GACE Flying Club

KLN 94 VFR

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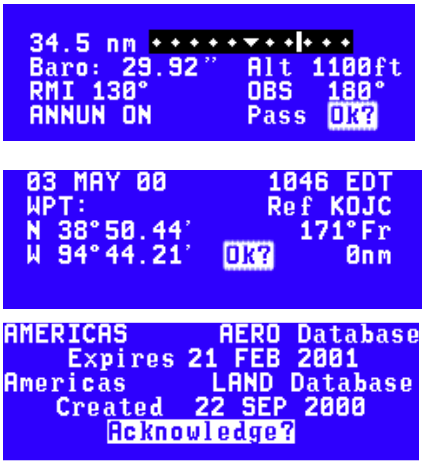
KLN 94 VFR Agenda

- KLN 94 VFR Outline
  - Power on sequence and required pilot input for startup
  - Overview of all knobs and dials, navigating the display pages
  - Overview of display pages – Chapters, pages, segments
  - The message annunciator and button (don't ignore the message annunciator)
  - Waypoint and the database – Airports, VORs, NDBs, Intersections, user
  - Direct-to VFR navigation
  - Baro adjustment habits while enroute
  - Nearest function
  - OBS mode, Leg mode, enroute mode
  - Example: Using OBS mode to intercept final after being vectored
  - Flight plans, example: circumnavigate the Class B

King Video

- What you Get with GPS
- Using Direct To
- More Than Direct To
- Using GPS for IFR
- RNAV Approach Format
- GPS Model “T” Approaches
- Using DPs & STARs
- GPS Flight Plans
- Vectors & Overlays
- Flying a GPS Approach



Power On Sequence

- Power is linked to avionics master switch
- Push = On, Pull = Off, Dial for brightness
- Warm-up screen during very cold operations
- After self tests complete and no errors:
  - See Baro, adjust as needed, press ENT
  - Confirm Pass, see OK, press ENT
  - Confirm Position & time/date, see OK, press ENT
  - Confirm database expiration, see Acknowledge (ENT)
- Generally, the last airport waypoint is displayed with frequencies (APT +5 page)

Interface Overview

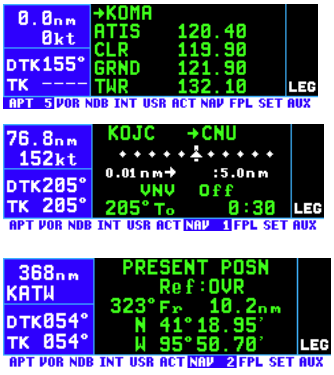
- Buttons
  - PROC = Procedure (used for selecting approaches)
  - MSG = Message
  - OBS = Toggles between Leg and OBS modes
  - ALT = Altitude (sets Baro)
  - NRST = Nearest
  - D = Direct
  - CLR = Clear
  - ENT = Enter/Acknowledge
  - MNU = Menu (used with MAP pages)
  - RNG (up/down) = adjusts range for map page
  - CRSR = Cursor

Interface Overview

- Knobs
  - Brightness
  - Inner (smaller knob), pull for scan
  - Outer (larger knob)
  - Key Point: Inner & Outer knobs behave differently with cursor on versus cursor off
- Other
  - Database Card
  - Data Port

Display Pages

- Chapters: APT, VOR, NDB, INT, USR, ACT, NAV, FPL, SET, AUX
- Pages: NAV 1, NAV 2, APT 1, APT 2, etc.
- With the cursor OFF, select the Chapter with outer knob and the page with the inner knob



The Database

- Contains Lat/Long of all waypoints
- Contains Waypoint details: Airport names, frequencies, elevation, runway info, etc.
- Procedures stored with waypoints in proper order (Approaches, STARs, DP, etc. are referenced by name)
- Contains land data (roads, rivers, lakes, etc.) displayed on the moving map
- Data card is on left side of unit

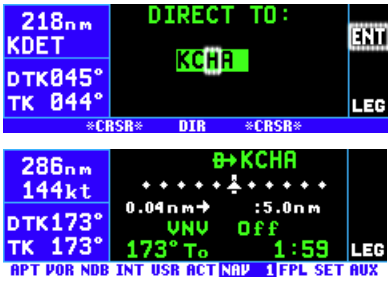
Direct-to Navigation

Applications:

- Fly from present position to a waypoint
- Reset course

Sequence:

- Press D key
- Dial in waypoint identifier (APT, VOR, NDB, INT, USR)
- Press ENT to confirm waypoint
- Press ENT to activate
- See NAV 1 display page



Note: Confirm NAV mode selector switch is in the GPS position

Message Page

- Review Messages – look for flashing Yellow M and press MSG
- Press MSG to return to normal operation. If more messages exist, the next message will be displayed.
- If action is required, the Yellow M will remain on but not flash.

Always review messages as they may pertain to the health or accuracy of the GPS

Baro Adjustment

- Adjust Baro as reported by ATC or ATIS before take off, while enroute and before landing
- In three places: Altimeter/GPS/Autopilot
- Sequence:
  - Press ALT
  - enter Baro
  - press ALT twice to return to previous page
- Baro is used for internal consistency, altitude calculations & RAIM under certain conditions

Nearest Function

At any time, you can have access to the 20 nearest airports, waypoints, Special Use Airspace (SUA), Flight Service Station (FSS) frequencies, and Center frequencies to your position.

