

CMA9000 FMS Supplement

The HPG CMA9000 FMS features capable flight management for rotorcraft.



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System Overview

Display Function Buttons

The FMS has 6 Line-Select keys on the left and right side of the screen. These correspond to the functions labeled next to the key.



Text entered on the FMS is entered into the scratchpad, which is the line at the bottom of the screen. This text can be modified by typing and then entered into a field by selecting the adjacent Line Select Key.

Keypad Function Buttons

MENU: Access the MCDU MENU page.

PREV/NEXT: Previous Page and Next Page buttons cycle through the active pages.

INIT+REF: Access to INITIALIZE and REFERENCE LIBRARY..

RTE: Access the ROUTE page.

DEP+ARR: Access to the DEPARTURES and ARRIVALS procedure selection pages.

LEGS: Access to the route LEGS page or waypoints page.

EXEC: EXECUTE or save the current changes

RADIO: Access the RADIO page.

FUEL: Access the FUEL page.

MARK: MARK ON TOP function and opens PREDEF WPF page.

HOLD: Access the HOLD page

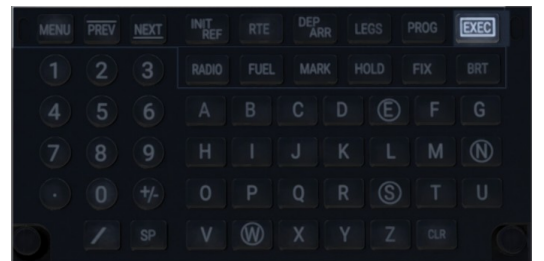
FIX: Access the FIX INO page.

BRT: Adjust screen brightness.



Execute Function

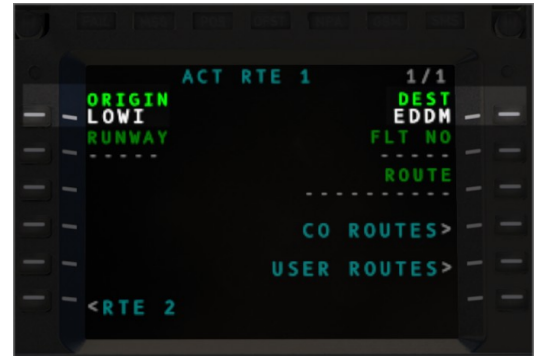
Modifications to the active flight plan will require EXEC to be pressed, the corresponding green light will be illuminated when there are unsaved changes to the active flight plan.



Flight Plan Functions

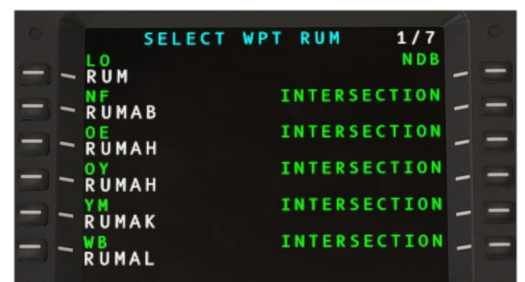
Entering origin and destination airports

1. Open the ROUTE page by pressing the **RTE** button.
2. Key the origin airport into the scratchpad such as **LOWI**. Select **LSK1** (Origin) to insert it.
3. Key the destination airport into the scratchpad such as **EDDM**. Select **RSK1** (DEST) to insert it.
4. Select **EXEC** to save the changes.
5. Open the MFD **NAVD** or **DMAP** page and observe a direct route between LOWI and EDDM.



Add En-route legs

1. Open the LEGS page by pressing the **LEGS** button.
2. Enter a waypoint such as **RUM** in the scratchpad. You may get a selection page to choose which waypoint you like. Press **NEXT** or **PREV** Button to find the correct one.
3. Press **LSK1** to sequence the new waypoint ahead of **EDDM**. Waypoints are sequenced prior to the selected waypoint entry location.
4. Press **EXEC** to save the changes, and observe the new route on **NAVD** or **DMAP**.



NOTE: Use the **CLR** key to enter DELETE into the scratchpad, which can be used to remove a single waypoint. Additionally you may "move up" a waypoint to remove one or more waypoints.

Selecting Departure procedures

1. Open the DEPARTURES/ARRIVALS INDEX by pressing the **DEP/ARR** button.
2. Select **DEP** under RTE 1
3. On the departures page, select a runway such as **08** and a departure procedure such as **RTT2Q**. Select a departure transition if applicable.
4. Press **EXEC** to save the changes, and observe the new route on **NAVD**.

NOTE: You may also enter the runway on the ROUTE page.



Selecting Arrival and Approach procedures

5. Open the DEPARTURES/ARRIVALS INDEX by pressing the **DEP/ARR** button.
6. Select **ARR** under RTE 1
7. On the arrivals page, select an approach such as RNAV RW34L and an arrival procedure and transition if applicable.
8. Press **EXEC** to save the changes, and observe the new route on **NAVD**.



