Miltech Simulations MH60

Navigation Systems

The MH-60 features a flexible and powerful navigation system designed to support realistic military operations as well as standard MSFS functionality. The aircraft supports multiple methods of flight plan loading and navigation data entry. The Nav system is interactable with the Keyset, for more information Keyset

[1] Entering Flight Plans

INSPlanner Cloud Sync

The MH-60 is fully integrated with *INSPlanner*, our proprietary online mission and flight planning tool. Designed to resemble real-world military planning software, INSPlanner allows users to build detailed flight plans and mission routes, from any device, and send directly to the aircraft to execute.

In real-world naval helicopter ops, flight plans are typically coordinate-based and uploaded into the navigation system using datacards. This feature replicates that process - only here, the datacard is transmitted instantly via the cloud.

Access INSPlanner from https://insplanner.miltechsimulations.com/

Creating Flight Plans in INSPlanner

Access INSPlanner from https://insplanner.miltechsimulations.com/

GETTING STARTED

1. Enter a name for your flight plan in the "Flight Plan Name" field.
2. Add waypoints by clicking directly on the map or using the "Add by coordinate" button.
3. Select waypoints by clicking on them in the table or map.
4. Use the Edit menu to delete selected waypoints or clear all waypoints.
5. When completed, you may save the flightplans locally as CSV, or send directly to the aircraft over the cloud.

MENU OPTIONS

- File Menu: Retrieve from Cloud, Send to Aircraft, Save as CSV, Load from CSV
- Edit Menu: Clear All, Delete Selected, Move Selected

TOOLBAR

- Search: Enter a city name, location name or ICAO Code to search for it on the map.
- Delete All: Remove all waypoints from the current flight plan.
- Delete Selected: Remove the currently selected waypoint.
- Move Selected: Change the coordinates of the selected waypoint.

ADDING WAYPOINTS

- Click directly on the map to add a waypoint at that location.

- Use "Add by coordinate" to manually enter latitude and longitude values, in decimal format.

MANAGING WAYPOINTS

- Select a waypoint by clicking on it in the table or map.
- The selected waypoint will be highlighted.
- Use the Edit menu to delete the selected waypoint.

EXPORTING YOUR FLIGHT PLAN

- Use "Send to Aircraft" to transmit the plan to the aircraft over the cloud.
- Use "Save as CSV" to save the plan as a CSV file for later use.

