Utilities → Scheduled Messages
Select/delete/modify as appropriate for flight. Examples: "Check Fuel" every 15 minutes, "Verify RAIM," "Obtain Weather," etc.

Load a TW-5 Local Route: Home → Flight Plan → Menu → Catalog (choose from list)

Add Local Points to Your Flight Plan: Home → Flight Plan → Start typing the name of the local point (ex. IGOR, HOSP1, etc.), tap the Fast Find when it appears.

Obtain TAF/METARs: Enable Weather: Home → Weather → Menu → Enable METAR
Home → Waypoint Info → Airport → WX Data

Annunciations:

ENR: En route mode, full-scale deflection is 2.0 NM.

TERM: Terminal mode, full-scale deflection is 1.0 NM.
Automatic when within 30nm of either departure or destination airfields in flight plan.

MAPR: Missed approach is active, full-scale deflection is 0.3 NM.

LOI: Loss of Integrity (GPS positional error).

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GTN-650 Loading and Flying Approaches

How to Load an Approach:

Home → PROC → Approach: Select Airport and Approach:



1. Select Desired Transition:

"Vectors" will draw a straight line from the FAWP aligned with the FAC.

Selecting a point on the approach (for a TAA or transition route) will enable that point as the first point on the approach.

2. Preview:

Ensure approach depiction corresponds as desired.

3a. Load Approach: Loads the approach at the end of your flight plan and preserves all intermediate waypoints prior to the approach.

3b. Load Approach & Activate: Loads the approach with the selected IAF/FAWP as the active waypoint in the flight plan.

On the Approach: 60 seconds from the FAF, scaling is automatically tightened from 1.0 NM to the angular full-scale deflection of 2 degrees or 0.3 NM, whichever is smaller.
Watch for flashing Message key! If LPV accuracy cannot be verified, approach will downgrade to LNAV, or GTN will abort the approach if GPS position is unavailable.

APR:

- LPV: Vertical guidance, requires WAAS, DA minima.
- LNAV/VNAV: Vertical guidance, requires WAAS, DA minima.
- LNAV: No vertical guidance, does not require WAAS, MDA minima.
- LP: No vertical guidance, requires WAAS, MDA minima.

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GTN-650 Messages and Failure Modes

<u>Message</u>	<u>Description</u>	<u>Action</u>
ABORT APPROACH	GPS approach no longer available.	Climb to MSA, execute non-GPS approach.
AIRSPACE ALERT	Aircraft is within 10 minutes and/or 2 NM from airspace.	Informational only. (Configure Alerts via System → Alerts)
APPROACH DOWNGRADE	Approach has been downgraded from LPV to LNAV/VNAV or LNAV minima.	Continue approach using published minima.
APPROACH NOT ACTIVE	Required accuracy not available, still in TERM mode.	Abort the approach, execute a non-GPS approach.
CDI SOURCE	On GPS approach but VLOC selected, or vice versa.	Select appropriate CDI source.
DATALINK	Multiple causes, ADS-B or GDL-88 error.	Use remaining equipment for further flight, contact MX.
GLIDESLOPE	Glideslope is either not communicating or needs service.	Fly a VOR/LOC/GPS approach. Contact MX.
GPS NAVIGATION LOST	GPS position lost due to erroneous or insufficient satellites.	Use a non-GPS navigation source, or wait for satellites to improve.
GPS RECEIVER	Multiple causes.	Contact MX.
LOSS OF INTEGRITY (LOI)	Antenna may be shaded from satellites.	Use non-GPS navigation source.
TRAFFIC	Multiple causes, ADS-B, or GDL-88 error.	Contact MX.

NOTE: This list is **not** all-inclusive. Reference the Garmin Pilot's Guide for a full list of error messages and appropriate actions.