H145

Hype Performance Group

H145 (BK-117 D2) Helicopter

Base Pack & Action Pack

Version: 1.0

Last Updated: 2022/10/17

This simulation software and related materials and documents are a computer game which are NOT FOR FLIGHT and not to be used for any training, pilot familiarization, recurrent training or operational awareness training. The included software and manuals are not to be used for training or familiarity with any aircraft. The included software and manuals are not assumed to provide procedures for use on any aircraft and are for entertainment purposes ONLY.

This product is compatible only with Microsoft Flight Simulator 2020.

Introduction

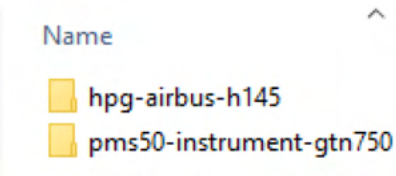
Thank you for purchasing our Hype Performance Group Airbus H145 (Early Access Beta) aircraft for Microsoft Flight Simulator 2020. We invite you to provide feedback throughout the Early Access process on our discord server.

Installation & Setup

Base Pack Installation

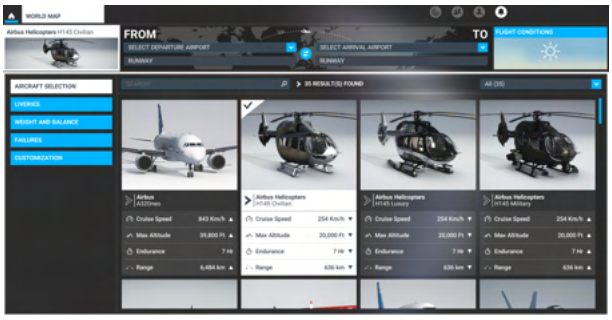
What you need	Where to get it
Location of your MSFS Community folder	Where Is The Community Folder Or VIDEO: How to install addons
1. H145 Base Pack (**HPG-Airbus-H145.zip**) 2. Base Pack License key	Check your email, you will have both a license key and a link to the download. The download will come from **Hype Performance Group Downloads.** You will get a license key number as well as a link to the **H145 Download Center**..
Pms50 GTN750 (**pms50-gtn750.zip**)	Download pms50 GTN750 **NOTE:** The free version is sufficient.

Base Pack Activation



1. Locate the **HPG-Airbus-H145.zip** and extract the enclosed **hpg-airbus-h145** folder to your MSFS Community folder location.
2. Locate the **pms50-gtn750.zip** and extract the enclosed **pms50-instrument-gtn750** folder to your MSFS Community folder location.

When clicking inside the **Community\hpg-airbus-h145** folder, you will see **H145 User Guide.pdf.** If you have an extra folder, you will need to remove it so the sim can find H145.



3. Start Microsoft Flight Simulator, select the World Map, then select the current aircraft in the upper left corner. Now locate the **H145 Civilian** in the aircraft list.

4. Select H145 for flight, and then **choose to start at a ramp position or on the runway.** Do not choose to start in the air for your first flight after a new version is installed.
5. Once the aircraft loads, enter the cockpit. You should first allow 90 seconds for the flight control module to load. If the aircraft has power, you'll see **LOADING H145 SOFTWARE** on all of the displays.
6. Click on the tabet hinge to the right. It says **LIFT AND PULL**. The tablet will allow you to complete one-time activation of the H145.
7. There are TWO options to enter your license key (pick only one):
    a. OPTION 1: (Recommended) Use your mouse to click the keys on the tablet to fill in your license key.
    b. OPTION 2 (Advanced): Save your key code to `Community\hpg-airbus-h145\HPGH145\KeyCode.txt`. This file will already exist, you may open it with Notepad. After saving your key to the file, click **Read Key File** and it will copy the contents of that file into the activation text box. There is no need to restart the sim when editing KeyCode.txt.

Your license key will be in the form of:

`12345678-AAAA-BBBB-CCCC-0123456789DE`

NOTE for Option 1: You will **not** click **Read Key File**.
NOTE for Option 2: You MUST erase your key from KeyCode.txt after loading it into the game, but do not delete the KeyCode.txt file itself.

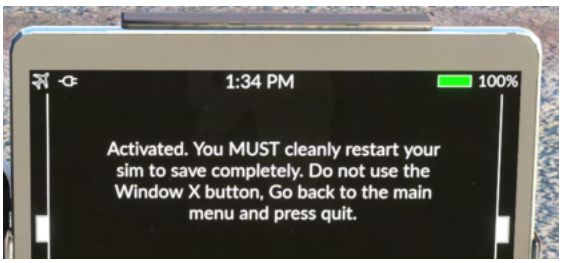
8. The **Activate** button (at the bottom, green) will become available only after the key is entered fully. Click **Activate** to continue.

9. Successful activation will let you know that you must restart your sim "gracefully" to properly save the key.

10. At this point you should press the **ESC** key and then click to return to the main menu.

11. Then **quit to desktop** from the main menu.

12. Now you may restart your sim and H145 will not request activation. **You are ready to fly.**



IMPORTANT NOTE: You must quit the sim gracefully, otherwise the sim does not save any settings and will not have any of the saved

activation information from the prior steps. If you press the **X** instead, you will be asked for activation every time.

Action Pack Installation

1. Locate the **HPG-Airbus-H145-XXX-ActionPackExpansion.zip** and extract the enclosed **hpg-airbus-h145-ap** folder to your MSFS Community folder location.
2. Make sure to **ALWAYS** use a Base Pack version that matches the Action Pack version. You will see the version number (build) on the H145 Action Pack Download Center

Action Pack Activation

To activate the Action Pack, select the Emergency Medical Services variant and follow the same steps as the Base Pack Activation. You will be asked for your **Action Pack key code**, and you may ferry it into the sim via KeyCode.txt. If you do not first activate the Base Pack, you will be asked to do so when attempting to activate the Emergency Medical Services variant.

To use Action Pack you must first activate the Luxury variant with a **Base Pack key code**. You may then (without restarting the sim) activate the Emergency Medical Services variant with your **Action Pack key code**. After successfully restarting the sim you will not be asked for any key codes again, they are saved into the simulator for you.

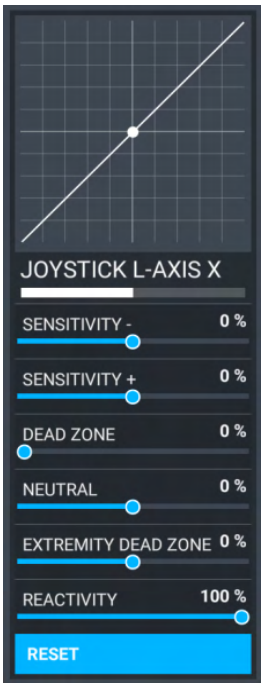
Basic Control Bindings

H145 will use bindings for fixed wing flight controls

H145 Function	**MSFS Axis Name**	**MSFS Key Name**
Collective control	THROTTLE AXIS	Increase Throttle Decrease Throttle
Cyclic control	AILERONS AXIS ELEVATOR AXIS	
Yaw (anti-torque) control	RUDDER AXIS **Or split-rudder:** RUDDER AXIS LEFT RUDDER AXIS RIGHT	RUDDER RIGHT (YAW RIGHT) RUDDER LEFT (YAW LEFT)

NOTE: It is very important that you pick the axis named exactly **THROTTLE AXIS**. There are several similar options which are not correct.

MSFS Controls Settings



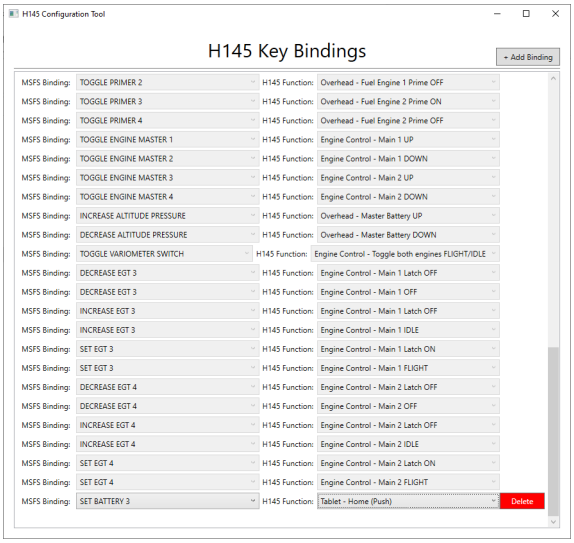
It's recommended to use linear (straight) curves for the MSFS Sensitivity for all flight controls. This applies to pitch, roll, yaw and throttle. You may prefer to set nonlinear curves on the pitch and roll axis but it's highly recommended to start with linear settings.

The Reactivity setting should be left at 100% unless you strongly prefer other values.

The Deadzone setting should be left at 0% and the settings in the H145 tablet Aircraft app used to allow the autopilot to fly without the controls causing spurious inputs.

All Control Bindings (ConfigTool)

ConfigTool will display and allow the addition of more custom bindings. ConfigTool can be used to map any clickable function within the H145 cockpit to a button on your controller.



ConfigTool will create a new folder `hpg-airbus-h145-usersetup`, you will need to make sure this folder is added to Addon Linker or similar tools that manage your Community folder for you. If your simulator is running when this folder is created, you need to restart it. With the exception of the bindings in blue below, the default bindings are listed in ConfigTool.

ConfigTool creates a custom relationship between an MSFS control (which you select in MSFS settings) and an H145 function. While the controls selected are odd (like magneto 3 and 4), the common action is suppressed and the H145 function occurs only. Don't worry about commands that say "TOGGLE" or "OFF", it only matters what is selected as the H145 function.

It is recommended to avoid using bindings named "HOLD" as MSFS will repeat the event making it potentially unusable. You should also take care to not select bindings used by the H145 itself. For example it is best to start with the ADF bindings instead of trying to cleverly re-use an Autopilot binding as this could result in a conflict.

To reload key bindings, you should press ESC and then click RESTART. This will reload the key bindings and restart the flight.

MSFS Binding	H145 Function	Notes
TOGGLE WING LIGHTS	Toggle Search Light (S/L)	
INCREASE MIXTURE 4 DECREASE MIXTURE 4 INCREASE MIXTURE 3 DECREASE MIXTURE 3	Steer Search Light Up Steer Search Light Down Steer Search Light Left Steer Search Light Right	Up/Down available on tablet
Elevator Trim Up Elevator Trim Down Aileron Trim Left Aileron Trim Right	Cyclic Beep Trim Up Cyclic Beep Trim Down Cyclic Beep Trim Left Cyclic Beep Trim Right	4-way hat
INCREASE PROPELLER 4 PITCH (Small) DECREASE PROPELLER 4 PITCH (Small) Rudder Trim Left Rudder Trim Right	Collective Beep Trim Up Collective Beep Trim Down Collective Beep Trim Left Collective Beep Trim Right	4-way hat
TOGGLE ENGINE 4 ANTI ICE MAGNETO 4 LEFT	CYCLIC TRIM RELEASE COLLECTIVE TRIM RELEASE	(You must hold)
TOGGLE ENGINE 3 ANTI ICE	Toggle GTC/GTC.H	
MAGNETO 4 OFF	AP/BKUP ON	Press 1: BKUP+AP1/AP2, Press 2: Recovery ALT+HDG+IAS
MAGNETO 4 SET	AP/BKUP CUT	Press 1: AP1/AP2, Press 2: BKUP
MAGNETO 3 RIGHT	AP/UM OFF	AP UPPER MODES OFF
MAGNETO 3 INCREASE MAGNETO 3 DECREASE	Toggle Front Right Door Toggle Front Left Door	
MAGNETO 3 OFF	RESET (ACK on FND)	Clears new messages
MAGNETO 3 LEFT	Fill Floats	Only on luxury variant
MAGNETO 3 START MAGNETO 3 SET	Master Brightness Up Master Brightness Down	
TOGGLE VARIOMETER	Toggle 2x FLIGHT/IDLE	Only while on the ground
TOGGLE YAW DAMPER	Fire (Primary)	Only on military variant
SET YAW DAMPER	Fire (Secondary	Only on military variant

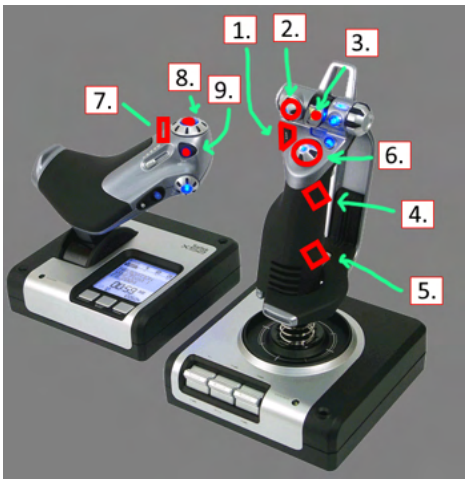
(This listing is not complete–check ConfigTool for all of the default bindings)

A complete listing of H:Events and text in ConfigTool is available at:
`hpg-airbus-h145\html_ui\HPGH145-System\H145_Keys.txt`
For the purpose of translation, you will find the text in ConfigTool is located at:
`hpg-airbus-h145\html_ui\HPGH145-System\MSFS_Keys.txt`

Example control setup

Shown (right) is a recommended minimal control setup for the X52. This is similar to the real aircraft controls but compromises a little bit on ergonomics.

