## Setup and Organization

- If you have a GTN plus a PFD or eHSI, remove duplicate datafields and ensure the seven essential datafields appear somewhere.

- You can replace GTN datafields with utilities, such as a timer, or shortcuts to functions, such as PROC.

- Put VSR in the lower left map datafield. Set the appearance of "Visual" to 5 miles so VSR remains until you don't need it (Map > Menu > Map Setup > Map > Visual APPR Selector)
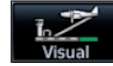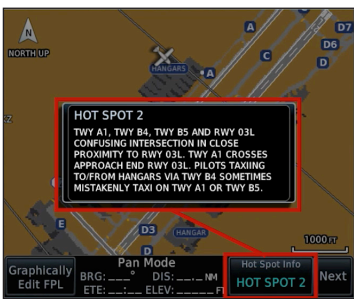
- Viewing terrain on the Map page is generally better than using the dedicated Terrain page. Terrain and NEXRAD (or Radar) are mutually exclusive, so select Terrain close to the ground and NEXRAD when negotiating weather enroute. Have the unselected option on other screen or iPad.

- Consider using the GTN's com radio for airport frequencies (ATIS/ASOS, CTAF, Ground, Tower) and loading those frequencies from the GTN's database. It's faster and less error prone. Approach and Center frequencies are usually manually entered, so a second simple radio works well for that purpose.

- Holding down the com volume knob will tune 121.5—but it will also squawk 7700 if the GTN controls a Garmin transponder.

The Seven Essential Datafields

- Desired Track (DTK)
- Track (TRK)
- Cross-Track Error (XTK)
- Estimated Time Enroute (ETE)
- Distance (DIS)
- Groundspeed (GS)
- Vertical Speed Required (VSR)

COM1 - Airport Frequencies

COM2 - Enroute Frequencies

Ground Operations

- Disable SafeTaxi if it's out of date (Map > Menu > Map Setup > Aviation Tab > SafeTaxi Diagrams > Off).

- SafeTaxi appears on the Map page at the airport location when sufficiently zoomed in. Increasing the display threshold to 1 or 5 miles lets SafeTaxi show you where the ramp area is before landing. If you fly North Up, consider setting the map to Track Up for SafeTaxi (especially at night).

- Tapping a hotspot on SafeTaxi reveals details for that spot on screen, which can be helpful in understanding why it was a problem for other pilots—and keep you out of trouble.
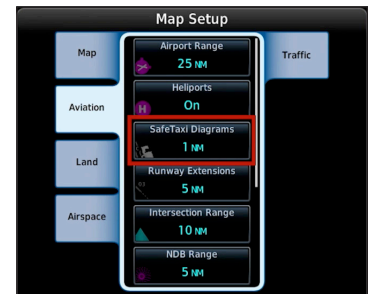
Departures

- Build textual ODPs using waypoints and holds. Consider using OBS mode to fly legs from (rather than to) a waypoint or VOR, and for pausing waypoint sequencing if you will cross it more than once.

- Some legs on departures require pilot intervention to continue sequencing (sometimes labeled "MANSEQ"). Before takeoff, verify the sequence of waypoints and where you might need to intervene.
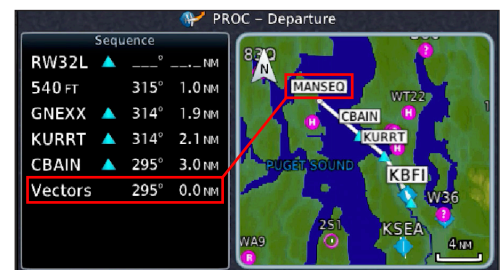
- Charted departures are in the GTN's database, but you should compare the loaded waypoints to the official chart. You may have to manually add missing steps, or remove steps unnecessary for your route of flight.

PILOT WORKSHOPS .com

Flight Plans

- Watch the FastFind button to the right of your data entry as you type a waypoint ID. You'll usually see your desired waypoint here before you finish typing. Tap the suggested ID to enter it into the flight plan.

