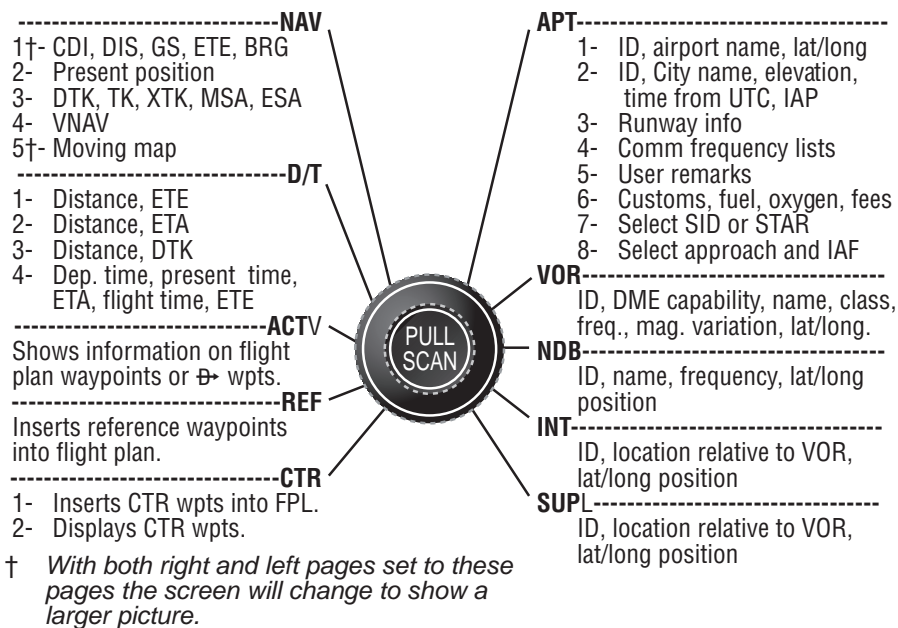


# KLN 90B Memory Jogger

## Right Page Summary



- Emergency Nearest Airport Search - Press [ ] then [ ].
- Operation of left and right knobs - Cursor on
  - Press desired [ ] button. With the cursor on, outer knob controls cursor location and inner knob selects the character.
  - With the inner knob in, make selection character by character.
  - With inner knob out, make selection by scanning through the database alphabetically. (Right side only)
- Operation of left and right knobs - Cursor off
  - Outer knob selects page type (APT, VOR, etc.)
  - Inner knob selects specific page (APT 1, APT 2, etc.)
- Direct To operation
  - Press [ ] once. Enter desired wpt using left concentric knobs, press [ ] to view wpt info, press [ ] to confirm.
  - Alternatively, display desired waypoint on right hand page or highlight desired wpt in flight plan then press [ ] then press [ ] to confirm.
  - To center D-bar. With non-wpt page displayed press [ ] then [ ].
  - To cancel direct to operation press [ ] then [ ] then [ ].

# KLN 90B INSTRUMENT APPROACH MEMORY JOGGER

**WARNING:** Make sure that you have practiced instrument approaches with the KLN 90B in VFR weather before attempting to fly approaches in IMC.

## A. APPROACH SEQUENCE

1. Flight Plan
  - a. **SELECT** an approach from the APT 8 page.
  - b. **CHANGE** or **DELETE** approaches on the FPL 0 page.
2. Get established on the final approach course.
  - a. **VERIFY APR ARM** is annunciated within 30 nm of destination.
  - b. **SELECT** the Super NAV 5 page.
  - c. **SELECT OBS** mode for radar vectored intercepts, procedure turns and holding patterns. Use OBS mode until inbound to the FAF.
  - d. **SELECT LEG** mode for NoPT routes including DME arcs. LEG mode is mandatory from the FAF to the MAP.
3. At or before 2 nm from the FAF inbound:
  - a. **SELECT** the FAF as the active waypoint.
  - b. **SELECT** LEG mode.
4. At 2 nm inbound to the FAF:
  - a. **VERIFY APR ACTV** annunciated.
5. At the FAF and APR **ACTV** not annunciated:
  - a. **DO NOT DESCEND.**
  - b. **EXECUTE MISSED APPROACH.**

**NOTE:** There is no automatic leg sequencing at the MAP.

6. After the MAP:
  - a. **FLY** the published missed approach procedure.
  - b. **PRESS**     . Verify automatic selection of the first waypoint of the missed approach procedure (usually the missed approach holding point). Change it if desired.

