

**SUPPLEMENT A16
TO THE AIRPLANE FLIGHT MANUAL DA 40**

**MULTIFUNCTION DISPLAY / GPS
KMD 150
BENDIX/KING**

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1. GENERAL

This Supplement supplies the information necessary for the efficient operation of the airplane when the MFD/GPS KMD 150 is installed. The information contained within this Supplement is to be used in conjunction with the complete Manual.

This Supplement is a permanent part of this Manual and must remain in this Manual as long as the MFD/GPS KMD 150 is installed.

2. OPERATING LIMITATIONS

The KMD 150 GPS is limited to VFR use.

The following limitation placard is in the view of the pilot:

GPS limited to VFR use only

3. EMERGENCY PROCEDURES

No change.

4A. NORMAL OPERATING PROCEDURES

NOTE

Refer to the KMD 150 Pilot's Guide for procedures not contained in this Airplane Flight Manual Supplement.

The KMD 150 internal GPS source is selected for operations restricted to VFR only. All navigation functions will be performed through use of the KMD 150 controls.

START UP

1. Brightness - **ADJUST** as desired.

NOTE

To obtain the minimum useable brightness level for dark cockpit operations, select the TOPO OFF map presentation.

2. DATA BASE currency - **REVIEW**. Press **OK** key.
3. Map setup - **REVIEW** via the **SETUP** and **MAP SETUP** keys.
4. Nav setup - **REVIEW** via the **SETUP** and **NAV SETUP** keys.
5. **GPS INT** annunciation - **VERIFY**.

CREATE OR MODIFY A FLIGHT PLAN**NOTE**

All alterations to a flight plan are retained. There is no undo function available. Corrections are made in the same manner as the original alteration.

1. Main Menu screen - **SELECT**.
2. **FLIGHT PLAN** key - **PUSH**.
3. **EDIT FPLN** key - **PUSH**.
4. Flight Plan number - **SELECT** via the joystick if not already in view.
5. **FPLN OFF** key - **PUSH** if modifying the active flight plan.
6. **SELECT** key - **PUSH**.
7. **CURSOR - POSITION** via the joystick to the desired location on the flight plan.
8. **DELETE ITEM** key - **PUSH** if desiring to delete the waypoint at the cursor location.
9. **INSERT ITEM** key - **PUSH** if desiring to insert a new waypoint at the cursor location.
10. **CURSOR - POSITION** via the joystick over the desired type of waypoint (airports, VORs . . . etc. out of the database).

11. **SELECT** key - **PUSH**.
12. **CURSOR - POSITION** via the joystick over the first character of the waypoint identifier (ICAO). **DEFINE** the waypoint name alphanumerically via the joystick.
13. **MORE INFO** key - **PUSH** to verify choice if soft key is available.
14. **VIEW AREA** key - **PUSH** to verify choice if soft key is available.
15. **ENTER** key - **PUSH** to insert waypoint into flight plan.
16. Repeat steps 7 through 15 for each waypoint entry.
17. **CURSOR - POSITION** via the joystick over the appropriate flight plan leg.
18. **INVERT FPLN** or **FLY FPLN** key - **PUSH** to activate the flight plan leg verification screen.
19. **FIRST LEG** or **SEL'D LEG** key - **PUSH** to select choice of legs you wish to fly.

CHANGE NAV/MAP PRESENTATIONS

1. MAP screen - **SELECT**.
2. **NAV MENU** key - **PUSH**.
3. **JOYSTICK - TOGGLE** through the nav/map modes:
 - a. **TOPO ON, SMALL TEXT** (autoleg navigation)

- b. **CDI (TOPO ON)** (OBS navigation)
 - c. **TOPO ON, LARGE TEXT** (autoleg navigation)
 - d. **TOPO OFF, SMALL TEXT** (autoleg navigation)
 - e. **CDI (TOPO OFF)** (OBS navigation)
 - f. **TOPO OFF, LARGE TEXT** (autoleg navigation)
4. **MAP** key - **PUSH** when the desired presentation is selected.

