WAYPOINT MFD DOCUMENTATION

Version 1.0

for Orbiter 2010 P1

1.0 License

2.0 Installing and opening the MFD

- Unzip the zip- file to the folder of your Orbiter directory
- Open the Orbiter Launch Pad
- Klick the "Modules" - Button
- Goto the group "MFD modes" and activate the Checkbox besite "waypointMFD"
- Select and load a scenario
- Press left or right shift + "w" to open the MFD mode

2.1 Scenarios and Playbacks

There are two scenarios in the "WPMFD" - Folder:
CapeToHabana - Use this scenario and load the route called "CapeToHab".
CapeTour - Use this scenario and load the route called "CapeTour".

There are also two playbacks included: To watch them, go to the "playback\WPMFD" - folder and open one of them. The "CapeToHabana" playback shows you a flight from KSC to Habana in less then 10 minutes.

3.0 Whats Waypoint MFD?

Waypoint MFD is a MFD- mode which can show a route of waypoints in an Orbiter MFD. It's also possible to use this MFD to navigate inside a base to the next landing PAD or to navigate from one base to another.

The basic motive for me to create this add- on is to make it possible to create missions.

4.0 Description of objects and their symbols

No base, no route...
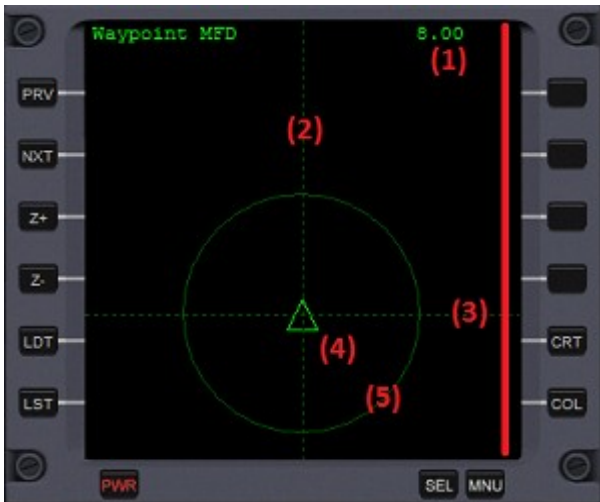
(1) Zoom - The distance from the buttom of the MFD to the top. This distance is marked by the red line on the right.

(2) The direction in the front of your ship
(3) The nine and three o clock direction from normal cockpit position
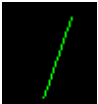(4) Ship Symbol - The position where you are
(5) The circle marks the maximum distance which a surface object can have.

More Symbols

VTOL PAD

Runway

Note: Runways are only displayed if they are configured in the "route" - file.

VOR
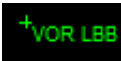
Note: VOR's are only visible, if the frequenz has been activated in the Com / Nav - MFD and if they are in range.

Active Waypoint

Passive Waypoint

Takeoff / Landing Point for Runways

Note: If a runway is defined as a waypoint for takeoff or landing, the middle of the runway is connected to the route. For VTOL - Takeoffs and Landings, the Symbol looks as same as a normal waypoint.

Passive Base

Active Base

(1) Name of the active base
(2) Distance to the active base in km

(3) Highlighted active Base
(4) Direction to the active Base
Note: You can set the active base by selecting a base in the MAP - MFD

5.0 Loaded Route Example
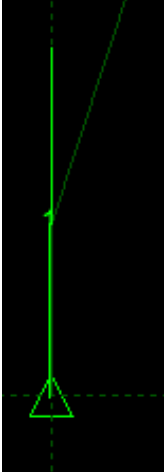
5.1 Graphical Mode
This mode shows you the route, direction of the waypoints and some informations about the active waypoint.

WP: - Active Waypoint. In this example it's waypoint 2
DIST: - Distance to the next waypoint in km
ALT: - Altitude which should be reached and hold on the route to the activ waypoint
SPD: - Speed which should be reached and hold on the route to the activ waypoint
TASK: Kind of the active waypoint
DESCR: Free text and description for the active waypoint

5.2 List Mode
The list mode provide infromations in one view for the whole route

From left to right:
- ID of the waypoint
- Speed which should be reached and hold on route to the waypoint
- Altitude which should be reached and hold on route to the waypoint
- Distance from the waypoint to the next one
- Description or, if not defined in the route file, the kind of the waypoint

6.0 Kinds of Waypoints

There are three kinds of Waypoints in this version:

· Takeoff Point
· Turining Point
· Landing Point

6.1 Further switching condition

Takeoff Point:
    The altitude under touchdown points of the vessel must be greater than 20 meters. If the size of the waypoint is greater then zero, this must be done inside the radius. Else anywhere.

