BSAA Skylane Avionics Upgrade Training

The objective of this training curriculum is to gain sufficient knowledge and familiarity with the new Garmin avionics suite to enable a Blue Sky pilot to fly the airplane both safely and proficiently. There are two training curriculums: **Basic** familiarization and **Advanced** familiarization. All non-CFI pilots require the Basic fam training and, in order to file an instrument flight plan, any instrument-rated pilot also needs the Advanced fam. training, which is geared towards instrument flight. These are minimums. An accomplished pilot with prior glass panel experience may be able to complete *all* training in one session. The Advanced curriculum is geared towards instrument operations but any pilot may request some or all of that curriculum.

If a pilot needs additional training, the instructor will make that determination. Prior GTN650 and Skylane familiarity will be part of that decision.

NOTE: The training described in this document pertains only to the new avionics and not to the general operation of the plane. If a pilot is not checked out in the Skylane, he/she would still require the normal checkout, which would also incorporate this training.

BASIC FAMILIARIZATION

Objectives: Gain sufficient comfort in the fundamental uses of the new avionics sufficient to aviate, navigate, and communicate on a VFR cross-country flight.

Ground Component: To ensure a basic understanding of getting around in the G3X menu structure, all pilots should be exposed to the following:

- ☐ Each pilot must watch the BSAA-produced Powerpoint presentation - if not at a meeting, then by downloading or watching on the website.

-*With GPU plugged in or engine running:*

- ☐ Database check
- ☐ Demonstrate viewing tach time for Blue Book and Hobbs time. Preflight Fuel QTY check.
- ☐ Familiarize with new COM2
  - ☐ Press/hold COM Xfer button accesses 121.5
  - ☐ Monitor SBY
  - ☐ C/N toggle, T/F, & FUNC
- ☐ Familiarize with new audio panel
  - ☐ Audio source and volume selection, Intercom, 3D audio
- ☐ Intro to GTN650Xi
  - ☐ Emergency Page, ETE to dest. field, Page navigation with locator bar, Smart Glide & its features
- ☐ Intro to FD/AP. Ensure pilot understands the difference, and the importance of checking the "Scoreboard" to confirm FD modes. Green is active; white is armed.
- ☐ G3X
- ☐ Review checklists, attention to changes. Four new "Memory Items": Overspeed, Underspeed , ESP Activation, Runway Trim

- [ ] Touch screen. (PFD) Have pilot touch: COM, Baro, EIS, AFCS, Insets, HSI, - “white box” shortcuts.
- [ ] Screen cleaning: MENU/MENU/Touch Tools/Screen Cleaning (NO spray, Zeiss swabs only)
- [ ] Discuss menu structure. Pilot should learn to navigate the menu.
- [ ] “Look but don’t change.” Ensure the pilot understands what fields may be changed without board authorization. Selectable items: Wind vector, North up, Insets, Bearing pointers, Synthetic Vision, Round dials vs. Tapes.
- [ ] Ensure pilot understands how to set up the G3X PFD Screen with basic insets, e.g. tapes vs round dials; insets: moving map, flight plan, etc and split screen options, plus Synthetic vision. [touch HSI for “PFD Options”, then touch “More Options” for “PFD Setup”.]
- [ ] Ensure pilot understands that G5 provides back up to the G3x with no loss of autopilot
- [ ] Touch screen. (MFD) Use of MFD…touch screen and menu structure.Introduce the basic functions of EIS system including fuel management, totalizer and leaning.
- [ ] Ensure pilot understands basic avionics failures and backups to those failures.
- [ ] Review Alerts & Annunciations. CAS messages: LOW VOLTS , OIL PRESS, BSAA programmed… others like AHRS FAIL, ADC FAIL will also appear.
- [ ] Explain and emphasize the necessity of using the GTN650 for *all* FPL work. Difference between “External” vs. “Internal”.
- [ ] Introduce fuel calculator and initialization.
- [ ] Discuss traffic display: Target Trend vs. Absolute. [GTN650Xi and G3X should remain in Target Trend]