NOTE

The modes CDI (TOPO ON) and CDI (TOPO OFF) convert navigation from auto leg sequencing mode to OBS operation (pseudo VOR) around the selected waypoint. Radial selection is possible via the CDI screen increment and decrement soft keys. Graphic presentation of the OBS course on either a TOPO ON or TOPO OFF map is possible via a momentary activation of the joystick. The map will remain visible for 30 seconds and may be renewed by a subsequent joystick activation.

OBS NAVIGATION (CDI)

(Pseudo VOR operation; a single waypoint with variable radials)

- 1. Active waypoint - **ESTABLISH**.
- 2. Map screen - **SELECT**.
- 3. **NAV MENU** key - **PUSH**.

4. Joystick - **SELECT CDI (TOPO ON)** or **CDI (TOPO OFF)** nav/map mode.
5. **MAP** key - **PUSH**.
6. **INC OBS** or **DEC OBS** - **PUSH** to select the desired course into the active waypoint.
7. Joystick - **ACTIVATE** to temporarily (30 seconds) view the adjusting course on a TOPO ON or TOPO OFF map.

'DIRECT TO' NAVIGATION WITHIN THE FLIGHT PLAN

1. Map screen - **SELECT**.
2. **RESET STICK** key - **PUSH** to reset the joystick pointer (if pointer active).
3. **DIRECT TO** key - **PUSH** to obtain the ETAs/DIRECT TO page.
4. **CURSOR - POSITION** over the desired waypoint using the joystick.
5. **DIRECT TO** key - **PUSH** to go direct to the chosen waypoint.

'DIRECT TO' NAVIGATION ANYWHERE ON THE MAP

1. Map screen - **SELECT**.
2. Joystick - **POSITION** pointer over waypoint/intended location on the map.
3. **DIRECT TO** key - **PUSH** to go direct to the chosen location.

4. **DIRECT TO OFF** key - **PUSH** to terminate **DIRECT TO** operation when appropriate if a non flight plan waypoint is the active waypoint.

NOTE

DIRECT TO operation to a non flight plan waypoint must be canceled to activate a second DIRECT TO or to resume flight plan leg sequencing.

NEAREST AIRPORTS AND NAVAIDS

NOTE

The ten nearest airports/airfields or navaids can be displayed by pressing the **NAV MENU** key or the **DIRECT TO** and **DATA BASE** keys in Map Mode, followed by either the **NEAR APTS** or **NEAR NAVAID** key.

1. **CURSOR - POSITION** over the desired airport/airfield or navaid using the joystick.

GENERAL NOTES

- Ignore the instantaneous heading as depicted on the map while maneuvering in turns.
- The KMD 150 map will default to north-up orientation in the absence of a GPS ground track (i. e. less than 5 knots ground speed).

- A **DIRECT TO** command to a non flight plan waypoint must be terminated by a **DIRECT TO OFF** command.
- Change map/nav modes through use of the **NAV MENU**.
- **CDI (TOPO ON)** and **CDI (TOPO OFF)** are available only when an active waypoint exists.
- Joystick use:
 - 1) Temporarily activate and move a pointer on a map screen.
 - 2) Temporarily activate a map screen from the CDI (TOPO ON) or CDI (TOPO OFF) screen.
 - 3) Move a cursor and select alphanumeric characters when data fields are present.
- Pan, or adjust, the viewing area of a map by running the joystick pointer to the edge of the existing map in the direction desired.
- To obtain more information on a map element, move the joystick pointer to that element until it becomes highlighted.
- To review ETA's to flight plan waypoints, press **DIRECT TO**.
- Press **FPLN OFF** before modifying an active flight plan.
- Avoid thunderstorms, SUA's or obstacles en route via judicious joystick pointer placement on the map and execute a **DIRECT TO**. Remember to use the **DIRECT TO OFF** key prior to a subsequent **DIRECT TO**.

4B. ABNORMAL OPERATING PROCEDURES

No change.