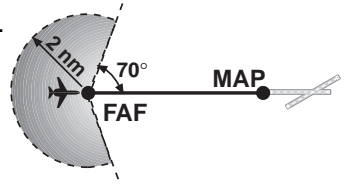
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## B. TIPS

1. The database must be up to date.
2. Only one approach can be in the flight plan at a time.
3. **APT 8** page is used for approach and IAF selections. (Use the Active Waypoint pages when the destination airport is in the active flight plan.)
4. Data cannot be altered, added to or deleted from the approach procedures contained in the database. (DME arc intercepts may be relocated along the arc through the **Super NAV 5** page or **FPL 0** page.)
5. To change or delete a SID, STAR or approach, select the **FPL 0** page, place the cursor over the name of the SID, STAR or approach, press      to change it, or      then      to delete it.
6. Some approach waypoints in the database may not appear on the approach plates (in some cases this includes the FAF)!
7. Waypoint suffixes attached to some flight plan waypoints:  
i - IAF, f - FAF, m - MAP, h - missed approach holding fix.
8. Use the **Super NAV 5** page for flying approaches.
9. At 30 nm from the destination the KLN 90B will go into APR **ARM** if there is an approach in the flight plan. Left/right D-bar scaling will change from  $\pm 5.0$  nm to  $\pm 1.0$  nm over the next 30 seconds.

**TIPS (Continued)**

10. If the approach includes a DME arc, the DME arc intercept point will be a) on your present position radial off the arc VOR when you select an arc IAF, or b) the beginning of the arc if currently on a radial beyond the arc limit. To adjust the arc intercept to be compatible with a radar vector, bring up the first waypoint of the arc in the **Super NAV 5** page scanning field ( or under the cursor on the **FPL 0** page), press **■**, then **■**. Fly the arc in LEG. Adjust the HSI or CDI course pointer with reference to the desired track value on the **Super NAV 5** page (it will flash when the pointer needs to be adjusted). Left/right D-bar information is relative to the arc. Displayed distance is not along the arc but straight to the active waypoint. (The **ARC** radial is also displayed on the **Super NAV 5** page.)
11. Two nm from the FAF inbound and in LEG, the KLN 90B will go into APR **ACTV** and the D-bar scaling will change from  $\pm 1.0$  nm to  $\pm 0.3$  nm.
12. APR **ARM** to APR **ACTV** is automatic provided all of the following are satisfied:
  - a. In APR **ARM** (normally automatic).
  - b. In LEG mode!
  - c. FAF is the active waypoint!
  - d. Within 2 nm of the FAF.
  - e. Outside the FAF.
  - f. Inbound to the FAF.
  - g. RAIM is available. (For early prediction go to STA 5 page.)
13. RAIM availability is mandatory for approach operation.
14. APR **ACTV** mode is mandatory for approach operation.
15. DIRECT-TO operation between the FAF and MAP cancels approach **ACTV**. Fly the missed approach in APR **ARM**.
16. Flagged navigation inside the FAF may usually be restored by pressing the external GPS APR button to change from **ACTV** to **ARM**. Fly the missed approach procedure.
17. Instrument approaches using the KLN 90B may be essentially automatic starting 30 nm out (with manual baro setting update) or it may require judicious selection of the OBS and LEG modes.
18. APR **ARM** may be cancelled at any time by pressing the GPS APR button. (A subsequent press will reselect it.)



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**C. PAGE MESSAGES** - Messages that could appear during approach operations. Refer to the Pilot's Guide for a complete list of messages.