Flight Component: To ensure that the pilot can use all the avionics and can fly the plane in VFR conditions including the following:

- [ ] Entering and amending a flight plan to KABE (or similar distance).
- [ ] Selecting COM freq’s adjusting squelch and using new COM2 and audio panel.
- [ ] MFD - enroute charts, weather, and traffic
- [ ] Direct-to. (Explain use of GTN and *not* G3X)
- [ ] Airwork to understand the envelope protection. Demonstrate disabling/enabling. [Touch “scoreboard”]
- [ ] Basic FD and AP operation.
    - [ ] Explain and demonstrate FD alone and FD/AP combination.
    - [ ] Climb to altitude and turn autopilot on heading mode or NAV mode and altitude hold.
    - [ ] Ensure pilot confirms autopilot inputs on “Scoreboard” and understands active vs armed.
    - [ ] Use of “LVL” button.
- [ ] Demonstrate “Smart Glide”, “Glide Ring”

☐ Ensure pilot understands the basics of the EIS system including initializing fuel calculator and use of Lean Assist.

☐ Landing preparation and landing (This assumes training in physically flying the plane has been previously established).

☐ Ensure pilot understands basic avionics failures and back up to those failures e.g. red X.

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ADVANCED FAMILIARIZATION

Objectives: Gain sufficient comfort in the usage of the new avionics in order to proficiently aviate, navigate, and communicate on an IFR cross-country flight:

☐ Each IFR pilot must also have the training described above in "Basic Familiarization".

Ground Component:

☐ Set up and demonstrate FlightStream. [System, Connext Setup, Bluetooth Setup]

☐ Audio panel: Clearance recorder (play back), Man. Squelch,

☐ Review selection of various screens including sectionals, low altitude charts, taxi diagrams, approach charts, SIDS/STARS.

☐ Discuss altitude intercept arc.

☐ Verify understanding of how to display weather, traffic, flight plan etc. on the map screen.

☐ Access and use of timer.

☐ Discuss use of CDI switching and OBS selection/deselection. Pressing manual OBS button makes the "Selected Course" window a white box…touch/select.

☐ Discuss GPS1=magenta/VLOC(1 or 2)=Green (single or double needles)/cyan needles

☐ Explain display differences between G3X and G5

- ☐ standard rate indicator
- ☐ HDG bug and indicator
- ☐ CDI and VDI

☐ Discuss component failures: AHRS/ADC, (pull AHRS breaker) G3X screen (pull PFD breaker), GTN Navigator (pull GPS/NAV1 breaker), Total electrical failure.

Flight Component: (number of training flights at the discretion of the instructor/student)

☐ Validate FPL and verify NAV source [Touch HSI] prior to departure

☐ Discuss/Demo ODP departure and use of OBS

- [ ] Demonstrate function of TO/GA button and/or pre-selecting FD for initial climb [Track?]
- [ ] Use of MFD, Smart Taxi
- [ ] Discuss/Demo taking off with engine instruments displayed
- [ ] Accessing WX, charts, and plates
    - [ ] Legends and animation (pg. 192)
- [ ] Demo “smart airspace”
- [ ] Auto tuning frequencies: (pg. 102)
- [ ] Demo altitude intercept arc
- [ ] Two std rate turn indicators & rate trend vector
- [ ] Use of Autopilot
    - [ ] Altitude-preselect
    - [ ] VS vs IAS in climbs and descents.
    - [ ] APR mode
- [ ] Enroute changes and course intercepts.
- [ ] Demo magenta/green/cyan (bearing pointer) needles [Touch HSI]
- [ ] Fly GPS, ILS, LOC AND VOR approaches using vectors and full approaches.
    - [ ] Demo setting minimums and aural alert
    - [ ] TO/GA with FD alone and with AP on.
- [ ] Holds
- [ ] Discuss VNAV autopilot capability. Demonstration at discretion of member and instructor.
- [ ] Review, demo, demonstrate failures and back-up to those failures inc. red X.
    - [ ] AHRS failure
    - [ ] GTN 650Xi failure
    - [ ] G3X failure
    - [ ] Electrical failure