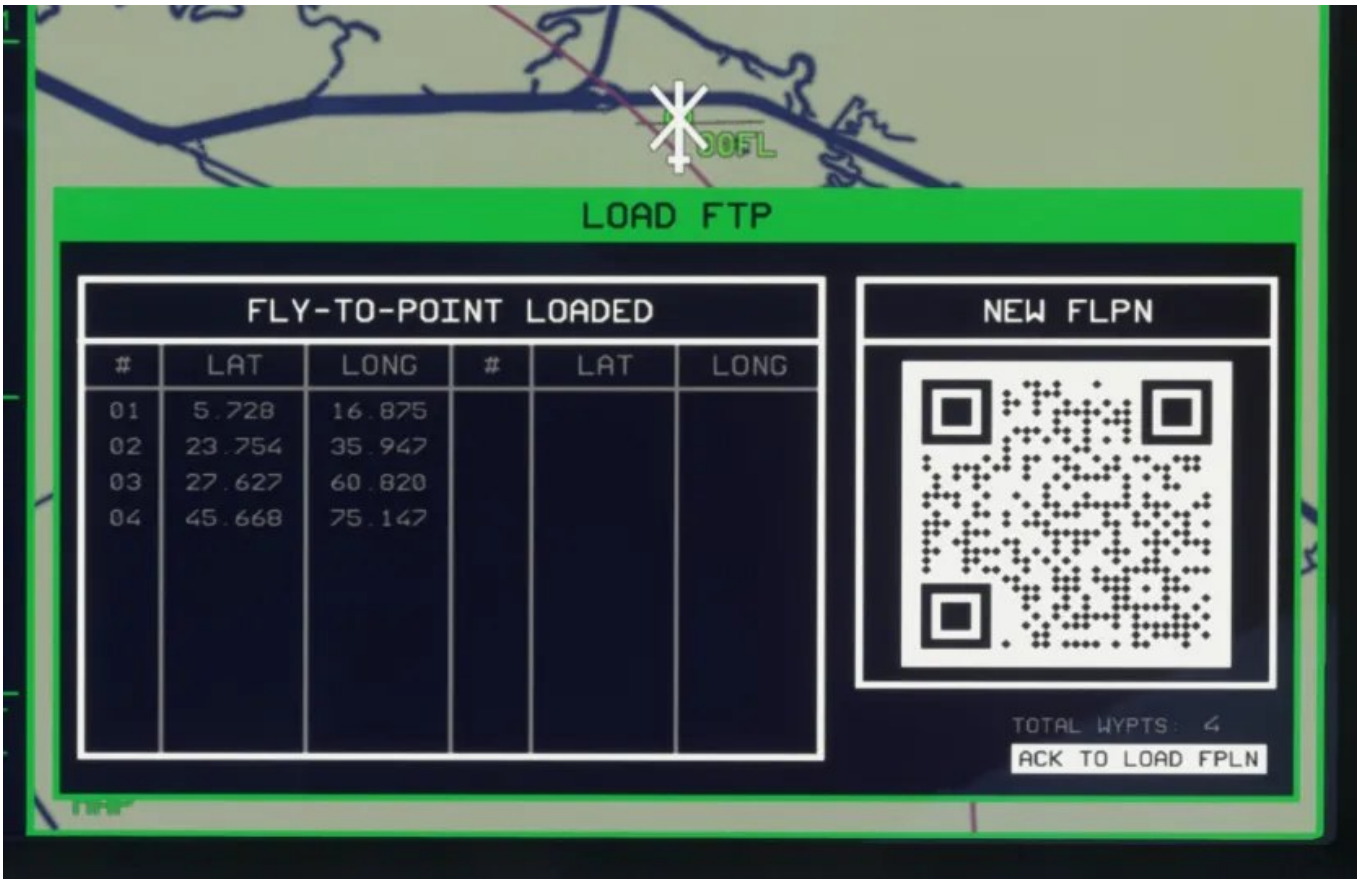
Loading Flight Plan onto Aircraft

1. Navigate to the NAV Menu, and select LOAD FPLN.
2. The LOAD FTP Pop-up will display on the Mission Display (MD). PK Option on Keyset will now display as *FPLN*
3. Scan QR Code or enter insplanner.miltechsimulations.com. Use your mouse click to create waypoints on the map.
4. When the route has been completed, click on "Send to Aircraft". A 6-digit numeric code will be generated.
5. Return to the simulator, and using the Keyset numberpad, enter the 6-digit code. Press ENT to enter.



Flightplan #123456 has been entered. Press ENT

6. A preview of the loaded flight plan will render on the MD Pop-up. If the flight plan looks correct, press ACK (either on the Keyset or MD Bezel) to load into the map. If changes are made, you may reenter the code and press ENT to refresh.



Pop-up displaying Loaded Waypoints. Press ACK to continue.

7. You should now see your flight plan loaded onto the map. You may close the Pop-up by clicking on the *FPLN* PK Option on the Keyset.

FS24 Tablet Sync (via MSFS EFB)

The MH60 can read and import flight plans created in the new FS2024 flight planner system, embedded on the FS24 EFB Tablet. These are parsed directly from the MSFS Tablet and loaded into the internal avionics. This method offers an intuitive, user-friendly interface for creating routes in FS24, using IFR Procedures.

Simply create your flight plan using the tablet EFB, then click "Send to Aircraft".

MSFS World Map Sync

For users starting a flight from the World Map (pre-flight), the MH60 can auto-import the standard MSFS flight plan (PLN format). Simply create a flight plan on the WorldMap, in FS20 or FS24, and start your flight normally.

In FS20, the flight plan is automatically loaded onto your avionics.

In FS24, you may have to click on "Send to Avionics" on the tablet EFB.

Manual Waypoint Entry (via Keyset)

Users can create Fly-to-Point (FTP) Flight Plans, by manually inputting waypoints via the MH60's Keyset interface. These waypoints will form a route that will appear on the aircraft's instrumentation.