Sequence:

1. Press NRST
2. Press ENT for APT, or use outer knob to select waypoint type then press ENT
3. See nearest waypoint, pull inner knob to out position to scan through rest of list, bearing and distance shown

Omni Bearing Selector (OBS) Mode

- Used just like a VOR – to or from, except the CDI sensitivity is set to 5 miles (en route mode)
- OBS button changes GPS from Leg mode to OBS mode
- Sequence:
  - Press OBS, confirm #1 CDI selector on GPS
  - Rotate OBS knob on #1 NAV to desired setting
  - Confirm OBS "DTK" on GPS
- Press OBS again to leave OBS mode

OBS Examples

- Intercept Radial to a VOR
  - Select/Confirm VOR as active Waypoint
  - Press OBS
  - Set inbound course to VOR on #1 NAV OBS
  - Confirm OBS course on GPS
  - Fly intercept course and monitor NAV 1 page
- Intercept extended final after being vectored
  - Select/Confirm destination airport as active Waypoint
  - Press OBS
  - Set magnetic runway heading as course
  - Fly intercept course and monitor NAV 1 page
  - Remember that you are navigating to the center of the airport, not the runway threshold

Using Flight Plans

- A practical must for IFR operations
- Very useful for VFR operations – especially when avoiding airspaces, TFRs, weather, etc.
- Start with your chart, away from the GPS
- There are 26 flight plan “buckets” that may contain up to 20 waypoints each (up to 35 including Approach/DP/STAR waypoints)
- Flight plan 0 *is* the active flight plan
- Flight plans 1 through 25 are buckets that contain pilot created and stored flight plans
- The first waypoint in a flight plan should always be the departure airport

Using Flight Plans

Flight plan 0 is, by definition, the active flight plan

- Thus, be sure to have a copy of your flight plan stored in a numbered flight plan
- Why? Because an operation such as a temporary “Direct To” replaces Flight Plan 0 with the new information

Using Flight Plans

There are two ways to get a flight plan entered as a numbered flight plan and activated.

- A flight plan is active if it is in flight plan 0.
- A flight plan is safely stored if it is in a numbered flight plan (1 through 25).
- Enter the flight plan as numbered plan and then "Use" it
- Enter the flight plan in FPL 0 and then copy it to a numbered flight plan
- Note: You certainly can operate with a flight plan in flight plan 0 only. However, understand when and why you would do this.

Enter flight plan as a numbered plan

- Use the outer and inner knobs to get to FPL 1..25
- If the flight plan is not empty and you want to clear it:
  - Make sure the cursor is OFF
  - Press CLR
  - Confirm deletion (Note "Copy FPL 0" at top)
- Enter your flight plan starting with the departure airport and ending with the destination airport. Note that after you enter the first waypoint, the "Copy FPL 0" is gone and is replaced by "Use? Inverted?"
- Insert or delete waypoints as needed
- When finished, move the cursor over "Use"
- Press Enter and the flight plan is copied to FPL 0 which means that it is activated. Or, leave the flight plan there for future use.

Enter flight plan as FPL 0

- Use the outer and inner knobs to get to FPL 0
- If the flight plan is not empty and you want to clear it:
  - Make sure the cursor is OFF
  - Press CLR
  - Confirm deletion
- Enter your flight plan starting with the departure airport and ending with the destination airport. Note that after you enter the first two waypoints, the flight plan is active.
- Insert or delete waypoints as needed
- When finished, turn the cursor off
- To save in a numbered flight plan, find or create an empty FPL 1..25, then choose “Copy FPL 0?” at the top of the screen

Adding and removing waypoints

- To delete a waypoint in a flight plan, highlight the waypoint and press CLR

- To insert a waypoint in a flight plan, place the cursor where the new waypoint should be and enter the new waypoint. The waypoint that was at that position will shift down.

Flying the flight plan

- Turn anticipation: The GPS will alert the pilot when to turn such that a smooth transition to the new course is achieved.
- About 20 seconds prior to TA, WPT will flash

- When the flashing stops, look for message “Adj Nav Crs to XXX.” Turn to the new heading at this time.
- Set the NAV 1 OBS, Cross check DTK and TK
- With the flight plan, you can review distances, courses, fuel requirements, etc. as well as easily select approaches

Flying the flight plan

- From any page, you can press D, pull the inner knob, and quickly select any of the waypoints in FPL 0. The flight plan is still active and will cycle to the next waypoint. Very useful for “skipping over” waypoints as directed by ATC.
- Cancel “Direct To”
  - Press D
  - Press CLR
  - Press ENT
  - The unit will orient itself on the closet leg of the flight plan
- While viewing FPL 0, turn the cursor on and place over the Dis field. You can cycle through Dis, ETE, ETA and DTK for each leg

VFR Flight Plan Example & Review

- Fly VFR from KISP to KCDW at 2,500 and circumnavigate the Class B to the North. Remain clear of KHPN's class D
- Find a flight plan that does this
  - KISP JETAX ZOVTI JEDIL KCDW
- Enter into the GPS as a numbered plan
- Activate the flight plan (what does this mean?)
- Reverse the flight plan for the flight home
- Monitor distance from KHPN, KLGA and KTEB

Next Steps

- There's no question that GPS navigation is hear to stay, and it's growing all the time
- Get in the plane with an instructor or check pilot and confirm and practice what you have learned
- Review the KLN 94 User's Guide (PDF on our site)
- Review the training DVD (in GACE office)
- Search Internet/YouTube – KLN 94 GPS
- Ask questions
- Stay tuned for the IFR course

Thank You!

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