

FriendlyPanels

BENDIX KLN 90B GPS

NAVIGATION SYSTEM v2.0

User's manual



For Microsoft® FS9 & FSX

WARNING

This operating manual has been written following the original BENDIX KLN 90B Pilot's Guide, but it's not intended to be valid for training purposes other than its use with Microsoft ® Flight Simulator. We consider very interesting to read the original BENDIX KLN 90B Pilot's Guide to know better this wonderful GPS.

FriendlyPanels
www.friendlypanels.net
fpanels@friendlypanels.net

TABLE OF CONTENTS

- 1. INTRODUCTION**
- 1.1 CLICKING AREAS**
- 1.2 THE NAV PAGES**
- 1.3 THE OTHER PAGES**
- 1.4 THE AIRPORT, INTERSECTION, NDB AND VOR PAGES**
- 1.5 THE NEAREST PAGES**
- 1.6 THE DIRECT TO PAGE**
- 1.7 THE FLIGHT PLAN PAGE**
- 1.8 THE MESSAGE PAGE**
- 1.9 THE PROCEDURES PAGE**
- 1.10 THE ALT PAGE**

1. BENDIX KLN90B GPS NAVIGATION SYSTEM

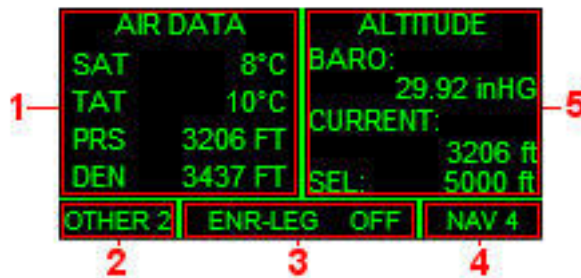


The FriendlyPanels KLN90B has three knobs and seven buttons. The top right little knob is only used to turn on/off the gauge.

The left knob is used to select the pages group that can be displayed in the left side or the full screen (NAV group, OTHER group and Flight Plan page); it manages the cursor for these pages and the Direct To pages as well.

The right knob is used to select NAV pages in the right screen segment (you can select different NAV pages with both knobs to see more info at once), or Airport, Intersections, NDBs, VOR and Nearest pages group in the full screen or to display the Distance/Time pages while Flight Plan Page is selected by left knob. It also manages the cursor for these pages groups and the Procedures pages.

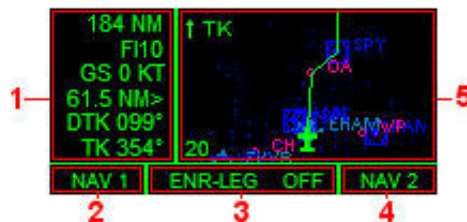
The KLN90B screen has different displays.



Segment 1 shows what you select with the left knob (NAV or OTHER groups). Segment 5 shows what you select with the right knob (NAV group). If you select NAV 1 in both knobs you'll go into super NAV1 page (see below).

Segment 2 and 4 show the page selected by left or right knob, turns to highlighted CRSR if cursor is active. Segment 3 shows in its left part the LEG (ENR, TERM or APR) and in the right part the message prompt, when the KLN 90B has a message for you to view on the message page, if it hasn't been inhibited by the MSG key.

Pages NAV 5 and 6 have special formats and can be accessed only by left knob.



The information showed in segment one can be changed, as explained later ahead.

Airport, Intersections, NDBs, VOR and Nearest pages groups are full screen modes accessed by right knob.

NEAREST VOR			
VOR	BRG	DIS	FREQ
SPL	m 338°	2.6nm	108.40
AMS	m 315°	3.6nm	113.95
PAM	m 080°	11.7nm	117.80
CMF	m 043°	15.4nm	112.00
NRST 4	ENR-LEG	OFF	NRST 4

1 → (points to the table)
 2 → (points to NRST 4)
 3 → (points to ENR-LEG)
 4 → (points to NRST 4)

1.1 Clicking areas



- 1 and 17. Turn on/off cursor
- 2 and 6. Change page group shown in left side. Move cursor
- 13 and 16. Change page group shown in right side. Move cursor
- 3 and 5. Change page inside a group shown in left side
- 14 and 15. Change page inside a group shown in right side
- 4. Shows/Hide flight plan list
- 7. Shows/Hide message page. If it's pressed a few seconds turns off message ads.
- 8. Shows/Hide ALT page
- 9. Shows/Hide Direct To page
- 10. Clear screen and shows super NAV1 page. Keep it pushed till it happens.
- 11. Confirm options or enter data.
- 18. On / Off

1.2 The NAV pages

When you first turn on the KL90B the display shows shortly a little presentation of the gauge, followed by a screen with some data concerning your current position. Push ENT key to accept and you'll go into super NAV1 page, that's to say, knob left and right has selected the same NAV page. With the left knob you can select six NAV pages, with the right one you can select 4 NAV pages. Pages 1 to 4 are can be shared by left and right screen segments, 5 and 6 can not. You can choose what to se in each top segment of the screen. See the pictures below as an example:



Super NAV1



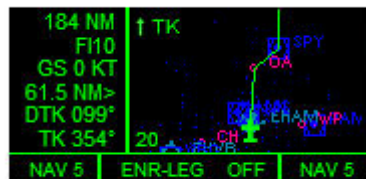
NAV1 – NAV3



NAV1 – NAV4



NAV1 – NAV2



NAV5



NAV6

Super NAV1: The top segment of this screen displays a CDI, the ground speed and data concerning the flight plan next waypoint: distance, bearing to, and time to arrival to that WPT.