Autopilot navigation following the flight plan

1. On NAVD, press the NAV button to cycle through sources. Select the FMS source
2. Press the CPL key at the bottom of the screen to begin navigation

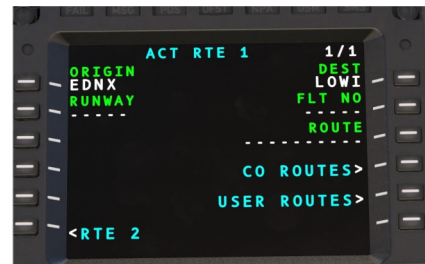
NOTE: The source must remain visible for the AFCS to continue following that navigation source.

Deleting the flight plan

If the flight plan is activated:

You can only delete a flight plan that has already been activated if you are on the ground. If you need to make a change in the air (e.g. new destination airport), you can do this using the RTE2 function. (see Alternative route (RTE2)).

If you are on the ground, you can simply overwrite the entries for ORIG and DEST with a new entry (e.g. EDDF). On the DEP/ARR page you will then find the corresponding approach and departure procedures for the newly entered start or destination point.



If the flight plan is not yet activated:

1. press **RTE**
2. press **LSK4** (ERASE RTE)
3. press **EXEC**



Direct-To

Direct-to a waypoint in the active route:

1. Display LEGS page by pressing **LEGS**
2. Display the desired waypoint by pressing **NEXT** or **PREV** as required
3. Key in, or copy the waypoint identifier into the scratchpad by pressing the appropriate **LSK**
4. Return to the first LEGS page by pressing **LEGS** or **PREV** as required
5. Move the waypoint identifier to the TO WPT field by pressing **LSK1**
6. Verify the inbound course and distance of the leg to the TO WPT and press **EXEC**



Direct-to an off-route waypoint

1. Key in the off-route waypoint identifier
2. Display the first LEGS page by pressing **LEGS**
3. Move the waypoint identifier to the TO WPT field by pressing **LSK1**
4. Verify the inbound course and distance of the leg tho TO WPT and press **EXEC**



RTE 2 Option

The CMA 9000 offers you the option of creating two independent routes simultaneously (RTE 1 and RTE 2), whereby only one of the two routes can be activated as an active flight plan. The other flight plan is saved as an inactive route.

The inactive route can either be created manually or selected from the custom routes. It can also be copied from the active route. The procedures for creating, selecting or editing the inactive route are identical to those described for the active route.

Note: The inactive route is always displayed in monochrome cyan so that it can be clearly distinguished from the active route.

Edit an inactive route:

1. display the active route by pressing RTE
2. go to the menu navigation of the inactive route by pressing LSK6 (RTE2)
3. the inactive route can now be manipulated directly via the RTE, LEGS, DEP/ARR and HOLD pages, as already described for the active route

Note: Any changes to the inactive route are either confirmed via the respective LSK with "CONFIRM" or deleted with "CANCEL". You cannot execute an EXEC command here.

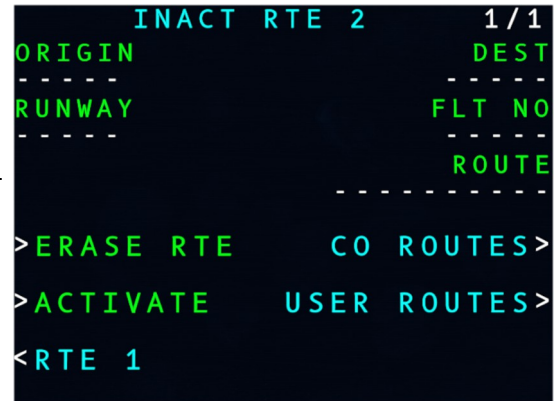
Activate an inactive route:

1. go to the routes menu by pressing RTE
2. if you are not yet in the area of the inactive route, press LSK6 (RTE 2 or RTE 1, depending on which route is active)
3. you are now in the area of the inactive route (monochrome cyan). To activate the inactive route, press RSK6 "ACTIVATE".

Copying an active route:

1. to copy an active route to an inactive route, press LSK5 ("RTE COPY") on the side of the inactive route (cyan). The active route remains untouched and will continue to be used for navigation.
2. press RSK6 ("CONFIRM") to copy the route

Note: A copied route always contains the last status of the active route including the current TO waypoint and all subsequent waypoints. Waypoints that have already been overflown are not copied.



Aircraft Functions

Find nearby airports and Nav aids

1. Select INIT/REF, then NEAREST, then AIRPORT or VHF/NAV
2. Wait for the data to load
3. A list is presented of the nearest 50 airports or nav aids



Tune COM1 or COM2 radio

1. Open the **RADIO** page by pressing the **RADIO** button.
2. Key in a new frequency in the scratchpad, such as 121.70
3. Select RSK1 or RSK2 for COM1 or COM2
4. The frequency will be entered into the standby slot, press the same SK a second time to swap it to the active frequency.



Tune NAV1 or NAV2 radio

5. Open the **RADIO** page by pressing the **RADIO** button.
6. Key in a new frequency in the scratchpad, such as 116.80
7. Select RSK3 or RSK4 for NAV1 or NAV2
8. The frequency will be entered into the standby slot, press the same SK a second time to swap it to the active frequency.