Users may also edit flightplans loaded onto the aircraft, by editing, deleting or creating new waypoints following the guides below.

Edit and/or Create FTP (Fly-To-Point) Flightplans

1. Navigate to the NAV Menu, and select the FTP EDIT Submenu.
2. Three new options will open up on the Keyset PK Menu. Additionally, the NORM FTP Pop-up will display on the Mission Display.



FTP Edit Submenu, displaying option EDIT WYPT

3. Use the PG UP or PG DN keys, either on the Keyset or MD Bezel, to select a waypoint. "FTP---" Displays the selected waypoint number. Remember, anytime you see a white box highlighted WHITE, it is a cursor that may be interacted with PG UP/DN/LEFT/RIGHT.
4. After selecting the waypoint you wish to edit or enter, press EDIT WYPT on the Keyset. The waypoint’s coordinates will appear with a green background, indicating that the field is now active and ready to receive input.



NORM FTP Pop-up, Waypoint FTP002 Selected. Fields are highlighted green, indicating active for editing. Notice PG UP and PG DN buttons on the right bezel.

5. Use the Keyset numberpad to enter coordinates, starting with LATITUDE. First number indicates the direction - 2 for NORTH, 8 for SOUTH. Any other number is interpreted as NORTH. Then type the Degrees, Minutes and Seconds. Press ENT to insert.
6. If the entered coordinate is not valid, it will default to N00 00 00.
7. To deactivate editing and return to the previously stored value, you may press EDIT *WYPT* at any time.
8. Use the Keyset numberpad to enter LONGITUDE. First number indicates the direction - 3 for WEST, 5 for EAST. Any other number is interpreted as WEST. Then type the Degrees, Minutes Seconds. Press ENT to insert.
9. Once both coordinates are inserted, the flight plan will automatically reconstruct and reload.

You may repeat these steps to continue manually adding waypoints, or edit waypoints from existing flight plans.

If you prefer, you may also use LVAR L:MH60_Numeric_Stream to directly type into the fields using your keyboard.

Fly Direct-To-Point

1. Assuming you have an FTP Flightplan loaded, you may fly directly to any waypoint on the route, including search patterns. If you do not have an FTP Flightplan already, you may review the two expandables above.
2. Navigate to the NAV Menu, and select the FTP EDIT Submenu.
3. Three new options will open up on the Keyset PK Menu. Additionally, the NORM FTP Pop-up will display on the Mission Display.



FTP Edit Submenu, displaying option DRCT TO --

4. Use the PG UP or PG DN keys, either on the Keyset or MD Bezel, to select a waypoint. "FTP---" Displays the selected waypoint number. Remember, anytime you see a white box highlighted WHITE, it is a cursor that may be interacted with PG UP/DN/LEFT/RIGHT.
5. After selecting the waypoint you wish to fly directly to, press "DRCT TO --" on the keyset. The aircraft will automatically delete all other waypoints on your FTP Route, and create a Direct-To route from the current location to the selected waypoint (now FTP002).

Please note that this is a "destructive method" - eg. it will erase all other waypoints on your route. Direct-To waypoint while conserving the rest of the route is not supported at this time.

Delete FTP Flightplans

1. Assuming you have an FTP or Simulator Flightplan loaded, you may fully delete any waypoints or routing stored in memory. If you do not have an FTP Flightplan already, you may review the expandables above.
2. Navigate to the NAV Menu, and select the FTP EDIT Submenu.
3. Three new options will open up on the Keyset PK Menu. Additionally, the NORM FTP Pop-up will display on the Mission Display.