NAV2: Displays info about your current position. The radial and distance from a nearby VOR and latitude and longitude.

NAV3: Displays the active flight plan leg, desired track, track and track deviation. MSA and ESA are not implemented.

NAV4: Displays baro pressure, current altitude and altitude selected in autopilot.

NAV5 and 6: Segment 2 displays map, with different orientation: track or north, flight plan route and nav aids. Segment 1 shows in Line 1 distance to next waypoint, in Line 2 next wpt name, in Line 3 ground speed in Line 4 track deviation or ETE, in Line 5 DTK or bearing to next wpt and in Line 6 current track or bearing to next wpt.

To change what to see in Lines 4, 5 and 6 push left CRSR(1), then outer left knob(2) to select the line and inner left knob(3) to select what to display, while you're in NAV5 or NAV6 modes. Then push CRSR again.



While you're in these pages you can zoom in or out the map too. To do this push left CRSR(1), then outer left knob(2) until the zoom figure is highlighted(4) and inner left knob(3) to adjust zoom. Then push CRSR again.



You can select, while in NAV5 or NAV6, what nav aids you want to be displayed in the map. To do this push right CRSR(1), then outer right knob(2) to select the type of nav aid and inner right knob(3) to select nav aid ON (displayed) or OFF (hidden). Then push CRSR again.



1.3 The OTHER pages

This pages group has three pages and shows additional information. Use the outer and inner left knob to browse them.

AIR DATA		ALTITUDE	
TAS	121 KT	BARO:	29.92 inHG
MACH	0.19	CURRENT:	
TWIND	5 KT		3206 ft
WIND	226°	SEL:	5000 ft
	13 KT		
OTHER 1	ENR-LEG	OFF	NAV 4

AIR DATA		ALTITUDE	
SAT	8°C	BARO:	29.92 inHG
TAT	10°C	CURRENT:	
PRS	3206 FT		3206 ft
DEN	3437 FT	SEL:	5000 ft
OTHER 2	ENR-LEG	OFF	NAV 4

FUEL DATA		ALTITUDE	
ENDUR	7 : 11	BARO:	29.92 inHG
RANGE	921 NM	CURRENT:	
NM / GAL	3.7		3206 ft
RES:	249 GL	SEL:	5000 ft
OTHER 3	ENR-LEG	OFF	NAV 4

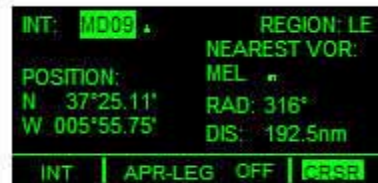
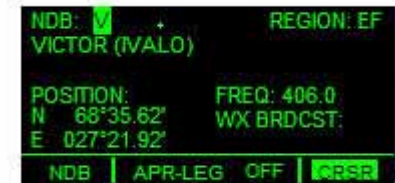
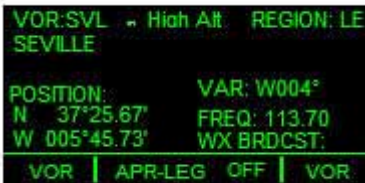
OTHER1: Displays True Air Speed, MACH speed, tailwind speed (TWIND) or headwind speed (HWIND), wind direction and speed.

OTHER2: Displays static air temperature, total air temperature, pressure altitud and density altitud

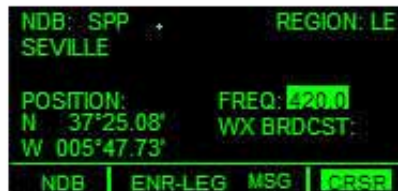
OTHER3: Displays fuel data: endurance, range, nm per gallon for current condition and fuel left.

1.4 The Airport, Intersection, NDB and VOR pages

These seven pages display info about their respective facilities. You can use the right outer and inner knob and CRSR to manage through them. Here are only a few screenshots.



From these pages, anytime you highlight a frequency (using right CRSR and knob), it can be sent to the NAV COM radio or ADF clicking on ENT button.



1.5 The Nearest pages

These five pages display display info about their respective nearest facilities. You can use the right outer and inner knob and CRSR to manage through them. Here are some screenshots.