- Unless you send flight plans from your tablet to the GTN, store every flight plan in the catalog. It lets you create them before engine start, and you'll see total length and enroute safe altitude automatically. You also might need the original plan if you mess it up in flight. Reloading can be faster than fixing a mistake.

- On simple shorter routes, it can be better to manually enter only airway turnpoints rather than load entire airways. Loading only turnpoints also prevents autozoom and ETE countdown to every named waypoint along an airway. Alternately, you can disable autozoom if the map scale changes are distracting.

- Airways are always added by tapping the desired entry fix. The order is either alphabetical or as the fixes appear on the airway. However, the order of airway fixes is not consistent, so look at which fix is next in the direction you will fly the airway and scroll toward that fix in the GTN's list. Or use "Sort Alpha" to view them in alphabetical order.

- Always preview the sequence of fixes and general map view of your flight plan to ensure it matches what you see on your chart or tablet.

- To load an instrument approach back into the departure airport in case you must make an emergency return: Tap the departure airport at the top of your flight plan and tap Load Procedure. The approach will append to the end of the flight plan. Delete that approach after takeoff once it's no longer needed. Your departure airport will then appear in its place below your actual destination, so you must delete that extra airport too.

- Likewise, you can add an additional airport to the flight plan after a loaded approach so it's ready as an alternate or as the next airport you'll use for a practice instrument approach.
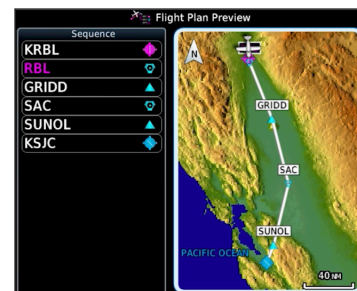
Holds

- There's no requirement to fly the full "racetrack" course reversal (unless ATC says otherwise). The GTN will sequence correctly no matter where you intercept the inbound course. If you do this with the autopilot, use heading mode with an armed navigation mode.
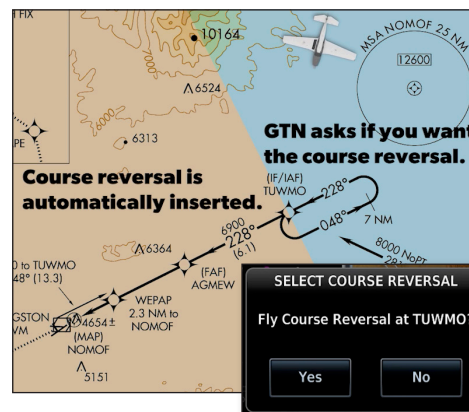
- If your arrival angle is less than 90 degrees to the final approach course, the GTN will ask if you want to load a course reversal.

- To remove the hold from the flight plan, tap it and select the option to remove it.

- If you need to skip a hold and notice the GTN plans to hold, turn inbound (with heading mode if on autopilot). Then remove the hold, or activate the leg after the hold, to resume navigation.

Instrument Approaches

- Unlike the GNS navigators (430/530), loading vectors-to-final will still show all waypoints on the final approach course (but not waypoints off the final approach course).

- "Activate Approach" is equivalent to proceeding direct to the first waypoint in the approach as it was loaded. If a magenta arrow appears in the flight plan below the name of the approach procedure, the approach is active. There is no need to activate it again.

- Vectors-to-final should switch the CDI source from GPS to VLOC on a localizer-based approach if: 1) ILS CDI capture is set to automatic in Setup, and 2) the correct localizer frequency is active in the GTN.

- The NAV ID below the active nav frequency is from the database and doesn't count as a station ID. The letters above the frequency are from the morse code and do count as a station ID.

- Radius-to-Fix (RF) and DME arc legs show a constantly changing desired track (tangent to the arc). Set the heading bug to the inbound course to anticipate intercept. Distance shown is along the curve, not direct.

- RF legs require certain equipment, such as an eHSI. Approaches you can't fly shouldn't appear in the list.