Enter transponder code

1. On the **RADIO** page, enter the new 4-digit transponder code
2. Press LSK4 to enter the code into the standby slot
3. Press LSK4 again to swap the active and standby slots



Turn transponder ON and OFF

4. On the **RADIO** page, Select the **ATC** menu at RSK5.
5. Press LSK3 to cycle between transponder states. Press LSK2 to toggle MODE C reporting.



Advanced Functions

Mark on top (create waypoint)

1. Press the MARK button as you overfly a location
2. The PREDEF WPT page will open with the MARK position indicated
3. Press RSK1 to copy the position to the scratchpad
4. Create a new user waypoint by clicking NEW USER WPT



5. Enter the position into RSK2
6. Enter an identifier into LSK1
7. SAVE to save the waypoint to the user database



NOTE: View the PREDEF WPT page without marking a new position, by using INIT/REF → WPT LISTS -> PREDEF WPT to access the page.

NOTE: The JOYSTICK position is the DMAP cursor and may also be used to easily create new user waypoints.

Enter PlaceBearing/Distance waypoint

You may create a new fix based on an existing fix and a bearing/radial and distance.

A fix may be entered with a bearing and distance such as:

KSEA000/10 Fix: KSEA with Bearing: 000 and Distance 10 NM

KSEA180/10/R Fix: KSEA with Radial: 180 and Distance 10 NM

After creation the waypoint will be visible with an incrementing identifier, such as KSEA01

Enter or modify a holding pattern

Enter /H into the scratchpad on the LEGS page, then select a waypoint. This will promote the waypoint to a hold and display the HOLD page.

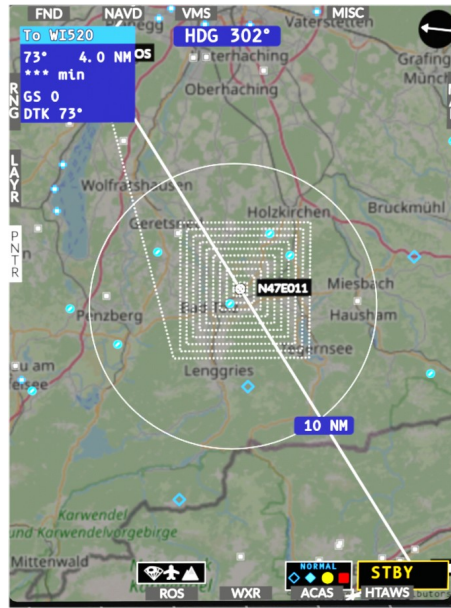
On this page you may select the hold details such as Right or Left turns, leg time and the inbound course. Use EXEC to save the changes.

Enter / into the scratchpad to clear the hold procedure from a given waypoint.

Enter or modify a search pattern (SAR)

1. Enter /S into the scratchpad on the LEGS page, then select a waypoint. This will promote the waypoint to a search pattern and display the SEARCH PATTERN page
2. Enter the pattern details such as the type, leg length and track spacing. Select between Square, Ladder or Sector patterns
3. Press ACTIVATE to save into the modified flight plan. You may check the results on NAVD.
4. Press EXEC to commit the changes to the active flight plan.





Enter / into the scratchpad to clear the SAR procedure from a given waypoint.

Editing the Company Database

The Company Database may be edited at the following location:

Community\hpg-airbus-h160\html_ui\HPGH160-System\CMA9000\COMPANY_DATABASE.json

Company database contains:

- Routes with origin, destination and en-route waypoints as they would be entered on the LEGS page.
- Custom waypoints
- Information for the IDENT page

Editing the User Database

The user database is created automatically but may be edited by the user if needed.

The location for Windows Store is:

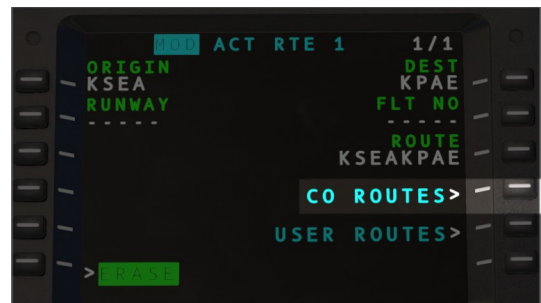
%LocalAppData%\Packages\Microsoft.FlightSimulator_8wekyb3d8bbwe\LocalState\packages\hpg-airbus-h160\work

The structure and information contained is identical to the Company Database.

Select flight plan from company route list

1. From the ROUTE page, select **CO ROUTES**
2. Select from the list of routes
3. The route will be applied immediately, **!WAIT** will be displayed multiple times while looking up data. You may be asked to disambiguate waypoints.
4. Press **EXEC** to commit the changes to the active flight plan.

NOTE: Company database must be installed.



Changelog

30.04.24 **Version 1.1**

23.04.24 V1.0.2 – add „Direct-To“

17.04.24 V1.0 – add „Deleting the flight plan,“

15.04.24 V1.0 - EN