5. PERFORMANCE

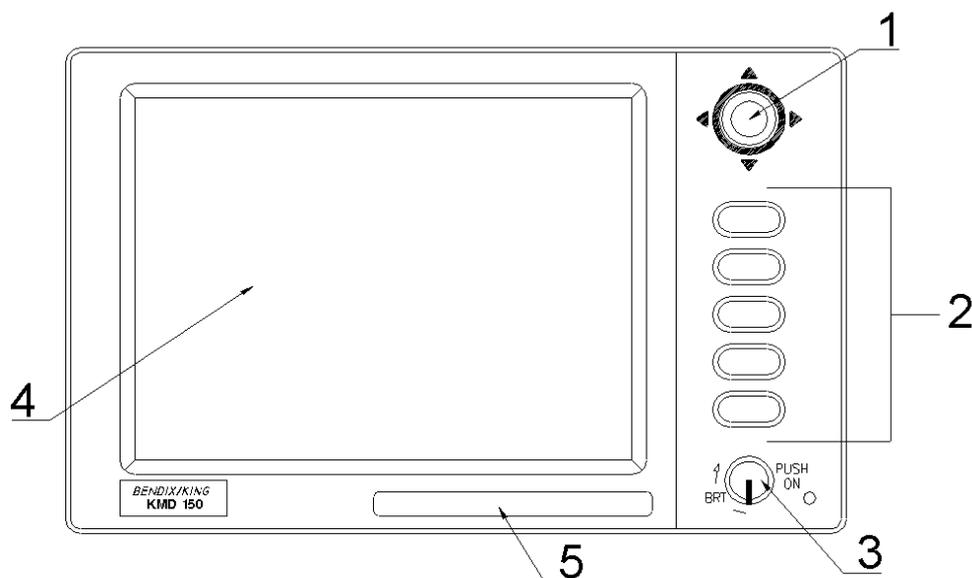
No change.

6. MASS AND BALANCE

Upon removal or installation of the MFD/GPS the change of empty mass and the corresponding center of gravity of the airplane must be recorded according to Chapter 6 of the Airplane Flight Manual.

7. DESCRIPTION OF THE AIRPLANE AND ITS SYSTEMS

7.14 AVIONICS



1. Joystick
2. Function Keys
3. ON/OFF/Brightness Control
4. Full Color TFT Liquid Crystal Display
5. Database Card

DESCRIPTION

The KMD 150 system contains a multi-color moving map with topographical and navigation features and an internal GPS receiver qualified for VFR navigation only.

The primary purpose of the equipment is to provide the pilot with a clear graphical display of present position relative to coastlines, controlled airspace, airways, airports, airfields and aeronautical beacons. The equipment also provides facilities for flight planning and the display of route information.

The equipment is controlled via five soft keys and a joystick to provide easy use. Each keystroke brings an appropriate prompt message to the display, which means that at all times the exact information and/or action for a particular keystroke is defined.

SOFT KEYING

On the KMD 150's screen, you will notice that a label is drawn down the right hand side alongside each valid key. Whenever a new function is selected, by pressing a valid key, a new screen is displayed along with its new key labels.

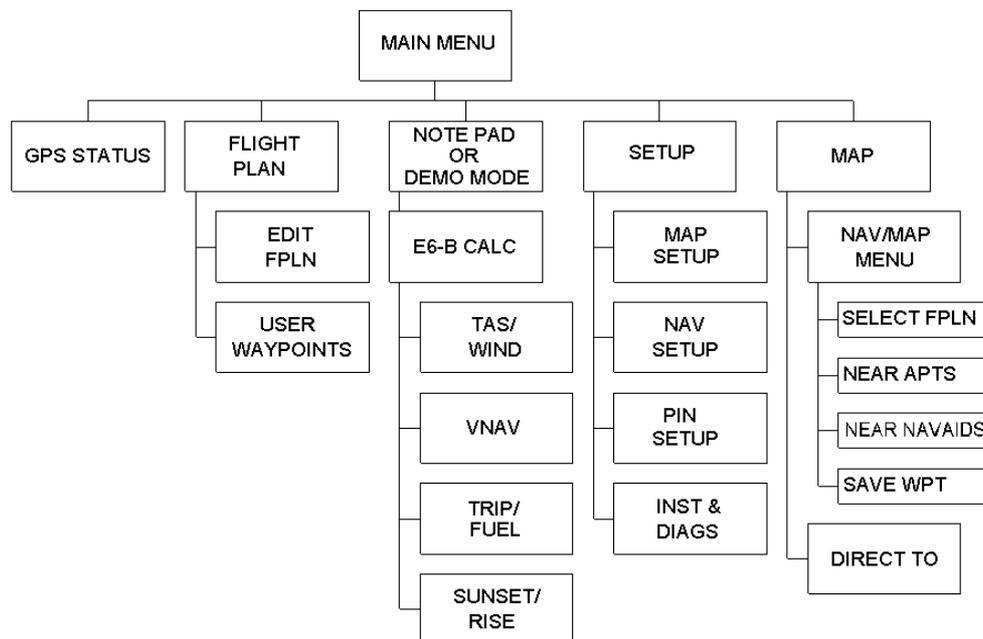
This capability of drawing key labels that are only applicable to a particular screen is referred to as 'soft keying', and allows one key to perform multiple functions without the complications of multiple key presses on a conventional keypad.