Landing Point:
    The altitude under touchdown points and speed must be zero meters. If the size of the waypoint is greater then zero, this must be done inside the radius. Else anywhere.

Turining Point
    The vessel must be inside the radius of the waypoint. If the size of the waypoint is there, the pilot must choose the next waypoint manualy.

7.0 Loading a route

- Press LDT

- Select a file by pressing PRV or NXT
- Press LDT again to finaly load the route file

Note: After loading a route file, the MFD switches alsways to Liste Mode.

8.0 Buttons and key commands

The left keys are mode specific keys, the right keys are global keys.

This list is an overview about the keys functions:

MODE	BUTTON	MFD KEY	FUNCTION
GLOBAL	CRT	D	Unload current route
GLOBAL	COL	C	Toggle MFD Color
GRAPHICAL MODE	PRV	P	Select previous waypoint
GRAPHICAL MODE	NXT	N	Select next waypoint
GRAPHICAL MODE	Z+	NUM+	Zoom in
GRAPHICAL MODE	Z-	NUM-	Zoom out
GRAPHICAL MODE	LDT	L	Load a track
GRAPHICAL MODE	LST	S	Switch to list mode
LIST MODE	PRV	P	Select previous waypoint
LIST MODE	NXT	N	Select next waypoint
LIST MODE	LDT	L	Load a track
LIST MODE	GRA	S	Switch to graphical mode
LOAD FILE MODE	PRV	P	Select previous file
LOAD FILE MODE	NXT	N	Select next file
LOAD FILE MODE	LDR	L	Load selected file
LOAD FILE MODE	LST	S	Abort / Switch to list mode

9.0 Route file description

9.1 Demo routes
There are currently 2 demo routes.

CapToHab
Requires: XR2-Ravenstar
A VIP needs to be in Habana in 20 minutes.
Load the route "CapeToHab" in the Waypoint MFD.
Takeoff the XR-2 from KSC RW 33/15 to Habana airport.
By using the scream engines, this mission can be done in less then 15 minutes.
The route goes along Floridas coastline and to the south, then in the direction of Habana (Havana) / Cuba.
At waypoint six, you can recieve ILS at 110.2 for RW 06/24.
Land there to complete the mission.

CapTour
Takeoff the XR-2 verical from PAD 7.
Then hover the tourists to the historical space shuttle launchpads.
After flying over NASAS assembly building, land at PAD 7.

9.2 File description

The file can contains points, runways and one route.
Each Runway must have two points.
Each route must have one point. If you don't want to have a route. you must have
BEGIN_WAYPOINTS and END_WAYPOINTS in your route config file, but without points.

9.2.1 POINTS
Points are defined between BEGIN_POINTS and END_POINTS.
Points has just two float numbers: Longitude and Latitude.
Example:

BEGIN_POINTS
        -82.390058 22.99861
        -82.427548 22.978685

END_POINTS
will define two points.

9.2.2 RUNWAYS
This are the start - and end - point of Habana RW 06/24.
To make the runway visible in the MFD, the runway must be defined between BEGIN_RUNWAYS
and END_RUNWAYS by it's start - and endpoint.
The ID in the route file starts with 0, so our first end of the runway is point "0", the other end is
point "1".

Example:
BEGIN_RUNWAYS
        0 1
END_RUNWAYS

9.2.3 ROUTES

The syntax for a waypoint is:

#CLASS ID TASK SIZE [ALT SPD] ["DESCRIPTION"]
CLASS can be "POINT" or "RUNWAY".

SIZE is the radius of the waypoint. For further information, look at "5.1 Further switching
condition"

ALT and SPD are optional, but if ALT is given, SPD must also be given.
If SPD is given, alt must also be given.

ALT and SPD are just for information and must not be right to have the "Further switching
condition" at the waypoint.

"Description" is a free text which appears in the MFD with the waypoint.
Note: Always use quotation marks for comments!

For a complete example, look into the folder .\Config\WPMFD\routes of your Orbiter directory.