**ACTV ANNUNCIATOR FAIL** Indicates an annunciator drive circuit failure. A maintenance write-up. Cross check the KLN 90B display for status.

**ADJUST NAV IND CRS TO XXX°** Manually adjust the mechanical HSI or CDI to the indicated value.

**ARM ANNUNCIATOR FAIL** Indicates an annunciator drive circuit failure. A maintenance write-up. Cross check the KLN 90B display for status.

## **PAGE MESSAGES** (Continued)

**ARM GPS APPROACH** Manually arm approach mode. (A reminder given 3 nm from the FAF if the approach mode was disarmed manually.)

### **BAD SATELLITE GEOMETRY**

**AND RAIM NOT AVAILABLE** Can appear in approach ACTV mode only. Integrity monitoring is lost and satellite geometry is degraded. Can be followed by a NAV flag.

### **BAD SATELLITE GEOMETRY**

**SEE EPE ON STA 2 PAGE** Integrity monitoring is lost and the estimated position error is greater than allowed for the current phase of flight. Cross check the position with other on-board equipment every 15 minutes.

**CHECK ACTV ANNUNCIATOR** Indicates an overcurrent condition in the annunciator circuit. A maintenance write-up. Cross check the KLN 90B display for approach mode status.

**CHECK ARM ANNUNCIATOR** Indicates an overcurrent condition in the annunciator circuit. A maintenance write-up. Cross check the KLN 90B display for approach mode status.

**IF REQUIRED SELECT OBS** Use OBS mode for holding patterns or procedure turns. Appears 4 nm from a waypoint that normally would require the OBS mode.

**PRESS ALT TO SET BARO** A reminder given 30 nm from the destination airport to update the barometric setting.

**PRESS GPS APR FOR NAV** After a NAV flag in approach ACTV mode, press GPS APR button to restore navigation for the missed approach. (Integrity monitoring is less critical in approach ARM mode so navigation may be restored.)

### **RAIM NOT AVAILABLE**

#### **APR MODE INHIBITED**

**PREDICT RAIM ON STA 5** RAIM is predicted to not be available at either the FAF or the MAP. Determine when RAIM will be available on the STA 5 page. Integrity monitoring is required for approach operation.

### **RAIM NOT AVAILABLE**

**CROSS CHECK POSITION** Integrity monitoring is absent. Compare the GPS position with other on-board navigation equipment.

### **RAIM POSITION ERROR**

**CROSS CHECK POSITION** RAIM has detected a problem with a satellite. Compare the GPS position with other on-board navigation equipment.

### **REDUNDANT WPT IN FPL**

#### **EDIT ENROUTE WPTS**

**AS NECESSARY** Examine the active flight plan and remove those waypoints that occur both in the enroute and the approach or SID/STAR sections of the flight plan.

**D. STATUS LINE MESSAGES** - Messages that could appear during approach operations. Refer to the Pilot's Guide for a complete list of messages.

➔ **CRS XXX°** When in OBS mode, manually adjust the HSI or CDI course pointer to the prescribed value to provide direct-to navigation.

**FPL FULL** The KLN 90B cannot add any more waypoints because doing so will mean that the active leg would change.

**INVALID ADD** You can't add waypoints to the approach sequence.

**INVALID DEL** You can't delete waypoints from the approach sequence.

**NO APPROACH** No approach has been loaded into the flight plan when the APR ARM button is pressed.

**NO INTRCEPT** The aircraft's actual track does not intersect with the DME arc. Alter course so that the actual track does intercept the arc.

