



Bonanza Flying

Part Two - Approaches

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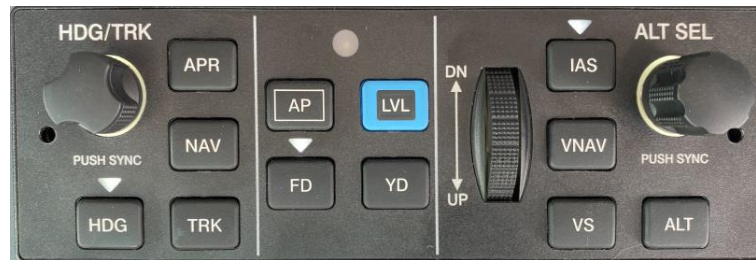
Ken Campbell 2/6/2023



Agenda

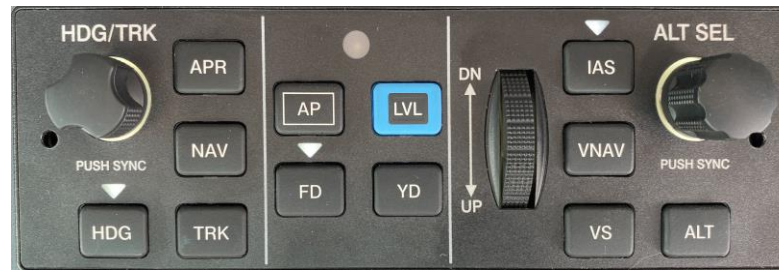
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- **GFC 500 Autopilot Review from last brief**
 - **Flying Approaches with the GTN 750 Xi Navigator and GFC 500 A/P**
 - **Visual Approach**
 - **Ground based ILS and Localizer (Green)**
 - **Satellite based GPS (Magenta)**
 - **Missed procedures**
 - **Next time -- VNAV Operation... Getting the GTN 750 Xi more involved**



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- **Lateral controls on the left**
 - Dedicated HDG/TRK knob, push to sync to current heading
- **Vertical controls on the right**
 - Dedicated ALT SEL knob, push to sync to current altitude
 - Thumb wheel (aka vertical mode wheel) to adjust: IAS (± 1 kt), VS ± 100 ft/min, ALT (± 10 ft), or pitch ($\pm 1/2$ degree)
- **Control section in the center**
 - AP, FD, and LVL



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- All buttons are toggle... press to toggle function on, press again to toggle function off
- White indicator triangles announce ABOVE buttons
- Default or reversionary modes
 - These default modes do not show on the autopilot control head, but do show on the PFD
 - Roll mode for lateral control (ROL shows on the PFD)
 - Pitch mode for vertical control (PIT shows on the PFD)

When making any changes to the autopilot, **ALWAYS** cross check and verify on the PFD



Autopilot Status Bar on PFD

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- HDG mode, AP active, IAS 120 kts... all in green, which means all active
- ALTS (Altitude Target Select) in white, which means standby mode
- ALT SEL has been set to 4,000 ft, so aircraft will level off at 4,000 ft