DATABASE

Every 28 days Bendix/King receives data base information from Jeppesen Sanderson. This information is processed and downloaded onto data base cards. Bendix/King makes these updates available to KMD 150 users.

SOFTWARE ARCHITECTURE

The software in your KMD 150 unit is tree structured. An analogy can therefore be drawn between the trunk of a tree and MAIN MENU. MAIN MENU is the heart of the operating structure and can be accessed by pressing the HELP key after switching on the unit or pressing the MAIN MENU key at any other time.



<i>MAIN MENU</i>	has 5 main software branches, which in turn have their own sub software branches. The diagram above depicts the complete tree structure and will serve as a good point of reference while you are familiarizing yourself with your unit.
<i>GPS STATUS</i>	This shows satellite signal strength, allows UTC, local offset, date and position to be set, which will speed up the initialization of your unit.
<i>FLIGHT PLAN</i>	Allows user defined waypoints and flight plans to be edited/created.
<i>EDIT FPLN</i>	Allows user defined flight plans to be edited/created either manually or visually.
<i>USER WPTS</i>	Allows user defined user waypoints, airports, airfields and marker functions to be edited/created either manually or visually.
<i>DEMO MODE</i>	Allows you to practice operating the unit on the ground using a built-in simulator.
<i>NOTE PAD</i>	Allows up to 4000 characters of text, previously downloaded from a PC using Flight Manager (tm) software to be viewed. This key is only available if DEMO MODE is not running. DEMO MODE can only be selected from the first screen when switching on the unit.

<i>E6-B CALC</i>	Allows the E6-B Calculator to be used.
<i>TAS/WIND</i>	Allows density altitude, TAS and winds aloft to be calculated.
<i>NAV</i>	Allows vertical navigation to be set up.
<i>TRIP/FUEL</i>	Allows fuel and trip information to be calculated.
<i>SUNSET/RISE</i>	Allows sunset and sunrise times to be calculated.
<i>SETUP</i>	Allows setup of map and navigation characteristics.
<i>MAP SETUP</i>	Allows all map functions to be customized, including map tracking, airport or airfield names, map units, map datum, language, minimum runway length/surface, extended track, auto zoom and zoom level map de-clutter facility.
<i>NAV SETUP</i>	Allows all the NAV functions to be customized, including CDI scale, CDI display, CDI alarm, arrival alarm, auto next leg-, auto leg selection-philosophy, turn anticipation and logging rate.
<i>PIN SETUP</i>	Allows the PIN security function to be set up.
<i>INST & DIAGS</i>	Allows installation and diagnostics for data input/output and GPS receiver to be performed. Flight logs can be viewed and various sections of memory can be cleared from here.
<i>MAP</i>	This is the primary operating mode of the unit. The unit will automatically drop into this mode 30 seconds after switch on if no other key is activated.

- NAV MENU* Accesses all navigation functions and MSA information. Joystick toggles MAP Mode.
- FLIGHT PLAN* Allows a Flight Plan to be selected and edited.
- NEAR APTS* Allows search of 10 nearest airports or airfields, providing information and DIRECT TO capability. Includes Jeppesen and user defined airports or airfields which satisfy the minimum runway length and surface requirements.
- NEAR NAVAID* Allows search of 10 nearest nav aids (VORs and NDBs), providing information and DIRECT TO capability.
- SAVE WPT* Allows your present co-ordinates to be saved in the next available user waypoint number.
- DIRECT TO* Allows the user to perform a DIRECT TO any point in the internal or user defined database. It may also be used to obtain information on any point in the database.

8. AIRPLANE HANDLING, CARE AND MAINTENANCE

No change.