Note: Open ConfigTool and map the **MSFS Binding** value for the row that corresponds to the **H145 Function** below.



	H145 Function	Notes
1	AP/GTC	Press once: Engage GTC mode (ground-speed hold) Press twice: Engage GTC.H mode (auto hover)
2	**UP**: AP/BKUP ON **DOWN**: AP/UM OFF Optional: **RIGHT**: A.TRIM TOGGLE	AP/BKUP ON Press Once: Recover autopilot AP/BKUP ON Press Twice: Engage ALT/AIS/HDG mode AP/UM OFF: Press once: clear all upper modes AP/UM OFF: hold for 2 seconds: clear all upper mode references (bugs) A.TRIM TOGGLE: Press to enter and exit DSAS mode
3	AP/BKUP CUT	Press once: Disengage AP1 and AP2 system Press twice: Disengage Backup SAS
4	CYCLIC TRIM RELEASE	Press and hold whenever making manual aircraft inputs.
5	RESET	Acknowledge any new messages in the Message List.
6	CYCLIC BEEP TRIM (UP, LEFT, DOWN, RIGHT)	4-way cyclic beep trim. Issue inputs in the respective axis (up and down is pitch, left and right is roll) in AFCS modes and manual trim with the AFCS off.
7	COLLECTIVE BEEP TRIM (LEFT, RIGHT)	4-way collective beep trim. Issue inputs in the respective axis (up and down is collective, left and right is yaw)
8	COLLECTIVE BEEP TRIM (UP)	See above.
9	COLLECTIVE BEEP TRIM (DOWN)	See above.

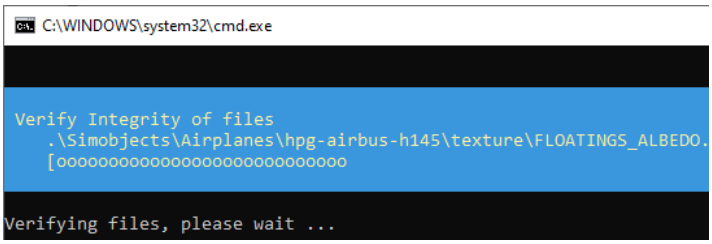
Upgrade from an earlier version

Remove all previous versions of H145 prior to upgrade. This should involve the Base Pack folder `hpg-airbus-h145` (and also `hpg-airbus-h145-ap` if you have the Action Pack) from your MSFS Community folder. Do not overwrite previous installations, remove the folder first.

Sometimes Paste-Over upgrades are available on discord; these versions are meant to be copied over a specific range of compatible builds (indicated with the upgrade zips). You can then use the verification script below to confirm that the combined folder is complete.

Verify your download

If you have any problems, like avionics not loading, or pink panther textures, you may have inadvertently got a bad download, or had some kind of error during extraction. A tool is provided to verify the contents of your package to avoid re-downloading if that isn't the problem.



Run the verification script in `HPGH145\verify_download_integrity.cmd`. The script is available in both the Base Pack and Action Pack and will verify only the package it is contained in.

The tool will report success or indicate which files were corrupted. If any files are corrupted, it's recommend to re-download the H145 and try again.

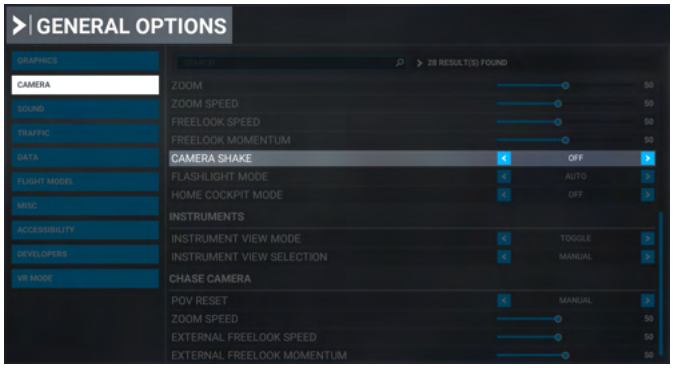
Scenario Editor also has an option to Verify the integrity of the download.

Recommended MSFS Settings

General Options - Camera

CAMERA SHAKE: OFF

Camera Shake causes some problems with helicopter flight models.



General Options - Data

ONLINE FUNCTIONALITY: ON

Online functionality is required for H145 to activate, as well as for a number of H145 features like online maps and weather.

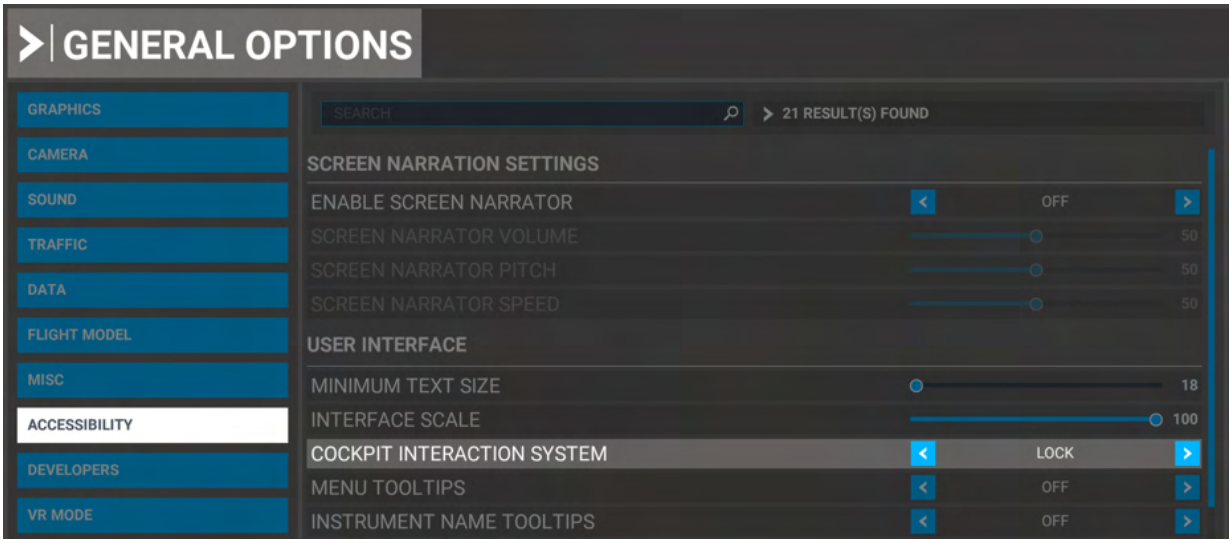
Assistance Options - Piloting

AUTO-RUDDER: OFF
ASSISTED YOKE: OFF
ASSISTED LANDING: OFF
ASSISTED TAKEOFF: OFF
AI ANTI-STALL PROTECTION: OFF
AI AUTO-TRIM: OFF
ASSISTED CONTROLLER SENSITIVITY: OFF

Fixed-wing pilot assistance settings cause control problems for helicopter flight models. Unexpected behaviors are very often caused by these settings and it is very important that they are disabled.

MSFS Cockpit Interaction System

Microsoft Flight Simulator has two modes of operating interactive elements within the virtual cockpit. These modes are controlled by the Cockpit Interaction System setting, under the **Accessibility** category of **General Options**. You may be using either setting depending on when you first installed the game.



Lock: Xbox-preferred interaction method, new in Sim Update 5. This is the default setting for new players. This mode uses a blue and yellow visual highlight on most (but not all) interactive elements.
Legacy: Classic input method used by FSX and Prepar3D. Moving the mouse over an interactive element will show a cursor but will not change their visual appearance of that element.

Operating knobs with a center push function

Lock:
1. Target a knob and press-and-hold **Left** mouse button
2. Click the **Right** mouse button
3. Release the **Left** mouse button

Legacy:
1. Target the center of the knob (not the left/right or top/bottom sides)
2. Click the **Left** mouse button

H145 in Multiplayer

Seeing other helicopters

In order to see another H145 in MSFS multiplayer you will need to ensure that both players:
1. Have the same aircraft installed
2. Have the same livery installed
3. Configured the MSFS setting **Use Generic Plane Models** to **OFF**

If these three conditions are not met, you will see a hovering fixed-wing plane in place of a player who is actually flying a helicopter.

Limitations

Without helicopter support in MSFS the H145 has many custom systems and implementations which are not normal for other aircraft. The lack of door and helicopter variables means that you will see other players showing the same as your aircraft configuration. This includes doors, the rotor spinning state, WSPS, radome and other external part configurations. Later we may be able to remove these restrictions.

Weapons in multiplayer

Other players will not see your H145M weapon launches, they exist only in your local simulator. Weapons will also not be able to shoot down AI or multiplayer aircraft at this time.

Cockpit Arrangement

1. Warning Unit
2. Co-pilot MFD (MFD1)
3. Standby instruments (IESI)
4. Center MFD (MFD4)
5. Pilot MFD (MFD2)
6. Tablet Hinge
7. Engine control panel (ECP)
8. Co-pilot GTN750
9. Pilot GTN750
10. Co-pilot control panel (CCP)
11. Auto-pilot control panel (APCP)
12. Weather Radar control panel (WXRCP)
13. TFM-138B Radio
14. Ground Power control panel (GPCP)
15. Cabin air control panel
16. Data transfer device

Warning Unit

The Warning Unit panel displays critical conditions which require immediate pilot action. The Engine shutoff and fire extinguishing controls are also integrated into the panel.

ACTIVE	Emergency Fuel Shut-Off valve is ACTIVE
LOW FUEL 1/2	Fuel in respective supply tank is below 40%
ENG 1/2 FAIL	Engine failure
ROTOR RPM	Rotor RPM is above 109% or below 97%
BAT OVHT	Battery OverheatMain battery over 50C
MGB OIL P	Main Gearbox oil pressure out of limits
AP	Autopilot failure
CARGO SMOKE	Smoke is detected in cargo compartment

EXT	Fire extinguishing system is active (due to emergency fuel shutoff being activated)
BOT1 BOT2	Press to discharge the respective fire bottle. (Bottles 1 and 2 are shared between both engines, and available to discharge on either side)
FIRE	FIRE **indication** (engine fire is detected) FIRE **push button** (lift guard first) activates the Emergency Fuel Shutoff for the respective engine. See the engine fire procedures further in this document.

Engine Control Panel

The Engine Control Panel (ECP) is used to start and stop the engines as well as operate additional functions for emergency or abnormal procedures. The Training button between the engines is a function used to simulate One-Engine-Inoperative flight condition.

1. Engine 1 Main switch (with latch)
2. Engine 1 Ventilation Button (**inoperative**)
3. Engine 1 FADEC Emergency switch (with guard)
4. OEI Training mode (**inoperative**)

The **Engine Main** switch may be placed into 3 detents: OFF, IDLE and FLIGHT. The IDLE detent is used for starting the engine and for cooldown after flight, it will not raise the rotor RPM to 100%. The FLIGHT detent is to be selected prior to takeoff and until after landing. The OFF detent will close the fuel valve and trigger an engine shutdown. When in the FLIGHT position, the engine main switches should be latched.

The **FADEC EMER** switch is to be used in case of the **FADEC FAIL** indication on the message list. When the FADEC EMER switch is placed to ON it will activate a backup mode which will meter the fuel valve of the engine of the failed side to match the TOT of the working side.
NOTE: FADEC EMER will reduce the rate at which N1 changes. Expect this and avoid large power demand changes.

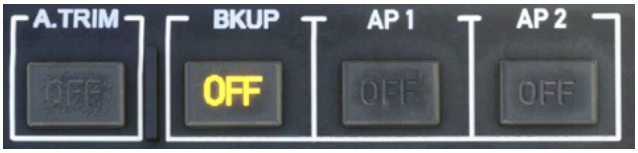
The **Engine Ventilation** button (**inoperative**) is to be used when directed after a failed engine start. The starter motor will run without opening the fuel valve in order to clear the engine for possible restart.

The **Training** button (**inoperative**) simulates One-Engine-Inoperative (OEI) flight condition while retaining the safety margin of the working engine. (For simulation use you may safely take one engine to the IDLE position for a similar effect)

Autopilot Control Panel

The Autopilot Control Panel (APCP) is used to control the autopilot systems. It is similar in nature to a Mode Control Panel from large airliners.

The APCP is logically structured such that major systems are shown along the top row. Each is a push button which toggles the system on or off, as well as an illuminated **OFF** status. When **OFF** is displayed, the system may have been switched off by the pilot **or** the system may be inoperative due to a failure or lack of electrical power.



A.TRIM or AUTO TRIM is a system which controls the trim and feedback forces of the cyclic control. It allows the pilot to fly the helicopter hands-off and to intervene by using a CYCLIC TRIM RELEASE button or by manually pushing on the springs of the trim system, which either pauses or provides follow-up movement of the trim.

