



N2103S Autopilot Operating Highlights

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S-TEC 55X Autopilot



Altitude Selector/Alerter

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Roll Modes

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- **Heading Mode:**
 - Press HDG. HDG will illuminate. Aircraft flies DG bug heading.
- **VOR-based Navigation:**
 - Press and hold HDG, then press NAV. HDG and NAV will both illuminate in display. Aircraft will fly heading bug until course intercept. Then HDG extinguishes, and aircraft turns and flies CDI. Ensure Garmin CDI: VLOC
 - Must reset CDI at each leg
- **GPS-based Steering:**
 - Press and hold HDG, then press NAV twice. HDG, NAV and GPSS will illuminate. Aircraft will fly heading bug until course intercept. Then HDG extinguishes, and aircraft turns and flies Garmin flight plan, including turns at waypoints. Ensure Garmin CDI: GPS



Pitch Modes

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- A roll mode must already be active to engage a pitch mode
- Altitude Hold Mode:
 - Press ALT. ALT illuminates and aircraft holds current altitude. Can adjust altitude, each knob click is 20 feet. (360 ft max)
- Vertical Speed Mode:
 - Press VS. VS and current vertical speed are displayed. Can adjust vertical speed in 100 ft/min increments by turning knob.
- Press AP Disconnect on yolk (red button) to cancel all autopilot operations.





Approaches

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- **Straight-in ILS Approach:**
 - Set heading bug (and CDI) to inbound course, press NAV. Both NAV and APR will illuminate. Aircraft will track localizer. Press ALT to hold altitude. GS will also illuminate to indicate glide slope arming*. At glide slope intercept ALT will extinguish and aircraft will track glide slope. Can press APR to disarm or re-arm GS. Can press ALT to manually force glide slope tracking, but may cause aggressive vertical movement! Ensure Garmin CDI: VLOC.

* Conditions for glide slope arming include the aircraft being at least 10% GDI below glide slope for 1 second. For our Cirrus, with an earlier 55X software version, requirement for glide slope arming is at least 10 seconds 60% GDI below glide slope.



Approaches – con't

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- **Straight-in VOR Approach:**
 - Set heading bug and CDI to inbound course. Press APR. Both NAV and APR will illuminate. Aircraft will track VOR radial. Use ALT and VS to control altitude. Ensure Garmin CDI: VLOC.
- **GPS Approach:**
 - Ensure approach is activated in Garmin. Press NAV twice to engage GPS Steering mode. NAV and GPSS will illuminate. Aircraft will track Garmin flight plan and the GPS approach, including turns. Use ALT and VS to control altitude. Ensure Garmin CDI: GPS.



Altitude Selector/Alerter

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- **Altitude Selector/Alerter (ASA):**
 - Provides climb or descent to pre-selected altitude, at a specified vertical speed
 - Can provide audio alerts for specified altitude and decision height
- Pilot can always de-select ASA operation and revert to normal 55X autopilot operation by pressing MAN (manual) button
- ASA has two modes:
 - Data Entry Mode– ENT will be illuminated in the display. Used to enter barometer setting, desired altitude, and desired decision height. Note: ASA can not communicate with 55X to provide inputs while in Data Entry mode.
 - Operate Mode – ENT will be extinguished. ASA provides vertical command information to 55X.



Altitude Selector/Alerter

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- On power up, the ASA is in the Data Entry mode, waiting for barometer setting. Use knob to set inches, and pull out for 1/10's. Press DTA (data) to exit the Data Entry mode.
- Press DTA then ALT to enter desired altitude. ENT and ALT will illuminate and SEL will flash. Use knob to set to set 1,000's and pull out to set 100's. Press DTA again to exit data entry mode.
- Likewise, press DTA then DH to enter desired Decision Height. Press DTA again to exit data entry mode.
- Vertical speed may be set directly in the Operate mode by turning the knob.
- To enable audio alerts (chime), press ALR (alert). ALR will illuminate. Altitude alerts will occur 1,000' and 300' prior to the selected altitude, and 100' prior to selected Decision Height.



Combined Operation

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- To activate a pre-selected altitude and vertical speed in the ASA, push both VS and ALT on the 55X at the same time. Both ALT and VS will illuminate on the 55X. Upon reaching the altitude set in the ASA, VS on the 55X will extinguish.
- Now to try using this combination during approaches !



References

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- **Pilot Operating Handbook for 55X:**
 - http://www.s-tec.com/pdf/sys55Xpoh_3rdEd_rev_2.pdf
 - **Pilot Operating Handbook for ASA:**
 - <http://www.s-tec.com/pdf/01279ASAPOH.pdf>
 - **Topics for Another Time....**
 - **Preflight autopilot checks**
 - **Control Wheel Steering (CWS)**
 - **Default 45 degree NAV intercepts**
 - **Approaches with procedure turns**
 - **Back course localizer approaches**