**OUTDATED DB** A reminder that the database is out of date.

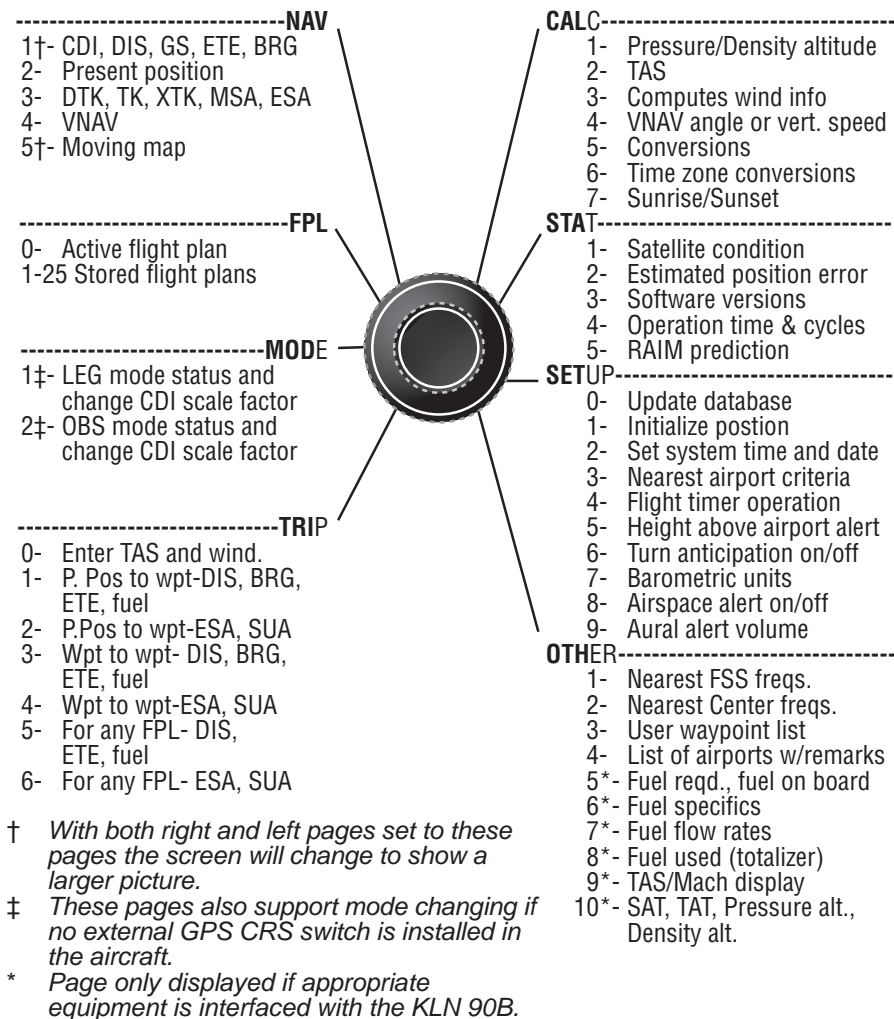
### **SUPER NAV 5 TIPS**

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- Select the Super NAV 5 page by choosing NAV 5 page on both left and right side.
- To scan through the active flight plan waypoints, pull out and turn the right inner knob. With desired waypoint displayed in scanning window, press **■** to go direct-to the selected waypoint.
- To change what information is displayed on the map press the right **■** to bring up a pop-up menu.
  - Line 1: Display nearest VORs; T=Terminal, L=low, H=high
  - Line 2: Display of nearest NDBs; ON or OFF
  - Line 3: Display of nearest airports; ON or OFF
  - Line 4: Map orientation; N=North up, DTK=Desired track up, TK = Actual track up (when groundspeed > 2 kts), HDG = Heading up (if heading supplied to the KLN 90B).
- To change the map scale factor:
  - a. Press the left **■**. Cursor comes up over the map scale in the lower left corner of the map display.
  - b. Use the left inner knob to change between scale factors.
  - c. For terminal area operations select AUTO scale factor.
- To change the navigation information displayed on the left side:
  - a. Press the left **■**.
  - b. Use the left outer knob to move cursor over desired line.
  - c. Choices for each line are:
    - ETE, Cross track error correction (XTK), VNAV status.
    - DTK, BRG to active wpt, RAD from active wpt.
    - Actual track (TK), BRG, RAD. (Displays ARC during DME arc approaches to show what radial aircraft is on relative to reference VOR.)

# KLN 90B Memory Jogger

## Left Page Summary



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