FTP Edit Submenu, displaying option CLR FPLN

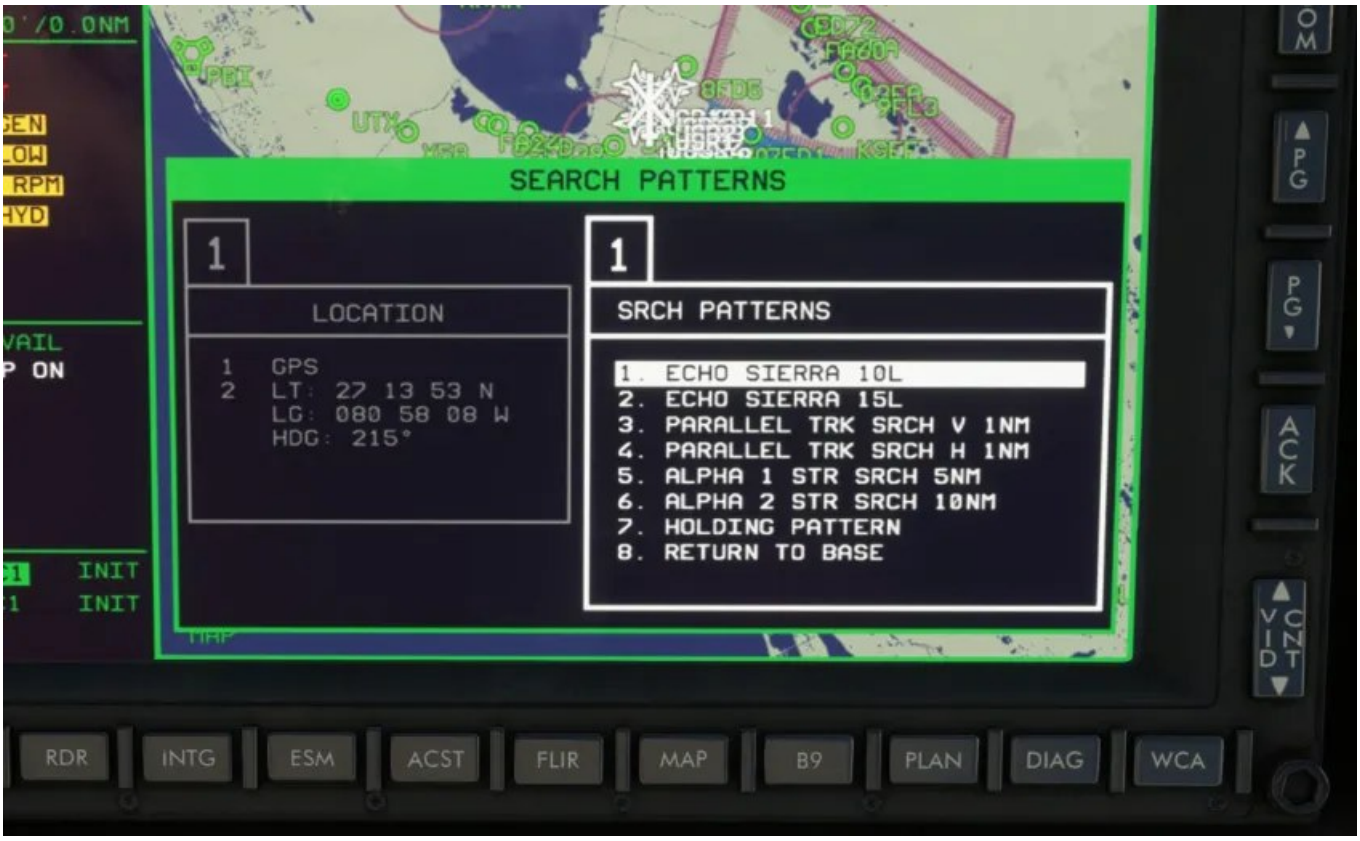
4. Press CLR FPLN. This option will fully clear all waypoints from memory, as well as any route that has been loaded into the map. You may now create a new route.

Predefined Search Patterns

Users can fly a search pattern by generating it directly with the Keyset, selecting from standard formats such as Expanding Square, Creeping Line, or Sector Search. Once synced to the MH-60, the pattern is loaded as a waypoint sequence into the MAP system, allowing the aircraft to fly the pattern manually.

Create Search Patterns

1. Navigate to the NAV Menu, and select SRCH PTTR option. This will open up the SEARCH PATTERN Pop-up menu on the Mission Display.
2. Use the PG UP or PG DN keys, either on the Keyset or MD Bezel, to move the cursor. Press ACK to select a Search Pattern. The FTP Flightplan will now be overwritten with the selected Search Pattern.