BKUP or BACKUP SAS is an independent system which provides only 3-axis basic stabilization. To remain on always, but only used in the event of AP1 and AP2 failure.

AP1 and **AP2** are redundant autopilot systems, implemented in the aircraft management computers. These systems provide both basic stabilization (SAS) as well as UPPER MODES like HDG, NAV, ALT etc. When both systems are enabled, one will act as the primary and the other will operate in a standby mode, ready to take over if the primary system should fail. AP1 and AP2 require **AVIONICS (AVIO 1 or AVIO 2)** to be switched to ON.

Upper Modes

Each of the upper modes knobs has a push function which toggles the mode, as well as left and right turn which changes the bug or setpoint for that mode.

The VS/HDG **butterfly knob** switches between traditional (HDG and VS) and GPS (TRK and FPA) modes. When switched to GPS the VS mode will become FPA and the HDG mode will become TRK.

Collective modes below (CRHT, IAS, ALT.A, VS/FPA) will have the 4-axis autopilot use the collective control, so engagement will prevent you controlling your collective axis, unless you hold COLLECTIVE TRIM RELEASE.

Collective Modes

CRHT or Cruise Height works like an altitude hold, but uses the radio altimeter as the reference. This will result in a rough ride but enables the helicopter to traverse hilly terrain. This feature is designed for use over water.
IAS or Indicated Airspeed works the same as a fixed-wing airspeed hold.
ALT.A or Altitude Acquire. When you turn the knob the bug will move, but your aircraft will not change from the current mode (even if **ALT** is selected). This mode works as a way to allow a preselection for a new altitude, and then it will use the **VS** mode to move from your current altitude to the new altitude. Once at the new altitude, **ALT** mode will be automatically engaged and the new altitude will be held.
VS/FPA or Vertical Speed/Flight-Path-Angle works the same as a fixed-wing vertical speed hold. When in FPA mode the aircraft speed is taken into account, allowing a descent angle to be defined. Useful with the FPV (Flight Path Vector) available on the SVS (Synthetic vision) view.
ALT or Altitude Hold works the same as fixed-wing altitude hold mode. It uses the barometric altitude and maintains it. Note that the only way to change the setpoint for **ALT** mode is by using COLLECTIVE BEEP TRIM or by switching to ALT.A mode.

Roll/Yaw Modes

HDG/TRK or Heading/Track Hold works the same as fixed-wing heading hold, however it will use roll to accomplish the task at higher speeds, and yaw while in hover domain (under 30kt). Track will consider the current wind and pick a heading that allows a straight line to be flown despite a crosswind.

Modes not on the APCP

NAV or Navigation mode (as well as **APP** and **V.APP**) is engaged by selecting a navigation source on the pilot MFD (use the NAV softkey on the MFD to pick between GPS, NAV1 and NAV2. The CPL softkey to couple the source to the AP)
GTC or Ground Trajectory Command mode is engaged by pressing AP/GTC binding or the Tablet autopilot panel.
GTC.H or Ground Trajectory Command in Hover submode is engaged by double-clicking AP/GTC binding or the Tablet autopilot panel.
ATT mode is automatically engaged in the absence of an upper mode on the axis.
GA or Go-Around mode is engaged when pressing the COLLECTIVE GA control.

Beep Trim

When any of the above modes are active, you will find that context-sensitive “beep trim” control is available. You can assign these to a hat, or click the buttons on the Tablet autopilot panel. These context sensitive modes will intelligently change the correct bug for the modes that are engaged. For example if you have ALT engaged, CYCLIC BEEP TRIM UP (and down) will control the altitude bug. If you were in VS mode, CYCLIC BEEP TRIM UP (and down) will control your vertical speed bug.

Copilot Control Panel

The Copilot Control Panel or CCP controls various miscellaneous functions.

1. MFD COPILOT knob. Chooses between the formats available on the leftmost MFD. The NORM position allows all formats.
2. Adds a timestamped event to the flight log.
3. Toggle Directional Gyro (DG) between FREE (manual) and SLAVED (continually set automatically from the compass) modes
4. When DG is in FREE mode, the HDG knob will slew the Directional Gyro heading reference

The MFD COPILOT knob will provide an additional function of copying the DA (Decision Altitude), DH (Decision Height) and BARO (Kholman setting for the altimeter) settings from MFD2/4 onto MFD1. This copy occurs when selecting the FND position, however you may immediately then select another position.

Ground Power Control Panel

The Ground Power Control Panel (GPCP) provides an alternate path for the radios and cockpit lights to access the main aircraft battery. Used only on the ground.

When the aircraft is on the ground and completely powered off, selecting the **GND PWR** switch to **ON** will activate the ground power connection. The **GND** indication will be illuminated **ON** for 10 minutes. After 10 minutes there is an automatic disconnect to avoid draining the battery. The **GND PWR** switch must be placed into the OFF position and then back ON to re-engage the alternate ground power connection.

The **FM HIGH/LOW** switch (**inoperative**) controls whether the radios transmit at high or lower power when using the alternate ground power connection.

NOTE: The GPGP **does not** connect or disconnect the External Power Unit.

Cabin Air Control Panel

The cabin-air control panel is located at the rear of the center console.

The real H145 does not contain any anti-icing systems, this aircraft is not certified for flight into icing conditions and if present they should be immediately exited.

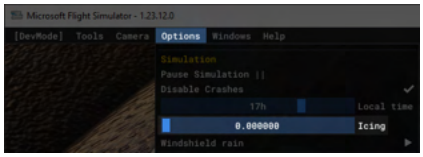
However, for the purpose of sim flying we often find the icing model in MSFS is not suitable for use with some helicopter operations that would otherwise be allowable. For this reason we have included an anti-icing system that you may opt to use at your discretion.

1. Outside air mix (**inoperative**)
2. Windshield defog (**anti-icing system**)

Activating the anti-icing system

The pushed or **DOWN** position engages the anti-icing system to **ON**. (shown on the right)

NOTE: The anti-icing system will take several minutes to fully clear a completely iced up aircraft.



Alternatively, enabling **Developer Mode** and checking the **Options** menu will show the current icing status and enable you to rapidly clear the ice.

Data Transfer Device

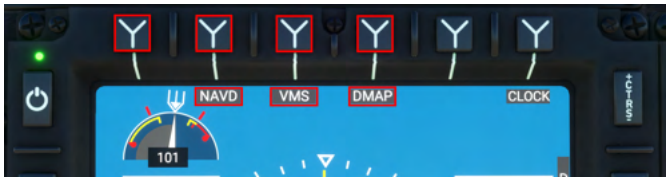
The cabin-air control panel is located at the rear of the center console and it is used to download flight information to a memory card. The data card door should be kept closed for flight and you will see an indication on the MFD regarding this if left open.

Helionix Avionics System

The Helionix system consists of 3 identical multi-function displays (MFDs), as well as two aircraft management computers and an array of sensors and hardware.

MFDs
Each MFD has 6 buttons on each side (top, right, bottom, left). When the button has a function, text will be shown on the MFD display directly adjacent to the physical button.

The buttons along the top of each MFD operate the main pages which the display can show.



Each MFD also has buttons to adjust the intensity of the various layers:

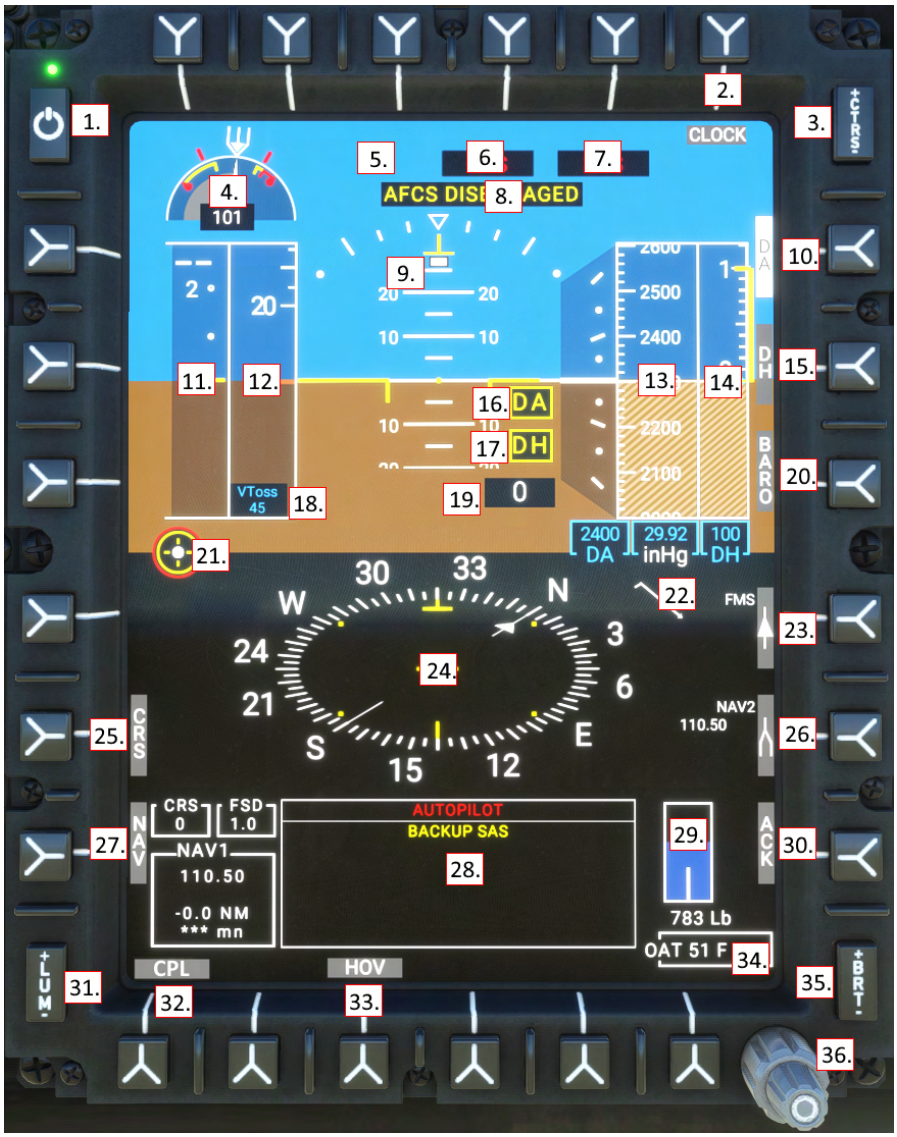
- LUM: Overall display luminance
- CTRS: Weather and Terrain overlay intensity
- BRT: SVS and DMAP underlay intensity

Page Name	**Function**
FND: Flight and navigation display	Top: PFD (Primary Flight display) Middle: Navigation Bottom: Aircraft (Message list, fuel)
NAVD: Navigation display	Navigation information, route display, map overlays (terrain, weather, topo)
VMS: Vehicle Management Systems	Aircraft and systems information
DMAP: Digital Map System	Map information streamed from online service
MISC: Miscellaneous	Used for display of auxiliary cameras.
EFB: Electronic Flight Bag	Used for offline and online EFB functions. **Not Installed.**

Note: When using ConfigTool or H:Events the MFDs are identified by the numbers, 1, 2 and 4. The pilot MFD is 2, the center MFD is 4 and the copilot MFD is 1.

FND Page

Flight and Navigation Display



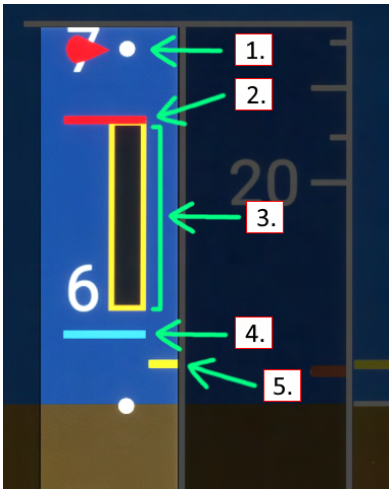
1. MFD Power
2. Stopwatch / Clock
3. CTRS - Overlay intensity (WXR, HTAWS)
4. Rotor gauge
5. AFCS Collective Axis status
6. AFCS Roll/Yaw Axis status
7. AFCS Pitch Axis status
8. AFCS AP Main status
9. Slip/Skid indicator
10. Decision Altitude (DA)
11. First Limit Indicator (FLI)
12. Airspeed indicator
13. Barometric altitude indicator
14. Radio altitude indicator
15. Decision Height (DH)
16. Below DA Alert
17. Below DH Alert
18. Takeoff Safety Speed (VTOSS)
19. Radio altitude (digital)
20. Kohlman Setting (Baro)
21. Mast Moment indicator
22. Wind indicator
23. Bearing 1 selector
24. Horizontal situation indicator
25. NAV Course selection
26. Bearing 2 selector
27. Cycle navigation source
28. Message list
29. Fuel gauge
30. Acknowledge new messages
31. LUM - Overall display brightness
32. Couple/Decouple AP nav source
33. Change views (HSI/SCT/HOV) - HSI, Sector, Hover views
34. Outside air temperature indicator
35. BRT - Underlay brightness (SVS, DMAP)
36. MFD Knob with push function

First Limit Indicator (FLI)

The FLI is presented on the FND page and communicates to the pilot the combined power-plant limits: Engine/MGB torque (TRQ), Engine N1 compressor speed (N1), and Engine turbine output temperature (TOT). The background of the FLI tape is the collective position, from 0 degrees pitch to 10 degrees.