- Approach annunciation happens when the FAF becomes the active waypoint. If you activate the leg ending at the FAF early, you'll get a glidepath and approach annunciation. Just ensure you meet any stepdown altitude restrictions outside the FAF.

- When using +V guidance, always comply with stepdown altitudes. If a VDP is published, you can use that as a "decision point," unless you know you can make a steeper-than-normal descent or a long landing. Lead a missed approach by five percent of your vertical speed.

- If you initiate a missed approach early, be sure to follow the approach lateral guidance all the way to the missed approach point. You won't get an option to activate the missed approach until reaching the missed approach point.

- Once you've activated the missed approach procedure, you may load a new approach without losing the missed approach guidance you're currently flying. This includes the missed approach hold.
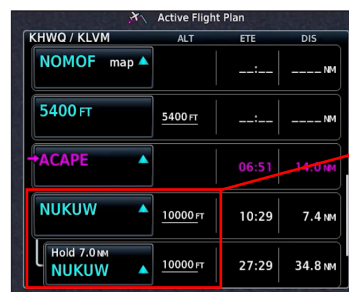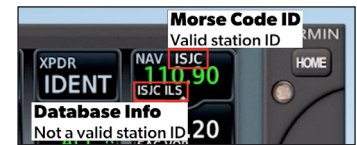
Visual Approaches

- Load a visual approach via Load Procedure, just like an instrument approach.

- Visual approaches appear as a final approach course extending up to 28 miles from the airport and two waypoints in the flight plan: one 3 NM from the runway and another at the runway threshold.

- Visual approaches are supplemental to IFR visual approaches or VFR navigation and don't offer the obstacle protection of instrument approaches. Glidepath angle or availability depends on obstacles. Obstacles may preclude visual approaches to some runways.

Vertical Navigation

- VNAV will provide vertical speed required (VSR) and top of descent (TOD) to reach specific altitudes on an arrival and approach. Customize these altitudes in the flight plan as needed to provide more time in transition and avoid slam-dunk situations. You can create along-track offsets with altitudes to provide a section of level flight to slow down, if needed.

- Cyan altitudes indicate altitude constraints the GTN will try to meet. White altitudes with lines above and/or below indicate procedure altitudes the GTN won't try to meet. White altitudes with no lines indicate your projected altitude at that point, based on the other altitude constraints.

- To change your desired angle of descent or descent rate for the current flight, tap Flight plan > Menu > VNAV. To change your default values, tap Menu one more time.

- VNAV Direct is a shortcut to ignore all altitude constraints in the flight plan prior to the selected VNAV direct waypoint. It is vertical guidance only and has no effect on lateral guidance.

- Before arming VNAV mode on an autopilot, set the bottom altitude in your altitude preselect.

- The GTN must have barometric altitude input for VNAV guidance. Otherwise, it will offer VCALC, which is guidance only to a single waypoint.

Special Operations and Abnormal Situations

- OBS can be used to create a course to (or from) any waypoint. On the map, magenta is the course to the waypoint and white is the course from the waypoint. When you exit OBS mode, the GTN will keep that course to the waypoint but resume flight plan sequencing once crossing that waypoint.

- Flight plan waypoints won't appear on the map while in OBS mode. They will reappear when you exit OBS mode.

- User waypoints are easy on the GTN. Selecting "Temporary" deletes the user waypoint from the database after it's removed from the flight plan. You can't load an airway from a user waypoint, even if it's on an airway.

- GPS loss during enroute navigation (more than 30 NM from departure or destination and not on an approach) may result in Dead Reckoning (DR) mode. This is estimated position to be used during transition to ground-based navigation. The CDI will also vanish from an eHSI.

- A yellow LPV annunciation warns that the approach may downgrade if GPS signal doesn't improve. A final determination will be made one minute before reaching the FAF. Brief LNAV minimums, or plan for a missed approach, in case the approach downgrades.

- When the GPS state changes (such as loss of position, DR mode, or downgrade), the autopilot may revert to a roll and pitch mode.