Search Patterns Pop-up Menu. Note PG UP, PG DN and ACK Buttons on the right bezel for navigation.

3. You may now close the Pop-up by pressing SRCH *PTTR*. Adjust Map Range as desired and fly the Search Pattern manually.

All Search Patterns are predefined and non-editable. They all originate from the aircraft location at the time of activation.

Flight Plan back to Base

MH60 can automatically generate a return-to-base route from current aircraft position. This ensures you have a clear navigation path back to your home base or recovery point, complete with updated distances and headings.

Set or Edit Base Location

Your "BASE" is defined as the location where the mission was initiated and/or a designated safe point for return and recovery. When the aircraft is first started up and EGIs are aligned, the Keyset will automatically set the current aircraft location as Base. However, the user may want to modify this base location manually.

1. Navigate to the NAV Menu, and select BASE UPDT. This will open up the Base Update submenu.
2. Three new options will appear:
3. SET BASE: Depressing this option will automatically set the current Latitude and Longitude as the base.
4. LAT: Displays the current Base Latitude.
5. LONG: Displays the current Base Longitude.



BASE UPDT Submenu, displaying LAT, LONG, SET BASE

3. To manually enter a base LAT/LONG, depress the corresponding button on the Keyset. The field now becomes an active input field (Highlighted by asterisks).
4. Use the keyset numberpad to enter the coordinates. The first number will represent direction:
5. For LAT: 2 is NORTH, 8 is SOUTH, any other number defaults to NORTH.
6. For LONG: 4 is WEST, 6 is EAST, any other number defaults to WEST.
7. Proceed with entering Degrees, Minutes and Seconds. Once complete, press ENT to enter. If the coordinate is valid, it will now be displayed on the keyset and represent the new Base location. If the coordinate is invalid, it will default to N00 00 00, or W000 00 00

Having an up-to-date base location is important, as Bingo Fuel calculations are based on this location. The MH60 also features a Quick Return-to-Base to take the most efficient and direct route back to the set base.