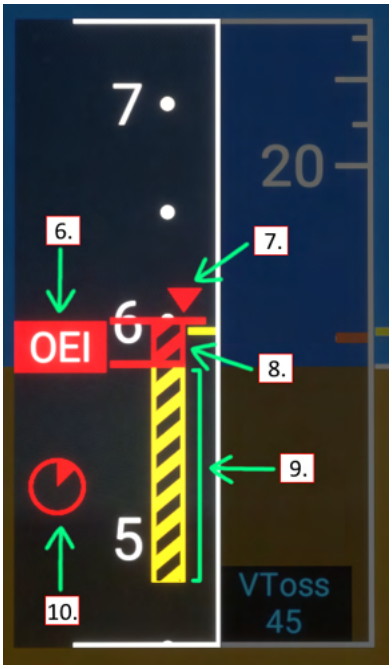
When exceeding limits, you should expect the NR to fall (if N1 capability is exceeded) and excessive torque will cause engine wear and MGB damage. **Except in failure, the FADEC will not exceed N1 or TOT limits.**

All Engines Operative (AEO)



When all engines are operative, the FLI indicates the power limits, usually based entirely on torque. The pilot should take care to avoid exceeding the transient power limit (1), use of the range between the maximum power limit (2) and transient power limit (1) is permitted only for unintended use, up to 2 seconds.The blue line (4) indicates the amount of power which will be immediately available should an engine fail. If the current collective position is above the blue line and an engine should fail, the pilot would immediately need to lower the collective otherwise rotor RPM would begin to decay. The takeoff power limit (3) is available for 30 minutes, and then collective power should be reduced to maximum continuous power (bottom of (3)). The power rating timer (10) will be visible 90 seconds prior to 30 minutes elapsing.

1. Transient power limit (teardrop)
2. Maximum power limit
3. Takeoff power (30 minutes)
4. OEI power limit
5. Current power setting

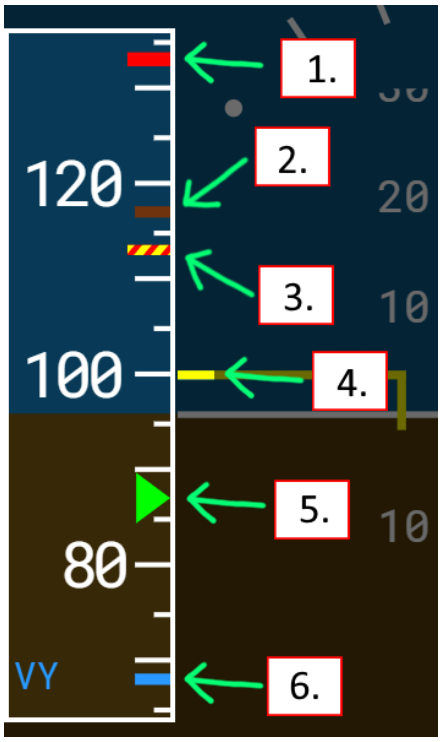


One-Engine-Inoperative (OEI)

The FLI will clearly indicate the OEI status (6) and show the power limits available. Using the OEI HI/LO button, the pilot may switch between use of the 30 second and 2 minute OEI power bands. When collective position exceeds the capability of the engine, the rotor rpm will drop.

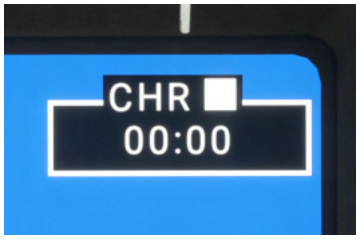
6. OEI (One Engine Inoperative) flag
7. Topping signal (FADEC limit)
8. 30 second OEI power rating
9. 2 minute OEI power rating
10. Power rating timer

Airspeed indicator



1. VNE (velocity never-exceed speed, airframe limit). This is calculated based on your weight, outside air temp and pressure altitude. It will slide up and down based on those factors
2. GPS Ground Speed (this is intended to be shown as a digital value if it is off-scale, but I didn't do that)
3. VNE Power Off (velocity never-exceed speed while in autorotation). This is the same as above, calculated from charts and intended to be used should both engines fail
4. Current airspeed (IAS)
5. Speed bug
6. VY (Best climb speed)
7. **Not shown:** VTOSS (Takeoff Safety Speed) at 45kt. This is a minimum takeoff speed for engine failure
8. **Not shown**: CHK VNE (Check VNE speed). Occurs when avionics cannot calculate VNE

Stopwatch (chronometer)

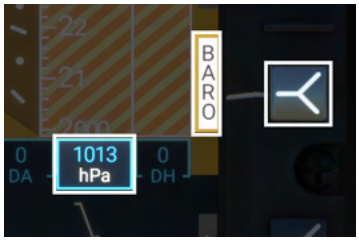


Use the CLOCK sk to cycle between local time, stopwatch and off.

In Stopwatch mode, use the MFD knob push function as follows.

- First short press starts the stopwatch
- Second short press stops the stopwatch
- Long press while stopwatch is running resets and restarts stopwatch
- Long press when stopwatch is not running resets stopwatch

Set altimeter (BARO)



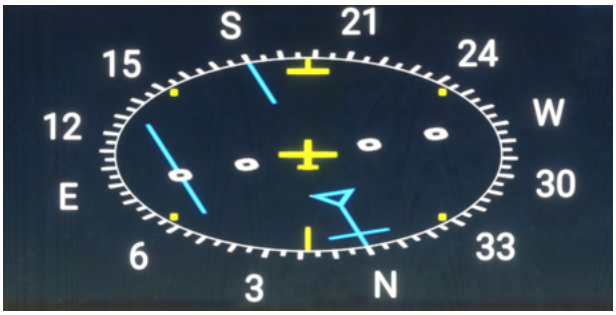
There are 3 altimeters in H145 (pilot, copilot and IESI). Change the MFD altimeter setting (kohlman setting) with this procedure:

1. Select the BARO key, the BARO text will illuminate white in reverse video.
2. Turn the MFD knob to increase or decrease the current altimeter setting. Press the knob for STD/1013/29.92.
3. Select the BARO key again to exit the mode

NOTE: Change units between in/hg and hpa in the tablet aircraft app.

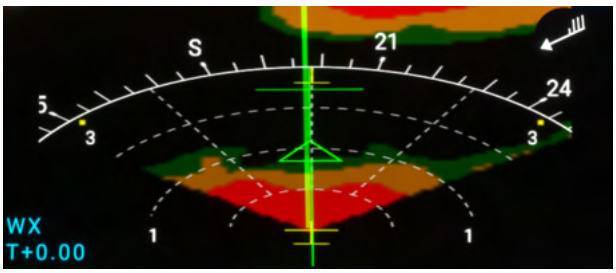
HSI View

HSI mode displays a navigation source and deviation range.



SCT (Sector) View

Sector mode displays a 60 degree situation view with the flight plan line and navigation source as well as weather radar.



HOV (Hover) View

Hover mode provides brown GPS-based ground-speed lines which can be used to hover precisely without suitable ground reference. Hover mode is also useful in GTC mode as it displays the green digits corresponding to the current trends that the GTC mode is maintaining.

SVS (Synthetic vision)

The PFD will operate in both FDS (blue sky, brown ground) and SVS mode which enables a synthetic vision background.

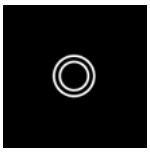
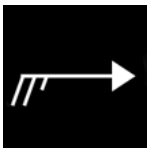
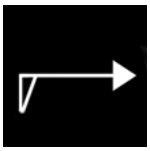
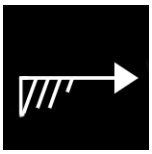
Note that in SVS mode the pitch scale is compressed in FDS mode and expanded to 1:1 scale in SVS mode.

SVS is available on all 3 MFDs and may be combined with all other modes.

Wind indicator

The wind indicator is shown on both the FND and NAVD pages.

Each long feather is 10kt
Each short feather is 5kt
The triangle is 50kt
The circle is wind calm.

	Wind calm
	Wind 25kt
	Wind 50kt
	Wind 75kt

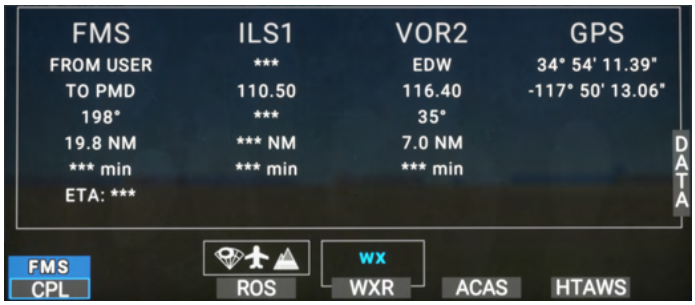
NAVD Page

Navigation Display

1. NAV sk - change nav source (NAV1, NAV2, GPS/FMS)
2. Next waypoint information
3. Ground Speed and True Airspeed
4. MAP sk - toggles the hill shading layer
5. RNG sk - map range (use the knob to control range)
6. Bearing 1 sk - Cycle bearing 1 (NAV1, GPS, hidden)
7. Bearing 2 sk - Cycle bearing 2 (NAV2, GPS, hidden)
8. FMS destination time and fuel estimation
9. Bearing frequency, distance and identifier
10. FMS waypoint and destination information
11. DATA sk - Show information on all nav sources
12. CPL/DCPL couples the AFCS to the selected navigation source
13. SCT/ROS/PLN sk - ROSE or SECTOR or PLAN view
14. WXR sk - Toggle weather overlay. (FAIL and STBY indicate WXR panel switch position)
15. HTAWS sk - Toggle terrain aware overlay (green/red)

NAVD Page (DATA subformat)

The DATA select key will reveal information regarding all installed navigation sources.



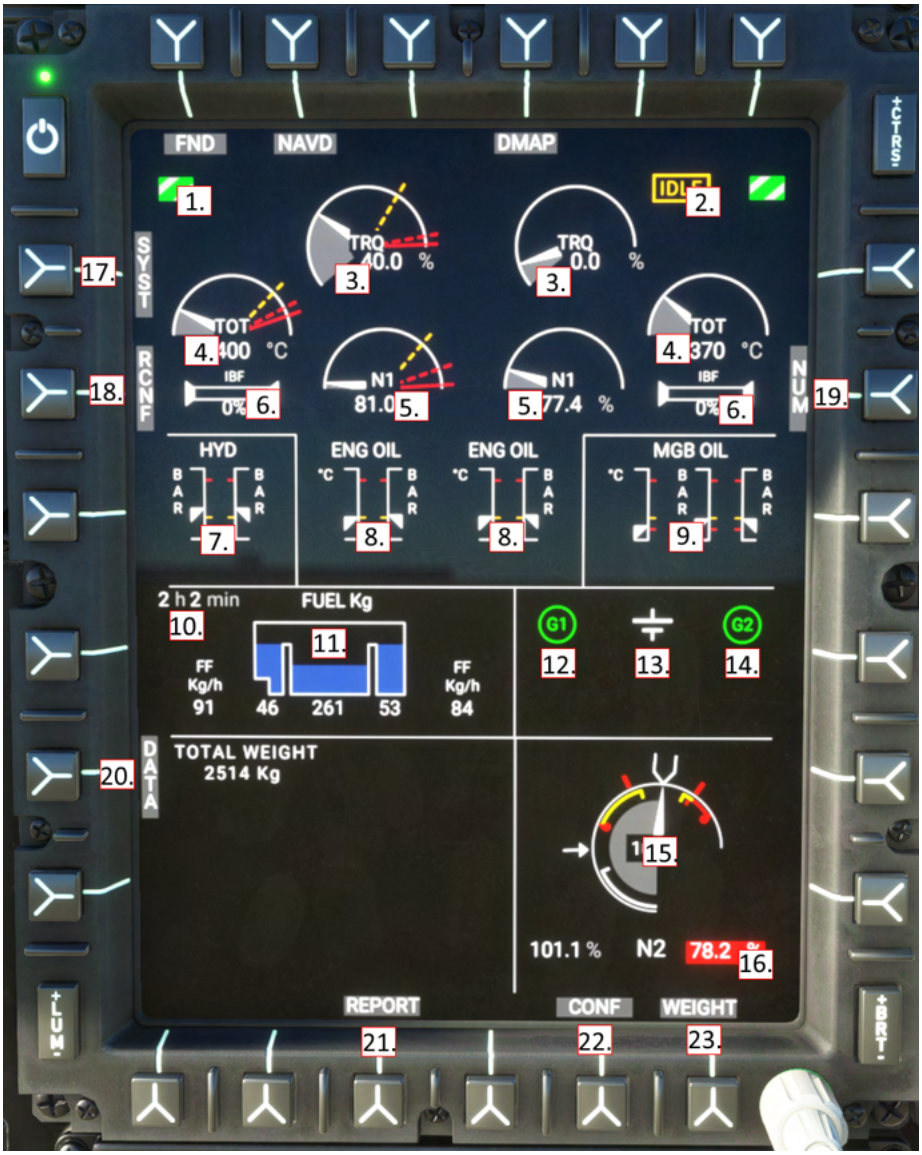
NAVD Page (Sector view)

Sector view provides a 60 degree situation view in front of the aircraft.