Visual Approaches

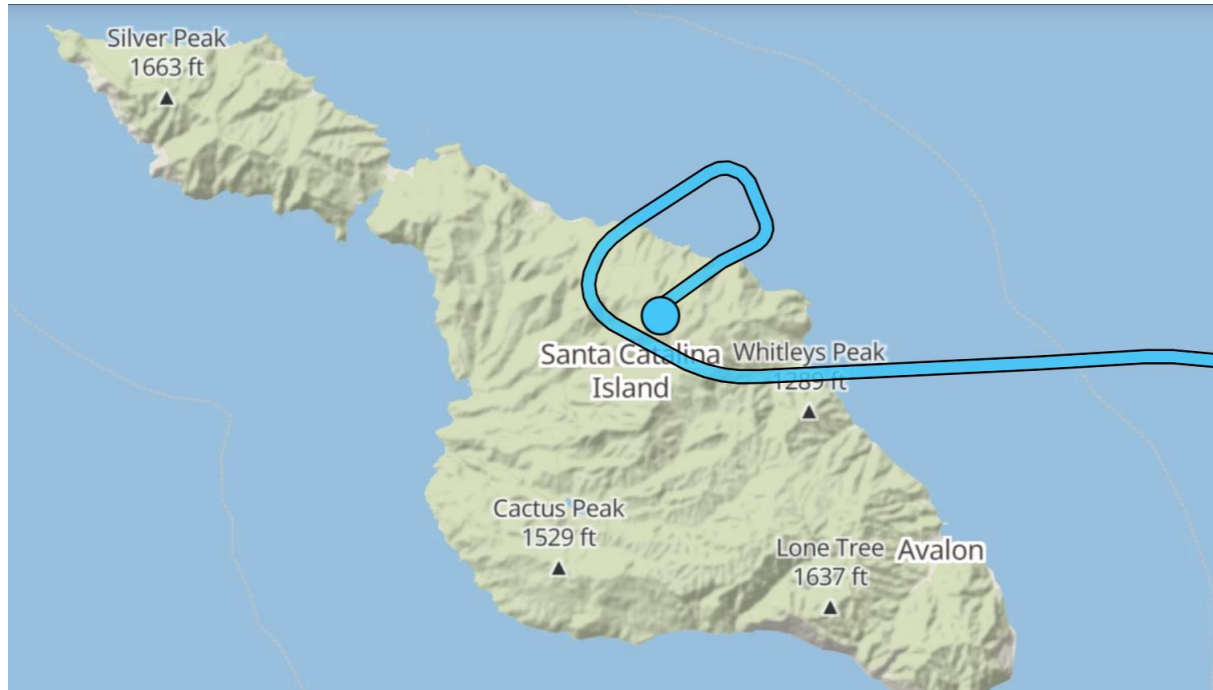
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- Provides advisory lateral and vertical guidance in VMC conditions
- Load a Visual Approach just like you would load an IFR approach
 - On the GTN 750 Xi, with the flight plan loaded, select PROC, and then select the desired destination runway
 - A 28 nm final approach course will appear, plus a 3 nm FAF
 - A new waypoint, named V3NM, 3 nm from the runway and at approximately 1,000 ft above the TCH, (which will provide a 3 degree vertical track) will get added to the flight plan.
 - CDI will provide lateral guidance
 - If within 105 degrees of the approach course, the VDI (vertical deviation indicator) will provide vertical track guidance to V3NM up to 28 nm away.
 - If CDI/VDI Preview is active, will see both V getting you to the 3 nm point. At the V3NM waypoint, turns to GPS green diamond.



KAVX Visual Approach Example (Rwy 22)

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Visual Approaches load like an IFR approach

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Not all runways will have vertical guidance

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KAVX Visual Approach Example (Rwy 22)

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KAVX Visual Approach ...at the numbers

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KAVX Visual Approach ...on base

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KAVX Visual Approach ...short final 22

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KAVX Visual Approach Summary

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- **Flying over the departure end of Rwy 22**
 - XTK on CDI can help indicate when to turn downwind
 - Turning diameter is ~1 nm at 90 kts
 - **Turning base...**
 - When within 105 degrees of final approach course, VDI will appear
 - XTK can help indicate when to turn final
 - **On final, VDI can help locate the PVASI**
 - **KAVX's PVASI**
 - Pulsing White – You're high
 - Steady White – On glide path
 - Steady Red – Low
 - Pulsing Red – Really Low!



KMYF ILS 28R Example

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- ATIS says using ILS 28R, so you load the approach, with transition BAKEL. Verify correct ILS frequency is loaded, and made active.
- ATC says fly direct NESTY, so you stay in NAV mode and do direct NESTY.





KMYF ILS 28R Example

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- As you approach NESTY, ATC starts providing vectors, so you switch to heading mode (HDG) and using the heading bug.
- At this point you could activate vectors to final on the GTN Xi. Another option is to simply continue on in GPS mode and monitor the 'CDI/VDI Preview' in the PFD for lateral and vertical position.
- The GTN Xi should automatically switch over to VLOC mode as you close in on the final approach course, right? But what if it doesn't... How do you manually do that? Caution – A/P will switch to roll mode
- 'Green is ground'. Magenta is GPS. How do you tell what mode you're in?
- At what point do you hit APR on the autopilot? ANS: After you're cleared for the approach. (HDG then APR)
- If you're above glide slope, use VS to descend... the autopilot can capture the glide slope from above. Probably need 900 fpm, maybe more.
- Monitor the Autopilot status line in the PFD.



ILS Approach ATC Providing Vectors

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GPS to VLOC... the only way to do it manually

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Now in VLOC

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At the MAP...

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Which waypoint to select?

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Summary

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- **Lots going on... don't let it distract you from flying the plane!**
 - **Probably more than one way to accomplish any particular task... don't need to know them all... just what works for you.**
 - **Practice in VFR conditions.**
 - **Maybe next time we'll talk about enroute vertical navigation**