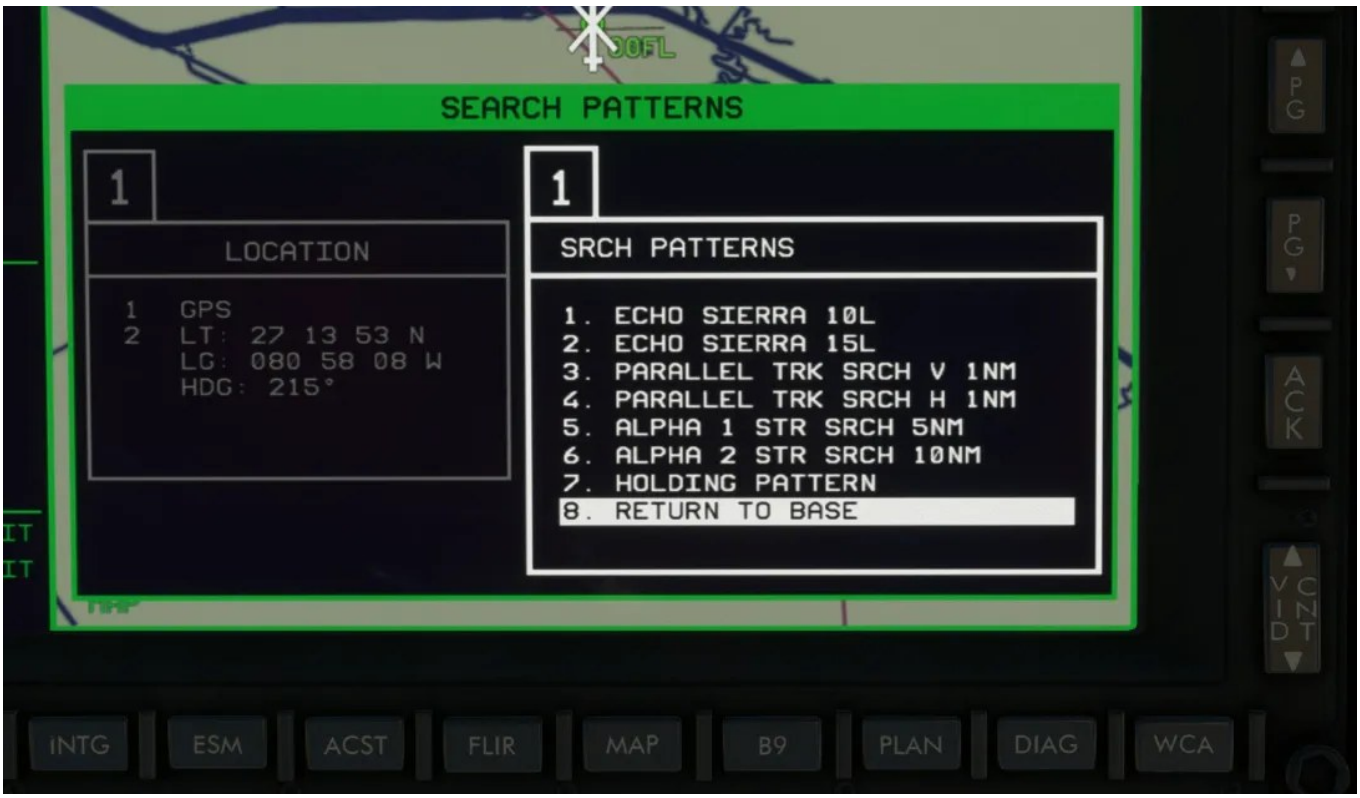
Quick Return-to-Base

Your "BASE" is defined as the location where the mission was initiated and/or a designated safe point for return and recovery. To set a Base, please see the expandable above.

To quickly return to your base, either because your mission is completed, or due to Bingo Fuel, follow these steps:

1. Navigate to the NAV Menu, and select BASE UPDT. This will open up the Base Update submenu.
2. Verify that LAT and LONG are correct, and correspond to the location of your base.

3. On NAV Menu, press SRCH PTTR. This will open up the SEARCH PATTERN Pop-up on Mission Display.
4. Use PG DN Key, either on the Keyset or MD Bezel, to navigate to the option "RETURN TO BASE". Press ACK to select.



SEARCH PATTERNS Pop-Up. Return to Base selected. Note PG DN and ACK Buttons on the right bezel

5. The aircraft will now automatically create a direct route between its current position and the base as defined by LAT, LONG on the keyset.

Handfly the route safely back to your base. The helicopter estimates a cruise speed of 100 knots, with a 20% safety margin for Bingo Fuel calculations.

Navigation Aids

Typical Radio navigation is also supported - fully supporting TACAN1/2, NAV1/2 and ADF1/2.

Tune Navigation Radios (VOR1/VOR2/ADF1/ADF2)

1. Use the quick TUNE access from the Keyset Menu, or TUNE button on the Keyset keyboard, to access the TUNE Pop-up on Mission Display.
2. Use PG UP or PG DN, either on the Keyset or MD Bezel, to select a radio to tune. Remember, anytime you see a white box highlighted WHITE, it is a cursor that may be interacted with PG UP/DN/LEFT/RIGHT.
3. Once selected, press ACK or SEL (MD Bezel or Keyset) to enter a frequency.
4. The STBY FREQ will now appear with a green background, indicating that the field is now active and ready to receive input.
5. Use the Keyset numberpad to enter frequency. The decimal period is added automatically.



TUNE Pop-up. Note the green box indicating active for input on STBY. Note PG UP/PG DN/ACK Buttons on Bezel

4. Once completed, press ACK again to validate and change frequency. If the entered frequency is invalid, frequency will not be changed.
5. Alternatively, you may press ENT to directly validate the frequency and XFER to Active. You may also use ENT at any time while the TUNE Pop-up is open to XFER the frequencies selected.

> Note
> Alternatively, you may access LADF1 and VORTAC from NAV Menu, LADF TUNE and VTAC TUNE respectively.

Tune TACAN1/TACAN2

> Tip
> Manual Section to be Expanded

TACAN Mode X/Y (Affecting both TACAN1 and TACAN2) can be switched from NAV Menu/TACN MDE