The other views are
ROS: (Rose) - A 360 degree situation view with the aircraft heading oriented upward.
PLN: (Plan) - A 360 degree situation view with North oriented upward.

VMS Page

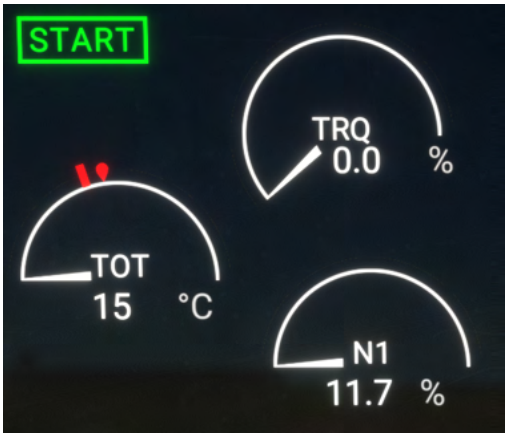
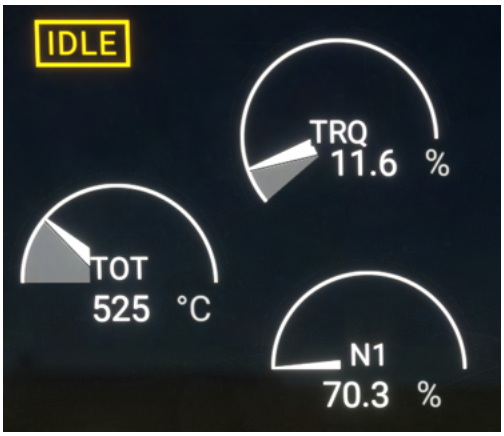
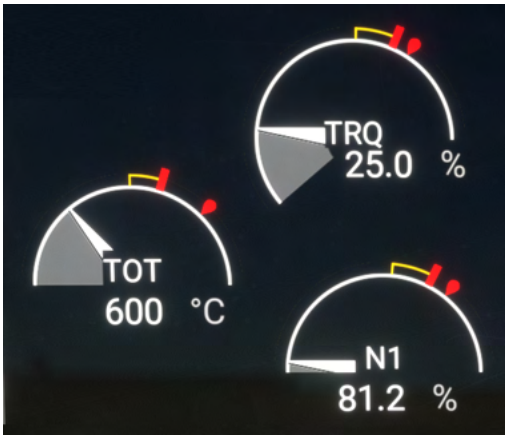
Vehicle Management Systems

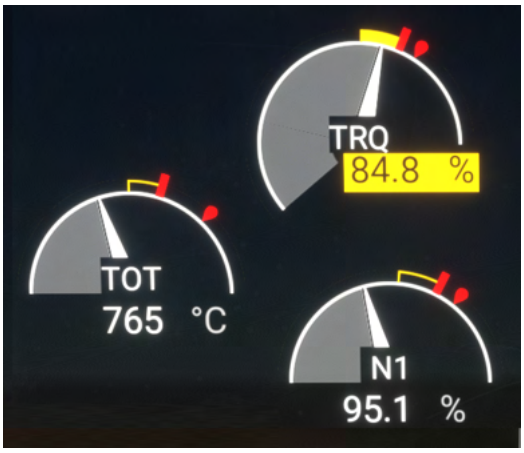
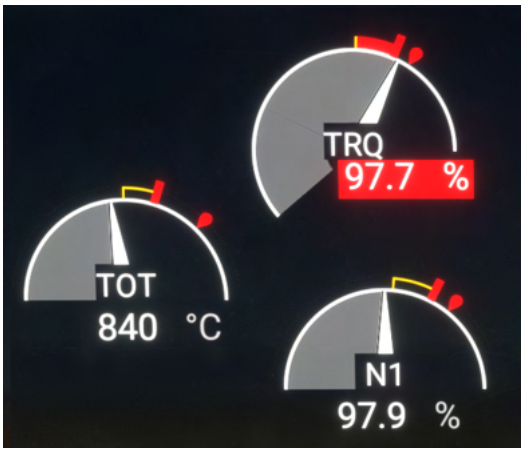
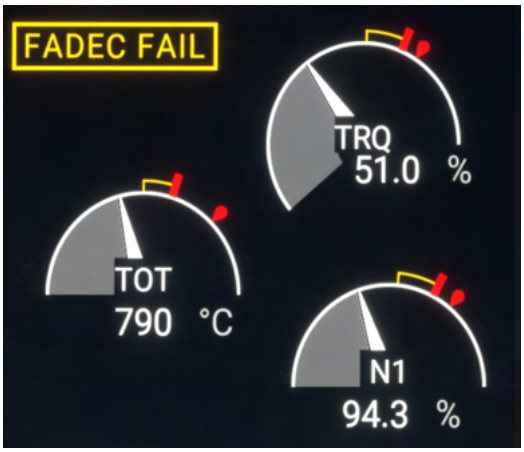


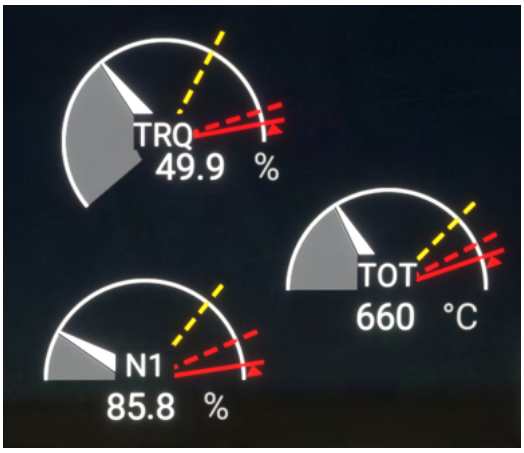
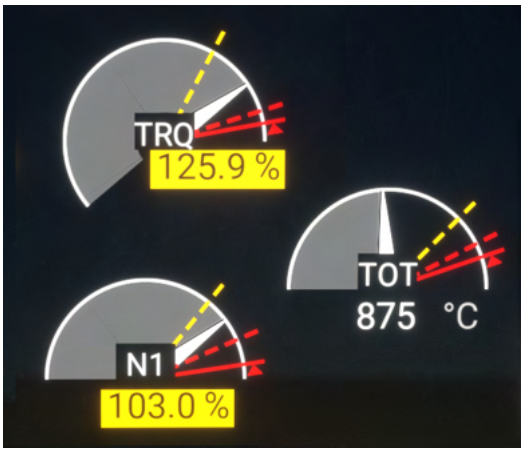
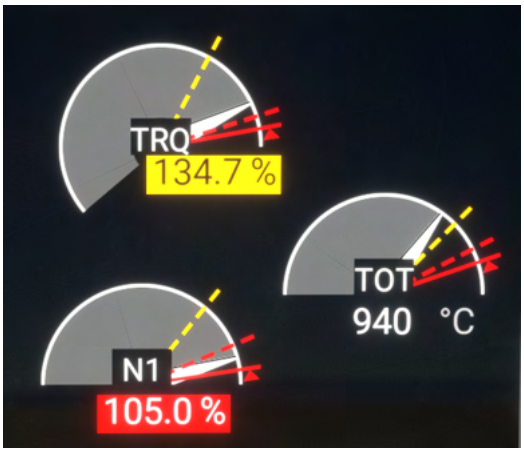
1. Engine low pressure bleed valve status
2. Engine main status (IDLE, START, FAIL)
3. Engine Torque
4. Engine exhaust temperature
5. Engine N1 compressor
6. Inlet Barrier Filter status
7. Hydraulic System 1 and 2 pressure
8. Engine oil temperature and pressure
9. Main Gearbox oil pressure (system 1 and 2) and oil temperature
10. Endurance (based on present fuel flow)
11. Fuel (center feeds into left and right supply tanks)
12. Engine generator 1 status
13. Main battery status
14. Engine generator 2 status
15. Rotor rpm gauge (and N2 for engine 1 and 2)
16. N2 for engines 1 and 2
17. SYST sk - System page
18. RCNF sk - Reconfigure page
19. NUM sk - reveal nominal digital values
20. DATA sk - Switch between timezone and performance, hoist, and cargo hook subformats
21. REPORT sk - Switch to flight report subformat
22. CONF sk - Switch to aircraft config subformat
23. WEIGHT sk - Switch to weight subformat

The top section of the VMS page displays the main format, and the bottom section displays the subformat.

VMS Page - Engine indications

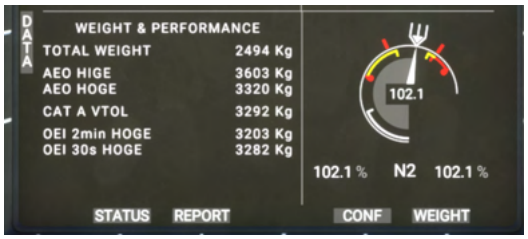
Starting engine (starting limits)	TOT limits: Max: 760C Transient: 840C Transient starting TOT is allowable for up to 10 seconds.	
Engine idle (no limits)	IDLE detent is to be used for starting, ground operations, and cool-down after flight. No limits are applied when the engine is in IDLE.	
Two engines in FLIGHT (AEO limits)	Note the presence of the amber takeoff power band on all three Torque, TOT and N1. **NOTE**: Limits are computed and will vary based on pressure altitude and outside air temperature.	

Takeoff power (TOP) (AEO limits)	The amber band is takeoff power and is available for 30 total minutes per flight. A white timer will be displayed when 90 seconds are remaining. After 30 minutes power should be reduced to maximum continuous.	
Transient exceedance (AEO limits)	Transient power is available for **unintended** use for up to 12 seconds. A gong sound will play at the beginning of each exceedance.	
FADEC Failure (no limits)	Level 3 FADEC failure -Fuel valve is frozen and the engine cannot respond to commands to change the N1. Use FADEC EMER to attempt recovery to level 2 FADEC failure.	

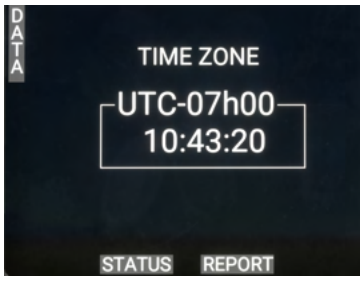
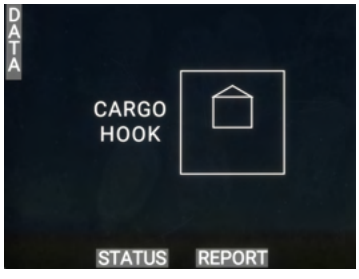
One engine in flight (OEI limits)	OEI (one engine operative) limits are displayed as lines. Note that the OEI limits are much higher than AEO limits.	
OEI - 2 minute rating	The amber band is the 2-minute power rating when only one engine is operative.	
OEI - 30 second rating	The red power band is the 30 second power rating. Note the red topping triangle (OEI HI and OEI LO) setting controls whether the FADEC will allow use of the 30 second rating or instead droop the NR when commanding more collective power.	

VMS Main Page (MAIN subformat)

The main subformat contains two panels. The left panel is used for NR and N2 indications, and the right panel has a page controlled by the DATA select key.

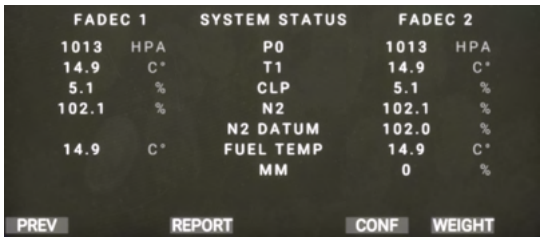


Pressing the DATA key will cycle through

WEIGHT & PERFORMANCE	Aircraft weight and estimations on performance margins	
TIME ZONE	Displays the current sim time zone and current local time	
HOIST CABLE LENGTH	If installed, the hoist length reeled out will be displayed here. **Only available with Medical, Firefighter, Offshore variants.**	
CARGO HOOK WEIGHT	If installed, the cargo hook weight detection is displayed. **Only available with Firefighter, Offshore, Cargo variants.**	

VMS Main Page (STATUS subformat)

The Status page displays information about the FADEC which is generally used by maintenance only.



