

## 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).



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## 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).

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## 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.