NEAREST AIRPORT			
APT	BRG	DIS	APR
EHAM	332°	1.1nm	LS
twr 118.100 rwy 11429ft			
EHHV	117°	14.8nm	
mul 131.025 rwy 2293ft			
NRST 1	ENR-LEG	OFF	NRST 1

NEAREST VOR			
VOR	BRG	DIS	FREQ
SPL	338°	2.6nm	108.40
AMS	315°	3.6nm	113.95
PAM	080°	11.7nm	117.80
CRS	012°	15.4nm	112.90
NRST 4	ENR-LEG	OFF	NRST 4

1.6 The Direct To page

Push Direct To button to show this page. In segment 1 you can see and select the Facility to Direct To and its data in the segment 2. Use left knob or keyboard to manage this page and confirm with the ENT key.

DIRECT TO:	KORD
KORD	Chicago-O'Hare Intl
Chicago-O'Hare	Chicago, Illinois
	CRS 308°
FPL:	N 41°58.78'
NRST: LEZL	W 087°54.25'
CRSR	ENR-LEG ENT DTO

1.7 The Flight Plan page

Click in the left knob center to get the Flight Plan List page in the left segment and the Distance/Time page 1 in the right segment of the screen. Left CRSR and outer left knob allow you scrolling through the waypoints of the flight plan. Using the right inner knob you can see up to four D/T in the right segment.

WAYPOINT	DIS	ETE
1.SVL		:00
2.CDB	7	:46
3.BLN	61	1:02
4.YES	61	1:03
5.VLC	110	1:54
CRSR	ENR-LEG	OFF D/T 1

WAYPOINT	DIS	LCL
0.LEZL		
1.SVL		19:38
2.CDB	45	20:18
3.BLN	105	21:11
4.YES	167	22:05
FLP 0	ENR-LEG	OFF D/T 2

WAYPOINT	DIS	DTK
0.LEZL		
1.SVL		090°
2.CDB	45	065°
3.BLN	61	077°
4.YES	61	082°
FLP 0	ENR-LEG	OFF D/T 3

WAYPOINT	CDB	LCL
0.LEZL	DEP	19:38
1.SVL	TIME	19:38
2.CDB	ETA	20:18
3.BLN	FLT	00:00
4.YES	EFE	00:39
FLP 0	ENR-LEG	OFF D/T 4

- D/T 1 shows distance legs and ETE for them.
- D/T 2 shows cumulated distances and LOCAL ETA for them.
- D/T 3 shows distance legs and DTK to waypoints
- D/T 4 shows active WPT, departure time (GS > 30KNOTS), current Local Time, estimated local ETA to active WPT, flight time (GS > 30KNOTS) and remaining time for active leg (ETE).

Clicking in the left knob center again get out from this page to super NAV1 page, whatever was the page you were in before.

While you're in the Flight Plan Pages you can select a Waypoint to fly Direct To it and then follow the flight plan from it. To do this Press left CRSR button, scroll to the desired Waypoint:

WAYPOINT	DIS	ETE
1.SVL		:00
2.CDB	7	:46
3.BLN	61	1:02
4.YES	61	1:03
5.VLC	110	1:54

CRSR | ENR-LEG OFF | D/T 1

Press Direct To button. A new screen with the selected WPT appears:

DIRECT TO: YES	YES
	Vor
	CRS 074°
	N 38°21.65'
	W 002°21.17'

CRSR | ENR-LEG ENT | DTO

Press ENT button to confirm:

WAYPOINT	DIS	ETE
1.SVL		:00
2.CDB		:00
3.BLN		:00
4.YES	105	2:22
5.VLC	110	1:35

FLP 0 | ENR-LEG OFF | D/T 1

The new WPT is selected, bypassing CDB and BLN in the example showed above.

1.8 The Message page

Push MSG button to show/hide message page. It displays Airspaces Alert messages if any. A blinking MSG alert will show in segment 3 if there is a message. This blinking alert can be inhibited keeping MSG button pushed until the MSG letters in segment 3 change to OFF. To recover the alert mode keep pushed MSG again until MSG letters appear.

FUEL DATA	EGLC →	LON
ENDUR — —	•••••▲	809m>
RANGE — NM	DIS	875 NM
NM / GAL —	GS	0 KT
RES: 52 GL	ETE	00:00
	BRG	019°

OTHER 3 | ENR-LEG MSG | NAV 1

AIRSPACE ALERT
Inside Airspace
Press MSG to continue

CRSR | ENR-LEG

1.9 The Procedures page

You can access the Procedures page while in Flight Plan page. Push Right CRSR and use the Right Knob to select the Approach Procedure desired if available for destination airport.



1.10 The ALT page

To can access the ALT page push ALT button.



You can modify the baro pressure in the left side using the outer left knob. VNAV is not implemented yet the so the right side just shows current altitude and altitude selected in autopilot.

--oOo--



2007 FriendlyPanels