VMS Main Page (REPORT subformat)

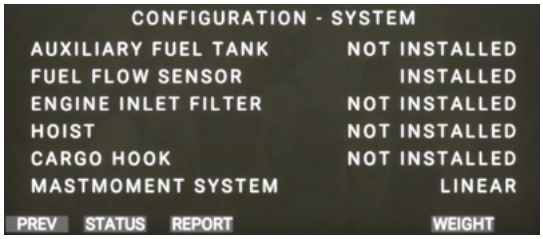
The Flight Report page displays information about the most recently conducted flight.

VMS Main Page (EPC subformat)

The Engine Power Check page displays the interface to conduct an on ground or in flight power check. **EPC is not currently implemented.**

VMS Main Page (CONF subformat)

The Configuration page displays information about the Helionix configuration which was loaded.



VMS Main Page (WEIGHT subformat)

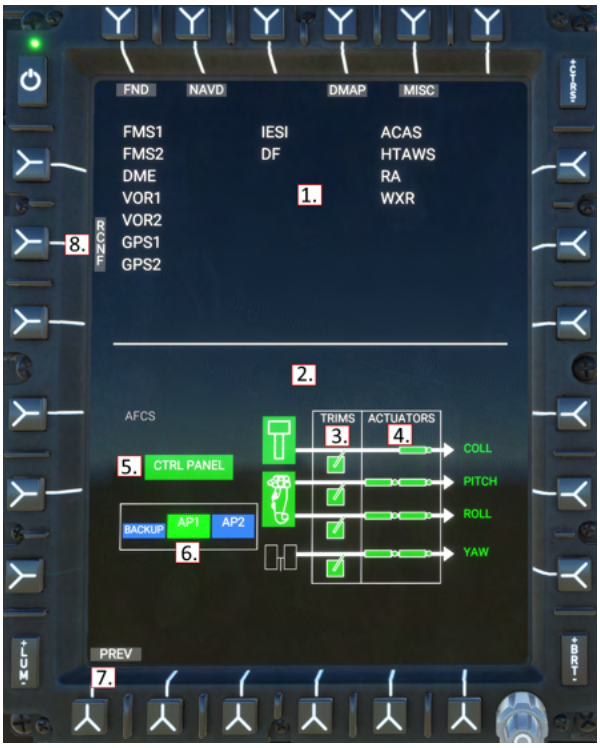
The Weight page is used to program the aircraft weights before flight.

Press VAL when finished to commit the weights.

Use the **PUSH** function of the MFD knob, to advance the weight entry between PAYLOAD, CREW, and TOTAL FUEL entry lines. All items will be updated immediately when you spin the MFD knob. Both the small and large knobs are active, enabling large and small increments of both payload and fuel.

NOTE: Using the in-aircraft WEIGHT tool will not cause the MSFS weight dialog to update. The aircraft will be updated from changes to either location, but the changes are not reflected back in the MSFS weight dialog unless you only use that tool for weight entry. In any case the aircraft will show its accurate weight and fly using those numbers.

VMS Page (System format)

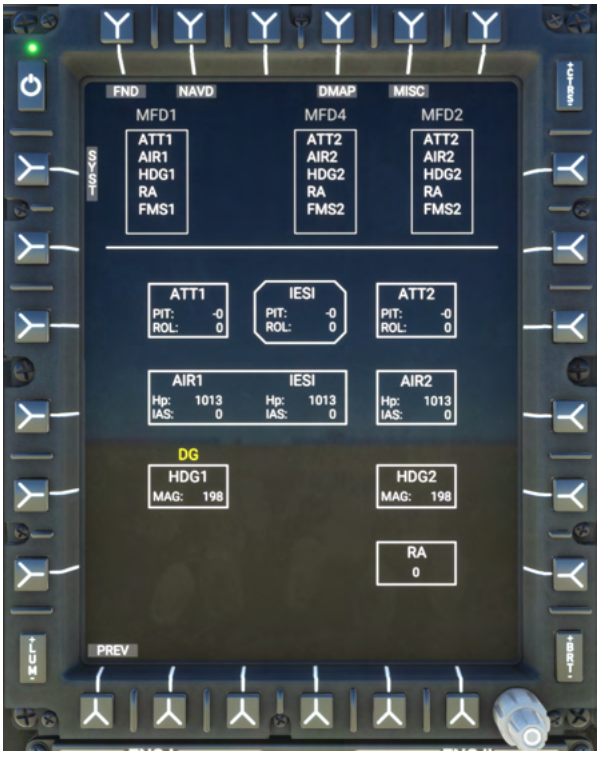


The System page is used to display status on equipment connected to the aircraft (shown at the top) and on the AFCS system (shown at the bottom).

1. Equipment status area
2. AFCS status area
3. AFCS Trim actuator status
4. AFCS SEMA type actuator status
5. APCP (Control Panel), Collective control and Cyclic control status
6. AFCS system status
7. Return to main VMS format
8. Switch to RCNF (Reconfigure) VMS format

AFCS System Status legend:
Green: Active
Cyan: Standby
Red: Inoperative
Gray: Disabled by upstream fault

VMS Page (Reconfigure format)



The Reconfigure format is used to display information about the system configuration regarding the AHRS and ADC, Magnetometers and RA. The top of the page shows each MFD and which configuration it is currently using. The bottom of the page shows the individual sensors and their current readings.

SYST: Switch to the SYST/System VMS format
PREV: Switch to the main VMS format
DG: This DG (Directional Gyro) is currently in free mode. The CCP is used to switch the DGs from free to salved (to the magnetometer) and to slew the heading reference when in free mode.

Selective reconfiguration of sensors by the user is currently **inoperative**.

DMAP Page

Digital Map

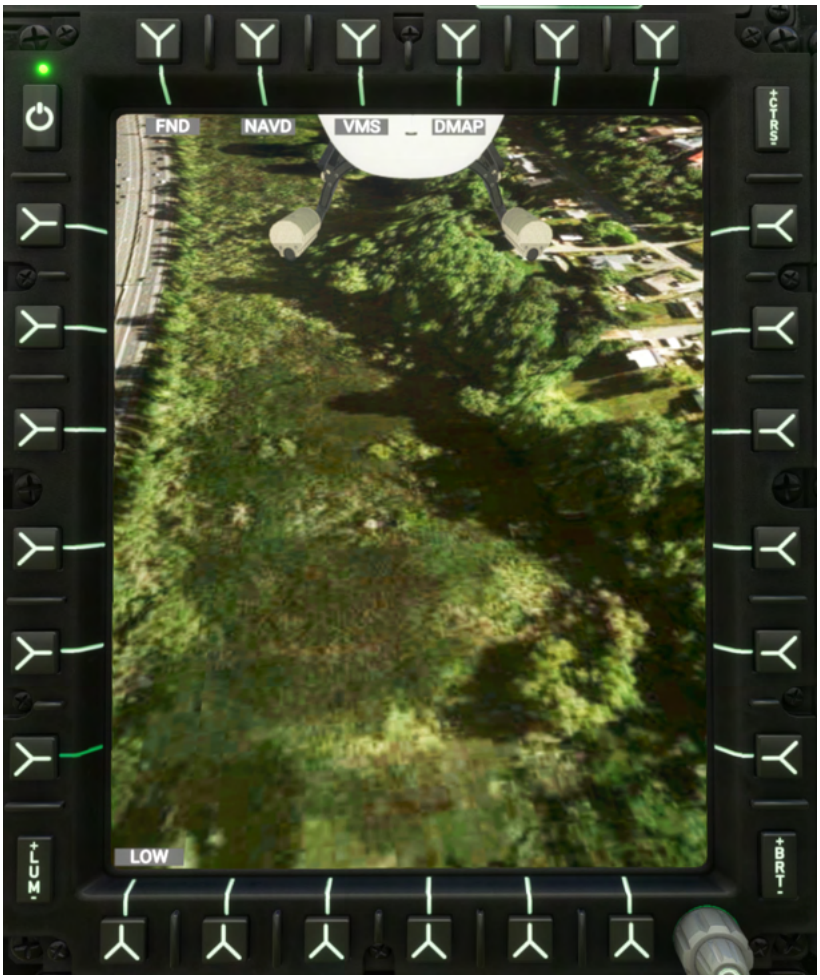
1. LAYR sk - Toggle airspace visibility
2. Aircraft magnetic heading
3. MAP sk - Toggle between OSM and OpenTopoMap layers
4. PLN/ROS sk - Toggle between NorthUp and HeadingUp views
5. WXR sk - Toggle online weather overlay
6. Inop.
7. HTAWS sk - Toggle HTAWS height above terrain overlay

Use the MFD knob to control the range of the map.

Data Sources (Advanced)
The map data source is driven by slippy tile xyz sources in:
`Community\hpg-airbus-h145\html_ui\HPGH145-User\MFD\DMAP.json`.

The API format is OpenLayers2 (not leaflet). See here for more providers:
http://leaflet-extras.github.io/leaflet-providers/preview/

MISC Page



Miscellaneous, used for auxiliary camera sources. The MISC page is available on MFD1 (copilot) and MFD4 (center).

The tail boom camera is available on all variants. The camera itself is a view provided by MSFS and composed from the satellite imagery overlaid on the 3d synthetic vision viewport.

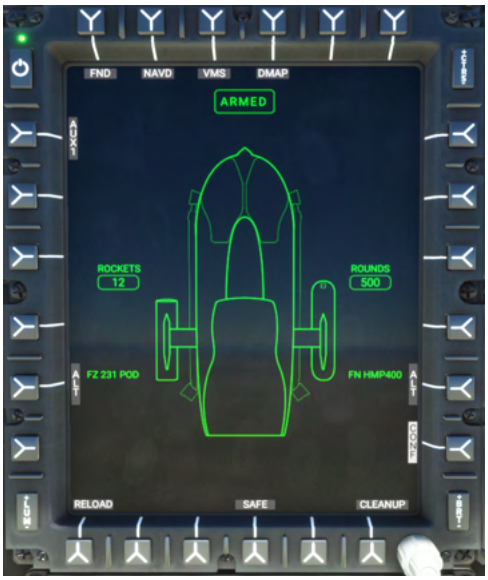
The select keys at the bottom for LOW and HIGH are mutually exclusive.

LOW (Default): Camera will not be updated with aircraft pitch and bank information.

HIGH: Camera will be updated with pitch and bank information, which appears to have a modest cost in sim performance but enables a more realistic view.

When multiple camera sources are available, AUX1 and AUX2 will be displayed in the upper left of the MISC page. Only one source may be visible at a time.

When using the H145M variant, the weapons status page is shown as a camera source. See the **Weapons System** section for more information.



Garmin GTN750 Flight Management System

The GTN750 acts as a flight management system, letting you manage the flight plan, locate nearby airports, view maps, and more. While both software integration options (by pms50 and TDSSim) are optional (the aircraft is usable without either option), it is highly recommended to select one.

The pilot GTN750 is powered by both the avionics 2 bus and the essential 2 bus. This means that as long as the battery master is on, the GTN750 on the left side will have power. The copilot GTN750 is powered by only the avionics 1 bus. You will need to use the AVIO 1 switch on the overhead panel to gain access to the left GTN750. **Note also that COM2 and NAV2 are on the pilot (right) side of the aircraft, and COM1/NAV1 on the left side.**

GTN750 Software Options

Mode	**Installation Procedure**

Pms50 GTN750 **(Recommended)**	Install the pms50 GTN750.
	
	You will have two folders within Community:
	`hpg-airbus-h145`
	`pms50-instrument-gtn750`

TDSSim GTNXi	Purchase and install the TDSSim GTNXi.
	
	On the H145 tablet, go to the Aircraft app, Options page, and select **GTN Software** to **TDSSim GTNXi**.
	
	You will have two folders within Community:
	`hpg-airbus-h145`
	`tds-gtnxi-gauge`

Pms50 + Working Title Technology (WTT)	Install the pms50 GTN750. In the H145 `tools` folder, extract `hpg-airbus-h145-pms50gtn750-wtt-v2.zip`
	
	You will have three folders within Community:
	`hpg-airbus-h145`
	`hpg-airbus-h145-pms50gtn750-wtt-v2`
	`pms50-instrument-gtn750`

No GTN750 **(Not Recommended)**	The GTN750 provides important flight management functions which would not otherwise be available, however a flight plan may still be selected and used from the world map. You will have only one folder within Community: `hpg-airbus-h145`

Pms50 GTN750

The free version is suitable but the premium version adds many features including navigraph charts, checklists and more. The addon is not included in the H145 download, check the installation instructions earlier in this guide for specific installation steps.

A **Not Installed** message indicates that the GTN750 addon was not discovered. Check your Community folder for the **pms50-instrument-gtn750** folder.

Checklists

To install the checklist follow this procedure: **(Premium GTN750 required)**
1. Unpack the checklist zip file. Rename `HPG_AirbusH145_The1L2P.json` to `import.json` and place the file into `Community\pms50-instrument-gtn750\checklists\gtn750`. Overwrite the existing import.json file.
2. Inside MSFS: In the GTN750 click on: System -> Setup -> Checklists -> Import local file
3. You'll find the checklist under Utilities -> Checklists.

Registration

The GTN750 registration page is for the premium GTN750 license. **Do not enter your H145 license key into GTN750.**

Disable an individual FMS unit

Push buttons may be used to blank the FMS screen and disable processing for that MSFS gauge.

TDSSim GTN750

The TDSSim GTN750 is integrated as 2 units, with unit 1 on the copilot side. You should manually set the navigation source to unit 2 to select the pilot unit. The invisible click spot is not implemented in the VR to switch navigation sources.

The TDSSim GTN750 does not currently save the flight plan into MSFS, so the NAVD and DMAP displays will not show the navigation route.

Operating the GTN750

Direct-To airport procedure

If you have an existing flight plan, a Direct-To will replace it with a new flight plan that goes from your current position to the destination. Start from the GTN750 Home page. If you don't see the home page, select the HOME button and you will see a grid of icons. The destination may be found by selecting a nearby airport from a list or by selecting the 4-digit ICAO airport code.

After activating a Direct-To flight plan, you can use the tablet autopilot panel to select the GPS navigation source, or you can use the NAV and CPL softkeys on the pilot MFD to select and couple the navigation source.

Direct-To: Select a nearby airport

1. Select **Nearest**

2. Select **Airport**

3. Select an airport

4. Select the **Direct-To** button

5. Select **Activate**

Direct-To: Select an airport by name

1. Select **Waypoint Info**

2. Select **Airport**

3. Select **- - -**

4. Type an ICAO (e.g. **KSEA)**
5. Press **ENTER**

6. Select the **Direct-To** button

7. Select **Activate**

Helicopter Flight Dynamics

Integral HPG Flight Model

HPG has developed an exclusive rotorcraft flight model for Microsoft Flight Simulator 2020 which requires no external programs to operate. It is a configurable dynamic simulation which replaces the MSFS flight model.

Our flight model features these realistic helicopter dynamics:

- Ground Effect
- Translational Lift
- Retreating Blade Stall
- Vortex Ring State, Settling With Power
- Weight and Density Altitude performance simulation
- Rotor Rpm with overspeed and underspeed, stall and disintegration
- Rotor system Autorotation
- Dual engine and Single engine (OEI) simulation
- Engine and MGB torque, MGB simulation
- Helicopter Stability Augmentation System (SAS)
- Helicopter Autopilot / AFCS with GPS modes
- Beep Trim with and without AFCS

Gameplay Modes

The H145 has 2 unique gameplay modes selectable from the Aircraft page on the tablet. There is an additional failure mode when the AFCS systems are not engaged, at which time your selection will be ignored and only the **AFCS Fail** flight model will be available.

Mode	**Function**	**Notes**
Arcade	Suitable for twist-grip joystick users. The torque forces are automatically neutralized. VRS is disabled.	Requires AP1 or AP2 or BKUP
Realistic (recommended)	Realistic stabilized helicopter simulation	Requires AP1 or AP2 or BKUP
AFCS Fail	Advanced mode but with even less stability, simulating the trims-off and SAS-off mode of operation	

AIRLAND GAMES SIMULATIONS

AirlandFS Flight Model

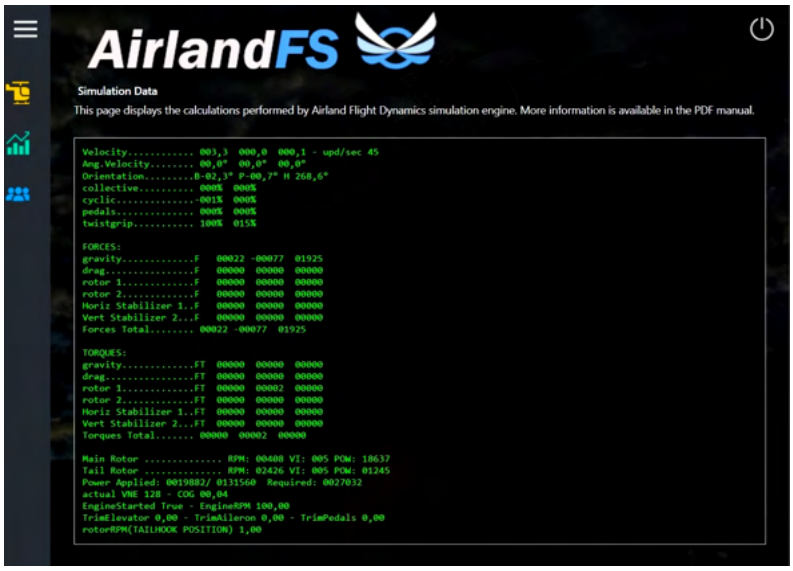
AirlandFS is a physics library that simulates helicopter behaviors by applying rigid body physics to Microsoft Flight Simulator 2020 . Originally released for FSX and Prepar3D as Helicopter Total Realism (HTR) it is currently used by flight schools, military training centers as well as thousands of Flight Simmers around the world.

Download AirlandFS

H145 has optional support for the Airland flight model. You will download and then run AirlandFS.exe, which will take over flight dynamics in the H145. Make sure to select the H145 profile. H145 systems operate only in a limited fashion when Airland is running.

When using AirlandFS, take care to:

1. Set the CG to 14.80% before flight
2. Start AirlandFS after loading the flight
3. Select the file `hpg-airbus-h145\SimObjects\Airplanes\hpg-airbus-h145\airlandfs_H145.cfg` in AirlandFS. There is a unique profile for each variant.
4. Do not engage upper modes (HDG, NAV etc) as **Airland is not compatible with the AFCS systems.**
5. You must manually take the engines from IDLE to FLIGHT as AirlandFS doesn't have knowledge of the H145 FADEC



Aircraft Systems

Auto-flight control system (AFCS)

The H145 has a sophisticated AFCS which provides basic stabilization, autopilot upper modes (like flight plan navigation and altitude hold) and safety features like flight envelope protection.

Note: H145 uses always-on AFCS systems. While you can turn them off, you will find that the binding and simulation variables for AUTOPILOT MASTER / TOGGLE AUTOPILOT MASTER are not available. Even though you cannot engage the master autopilot, the systems will still function as expected.

Background

The cyclic and collective controls are boosted and directly connected to the swashplate. Additional smart electro-mechanical actuators (SEMA) act in parallel with the pilot controls, without visibly moving the cyclic or collective. These SEMA type actuators are controlled by computers and act as a sort of Fly-By-Wire system with limited control authority. While this system is not true Fly-By-Wire, the result is that the direct control of the helicopter is shared between the pilot input and invisible input by computer systems. Traditional helicopter trims are installed at the base of the cyclic and collective controls and the AFCS will control these in order to re-center the controls to ensure the SEMAs do not become saturated.

Components

AFCS Component	**Function**
FND AFCS Status Strip (axis status) 	The Status Strip shows the status of each AFCS axis. It can be split into 3 columns (each axis) and 2 rows (active and armed modes). Left: Collective axis Center: Roll and Yaw axis Right: Pitch axis Top: Active mode Bottom: Armed mode Shown: V/S is **active** on the collective axis and ALT.A is **armed**.
APCP (mode control panel)	System (push toggle ON/OFF): - A.TRIM (Auto trim) - BKUP (Backup SAS) - AP 1 (Avionics System 1)

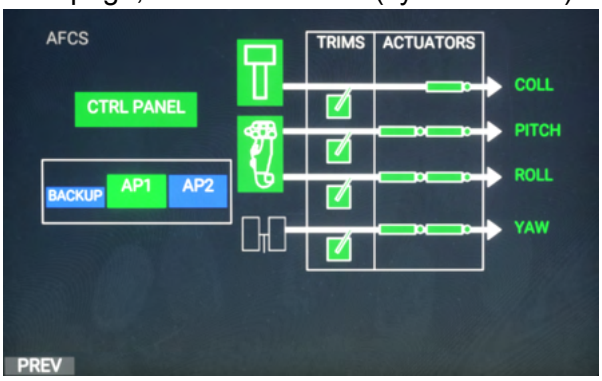
- AP 2 (Avionics System 2)

UPPER MODES (push toggle ON/OFF):

- CR.HT (Radio Altitude Hold)
- IAS (Airspeed hold)
- ALT.A (Altitude acquire)
- VS/FPA (Hold vertical speed or flight path angle)
- HDG/TRK (Heading or Track hold)
- ALT (Altitude Hold)

The VS/HDG butterfly knob may be rotated to reveal FPA and TRK.

VMS page, SYST subformat (system status)



This page indicates system status of the AFCS System status overview

CTRL PANEL (APCP), cyclic, collective and pedals controls, the trim actuators for each axis, and SEMA type actuators for each axis.

BACKUP, AP1 and AP2 indicate the status of each autopilot system:
APi: AP is active
APi: AP is in standby (take over on failure)
APi: AP is unavailable

Cyclic control

CYCLIC BEEP TRIM (4-way hat)
Beep trim is used to issue small inputs either directly or to the AFCS (to move reference bugs). Beep trim is sensitive to the context it is used in. View the beep trim wheels on the tablet for some hints as to what each function will do based on the currently selected modes.

CYCLIC TRIM RELEASE
Cyclic Trim Release is a button that should be held down whenever the pilot wishes to manually direct the aircraft or to update the stored AFCS references. When cyclic inputs are issued without holding down trim release, the AFCS will attempt to fly back to the

	previous references after the cyclic is released to the neutral position **AP/BKUP ON** Press 1: Engage AP1, AP2, BKUP Press 2: ALT+HDG+IAS (auto recovery) **AP/BKUP CUT** Press 1: Disengage AP1 and AP2 Press 2: Disengage BKUP **AP/UM OFF** Press once: Clear all upper modes Hold for 1 second: Clear all visible bugs **AP/GTC** Press once: Engage ground trajectory hold (Vy and Vx) Double click quickly: Engage GTC.H sub-mode (Vy=0, Vx=0, then acquire a position and hold it) **Use with HOV subformat on FND** **RESET** Same function as the ACK softkey on the pilot MFD (acknowledge new messages)
Collective control 	**COLLECTIVE BEEP TRIM (4-way hat)** Similar in function to the cyclic beep trim. The left and right act as controls for the yaw axis. **COLLECTIVE TRIM RELEASE** Used to override engaged upper modes. While held the collective axis will always be directly controlled by the pilot. Upon release modes like ALT/CR.HT/VS will take over and control of the axis directly will have no effect. **GO AGROUND** Engages a mode (similar to IAS and VS) for 15 seconds in cruise or 25 seconds in hover, used to climb out after a missed approach. **FILL FLOATS** Trigger manual deployment of the emergency flotation system. The overhead EMER FLOATS switch must be in the ARMED position and the aircraft must be powered for the floats to deploy.

MFD (nav source coupling) 	In order for the autopilot to follow a flight plan or navigation source, the navigation source must be made visible to the pilot on one of the MFDs. Once the autopilot is following a nav source it is said to be “coupled” to the autopilot and the MFD. The NAV mode is only available if coupled to a specific MFD (the pilot and center MFDs will act as a duo). If the nav source is coupled but not visible on the MFD, it will disconnect after 10 seconds. To select a nav source press the **NAV** sk on either the NAVD or FND page. The nav sources (FMS, NAV1, NAV2) will cycle. If a nav source is suitable the **CPL** sk will become visible in the lower left corner of the MFD. Pressing **CPL** will engage **NAV** on the AFCS status strip and the aircraft will follow the designated navigation source.

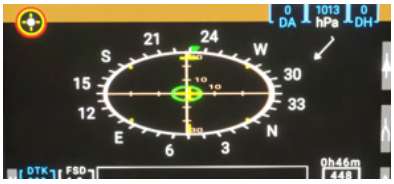
Collective modes

Mode	**Engagement**	**Reference management**
ALT (Altitude Hold)	By pilot: - ALT pb on APCP - AP/BKUP ON (recovery mode) Automatically: - VS with ALT.A armed will become ALT when arriving at the selected altitude	- COLLECTIVE BEEP TRIM (Up/Down)
ALT.A (Altitude Acquire)	By pilot: - Turn the ALT.A knob on the APCP and then **push** to engage	ALT.A will use VS to reach the new altitude and then **ALT** mode will automatically take over. **COLLECTIVE BEEP TRIM (Up/Down)** Adjusts VS reference
CR.HT (Cruise Height / Radar Altitude Hold)	By pilot: - CR.HT knob push on APCP	- COLLECTIVE BEEP TRIM (Up/Down) - CR.HT knob on APCP

V/S (Vertical Speed)	By pilot: - VS knob push on APCP	- COLLECTIVE BEEP TRIM (Up/Down) - VS knob on APCP
GA (Go Around)	By pilot - Collective GA	Engages for 15 seconds in cruise and 25 seconds in hover. This mode works like VS+IAS. Adjust references in accordance with VS and IAS modes.
G/S (Glide slope) V.APP (RNAV vertical approach)	By pilot - MFD CPL a nav source	Armed when coupling to an ILS. Active when deviation is within limits.

Roll/Yaw modes

Mode	**Engagement**	**Reference management**
(blank)	This is the default mode when the AFCS is engaged. It does not have any indication on the AFCS Status Strip	- CYCLIC BEEP TRIM (Left/Right) - During hover (when airspeed is below 30kt), the references will automatically follow pilot stick movement
HDG (heading hold) TRK (track hold)	By pilot: - HDG/TRK knob push on APCP - AP/BKUP ON	- CYCLIC BEEP TRIM (Left/Right) - HDG/TRK knob on APCP - Hover domain (<30kt): Pedals will slew HDG bug
NAV (en-route) LOC (localizer) VOR (VOR radial tracking) APP (RNAV approach)	By pilot: - MFD CPL a nav source	
GTC	By pilot: - AP/GTC single click Note Vy and Vx shown in green on HOV subformat:	**CYCLIC BEEP TRIM Up/Down/Left/Right** Change Vx and Vy parameters. **COLLECTIVE BEEP TRIM**

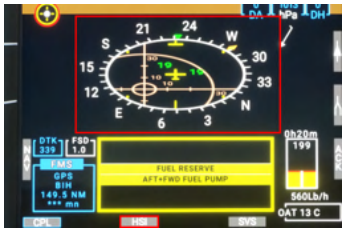
		**Left/Right** Update yaw reference **Press on pedals** Updates yaw reference **Override cyclic spring forces** Updates Vx and Vy references **Cyclic trim release** Updates Vx and Vy references
GTC.H	By pilot - AP/GTC **double click** - AP/GTC and slow to zero vx/vy Note green hover ring on HOV subformat: 	Same as GTC except: Cyclic beep trim will change to GTC mode (nonzero Vx or Vy).

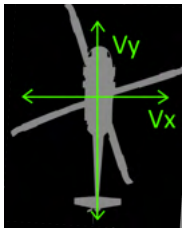
Pitch modes

Mode	Engagement	Reference management
(blank)	This is the default mode when the AFCS is engaged. It does not have any indication on the AFCS Status Strip	- CYCLIC BEEP TRIM (Up/Down)
IAS	By pilot: - IAS knob push on APCP - AP/BKUP ON	- CYCLIC BEEP TRIM (Up/Down) - IAS knob on APCP
GTC	*See roll mode*	*See roll mode*
GTC.H	*See roll mode*	*See roll mode*
GA	*See collective mode*	*See collective mode*

Ground Trajectory Command (GTC and GTC.H)

GTC is a mode unlike traditional modes. It operates on the pitch and roll/yaw axis and will maintain the helicopter trajectory on both the longitudinal (Vy) and horizontal (Vx) axis. The HOV display is intended to show symbology related to GTC and GTC.H modes. Use the bottom sk which may say HSI, HOV or SCT. Double click AP/GTC to engage GTC.H submode. In GTC.H the helicopter will slow to Vy=0 and Vx=0 and then maintain a fixed position.





Nav Source Coupling

The nav source must be coupled to an MFD. The pilot MFD and center MFD will act as a pair and the navigation source need only be shown on one to remain connected to the AP. If the nav source is changed on both MFDs the NAV will flash in yellow on the AFCS status strip and disconnect after 10 seconds, unless the nav source is shown again.

Once a nav source is coupled, everything is automatic. If the coupled nav source has vertical navigation (glideslope or glidepath), it will be armed at coupling and will become active when within deviation limits. G/S mode is used for ILS and V.APP mode for RNAV approaches.

AFCS Status Strip messages

Message	Meaning
DSAS	A.TRIM/AUTO TRIM is off. Without A.TRIM, the AFCS cannot re-center. The aircraft management computers are operating the SEMAs to provide basic stabilization but are not able to re-center and thus cannot provide long term attitude stabilization. **Recover by pressing the A.TRIM pb on the APCP.**
AFCS DISENGAGED	Neither AP1 or AP2 is engaged. UPPER MODES are not available. Ensure **AVIONICS 1** and/or **AVIONICS 2** is powered and recover: 1. AP/BKUP ON or 2. Press AP1 and/or AP2 on APCP
SAS	Stability Augmentation on this axis is provided only by Backup SAS
SAS	Stability Augmentation on this axis is not available.
XXX flashing **XXX**	Modes flashing **between green and yellow** indicate that the pilot is currently overriding the controls, either by using CYCLIC TRIM RELEASE or by manually pushing on the cyclic control. **This indication means that the mode is engaged however the pilot is preventing it from operating. Try increasing your CYclic AP Deadzone in the tablet aircraft app setup page.**

Aircraft Lights

The H145 lights are configurable by the user in the tablet aircraft app. Lights are similar to fixed wing operation, the LDG and S/L will often be used together for any night takeoff and landing.

Lights are primarily controlled by the lighting section on the overhead, as well as controls on the Collective Head.

Lighting Controls

1. High Intensity Search Light - Lamp (if installed)
2. Landing (LDG) Light
3. Strobe Lights
4. Position/Navigation (POS) Lights
5. Anti-collision (ACOL) Beacon Light
6. Cargo/Passenger area Lights (**inoperative**)
7. Emergency Exit Lights
8. Instrument Panel Light Dimmer switch.
9. Instrument Panel Light Day/Night/Night-Vision-Goggles mode switch.

Instrument Panel lights

Instrument panel lights are available in DAY, NIGHT and NVG modes. DAY mode switches the panel lights off, while NIGHT and NVG enable the integral (green) panel lights. Use the dimmer switch (8, above) to adjust the light intensity.

DAY, NIGHT and NVG will also impact the base brightness for the MFDs.

Cockpit lights

There are two cockpit lights available at the front and rear of the overhead panel. Click the light itself to activate.

Cockpit lights are available when the master battery switch is ON or when the Ground Power switch is set to ON (not to be confused with External Power). When using Ground Power without the aircraft battery, the lights will be switched off after 10 minutes.

Exterior lights

1. Landing (LDG) Light
2. Second Landing Light
3. Search and Landing (S/L) Light
4. Landing (LDG) Light - (Optional if the radome is not installed)
5. Boarding step light
6. Hoist light (automatic activation)
7. Navigation/Position (POS) Lights (left - red, right - green, rear - white)
8. Strobe (white) and Beacon (red) lights

Emergency Exit Lights

Exit lights (4) are installed in the cabin and cockpit. They are powered by both the main battery and the standby battery.

The exit lights will illuminate when

1. EM/EX switch to ON
2. EM/EX switch set to ARM (armed) and one of the following
    a. Hard landing
    b. Door opens
    c. Loss of electrical power

Emergency Flotation System

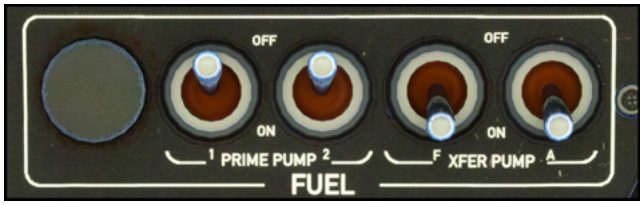
The emergency flotation system installed permanently on the Luxury and Offshore variants. Floats are optional on the EMS, Civil Cargo and Firefighter variants.

The system must first be armed using the switch on the overhead panel, and then it can be activated either automatically or when the pilot activates the **FILL FLOATS** function.

Access the fill floats and repack functions by clicking the top clock on the tablet and then clicking the button on the **Emergency Floats** notification in the list.

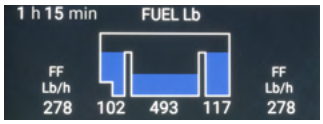
Function	Action	Notes
Arm / Disarm	Use the switch on the overhead panel, EMER FLOATS and set it to ARM or OFF	
Activate	**Automatic** activation upon water landing. **Manual** activation is accomplished by a button on the tablet, or the FILL FLOATS binding.	Automatic activation when landing on water is mandatory.
Repack	Use the Tablet Aircraft app, click the top clock, and select **Repack** on the notification.	Not a realistic function
Test	Set EMER FLOATS to TEST	This test is checking for power from both electrical sources.

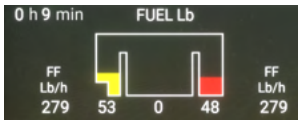
Fuel System



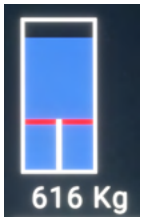
The H145 has a fuel system that consists of a main (center) tank, two supply tanks (right and left, connected only to the respective engine on that side of the aircraft), 2 transfer pumps to move fuel from the main tank into the supply tank, and 2 prime pumps to move fuel from the supply tank to their respective engine.

There are 4 fuel pumps. The two transfer (XFER) pumps move fuel from the main (center) tank into the supply tanks. Both transfer pumps will move fuel independently from the main tank into both supply tanks. The two prime pumps move fuel from the supply tank to the engine on that side of the aircraft. The two prime pumps should both be switched ON during engine start, and OFF after both engines are running. Transfer pumps should be switched on after engine start and remain on until just before engine shutdown.





Information about the fuel system is presented on the FND and VMS pages, as well as critical indications on the message list and on the Warning Unit.



- Even when the main tank is empty, the transfer pumps are to remain ON.
- A red line indicates that the transfer pumps are not active and cannot move fuel from the main tank to either supply tank.
- The fuel system has been designed such that the left engine will shut down from fuel starvation before the right. Should this ever occur an immediate landing shall be conducted.
- Display units and presence of Fuel Flow sensor may be set using the tablet Aircraft app.

The warning unit contains low fuel warnings relating to the supply tanks only. The red guards may be lifted to engage an emergency fuel cutoff for the engine should a fire occur.

Electrical System

The H145 has a 28V DC electrical system consisting primarily of:

- Aircraft main battery
- Standby battery
- Bus tie (x2)
- Combined Starter/Generator (x2)

The two sides of the aircraft are redundant and split into system 1 and system 2. Critical equipment is powered by both systems. There are additional shedding buses on each system which are left unpowered unless both electrical generators are running or external power is connected. Each system has a bus tie which allows the system to be isolated (normally they are not isolated to allow sharing of electrical loads) When bus ties are closed, both systems can use power from the main battery or either generator.

BUS TIE (1 and 2)
Bus tie connections are used to isolate a system from a malfunction within another part of the aircraft. They shall remain in the NORM and guarded position unless directed by a checklist. When switching a bus tie switch to the NORM position from OFF, it should first be moved to the spring-loaded RESET position.

GEN (1 and 2)
Generator switches may be used to isolate a malfunctioning generator from the rest of the aircraft. They shall remain in the NORM and guarded position unless directed by a checklist. When switching a generator switch to the NORM position from OFF, it should first be moved to the spring-loaded RESET position.

EMER SHED BUS
The Emergency Shedding Bus is a third optionally isolated part of the electrical system. The EMER SHED BUS switch shall remain in the NORM (off) position unless directed by a checklist. The Emergency shedding bus provides power to the IESI and emergency exit lights, and also provides an alternate path for the Radar Altimeter. If you should lose both generators in flight you may recover the RA parameter by switching the EMER SHED BUS to the ON position.

BAT MSTR
The BATTERY MASTER switch is the main aircraft power switch. It has 3 positions, OFF, ON and ENGAGE. When switching from OFF to ON, it shall

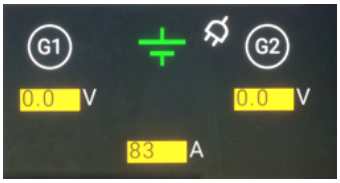
first be moved to the spring-loaded ENGAGE position. This act activates the bus tie system and closes the BUS TIE 1 and BUS TIE 2 connections. Failure to move the switch to the ENGAGE position will result in BUS TIE OPEN messages on the message list as well as failure to share electrical load between systems 1 and 2.

DC RECEPT
The D.C. Power Receptacles switch controls a utility bus which may be used to charge the onboard tablet.

STBY BAT
The STANDBY BATTERY powers the IESI, exit lights and the emergency shedding bus when isolated. It should be engaged for flight and shut off after shutdown, otherwise the IESI may remain powered after shutting off the master battery switch. There is no indication on the VMS page for the standby battery. If it is discharging a notification will be present on the message list.

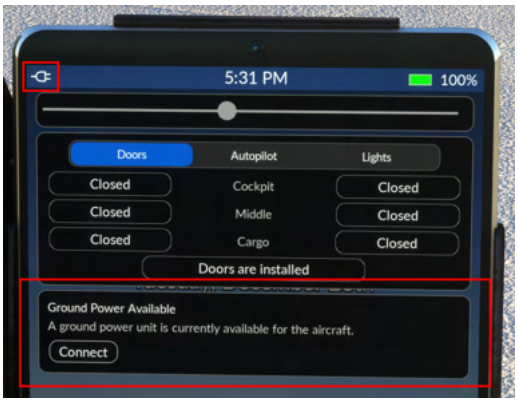
AVIO (1 and 2)
Avionics bus 1 and 2 power critical avionics equipment such as the aircraft main computers. AVIO 1 is required for the copilot GTN750 to function. The AP1 and AP2 functions on the APCP depend on AVIO 1 and 2 respectively.

VMS electrical information section
The VMS page contains a section for electrical information, showing the status of both generators and the aircraft main battery. The VMS NUM sk can be used to reveal nominal digital parameters.



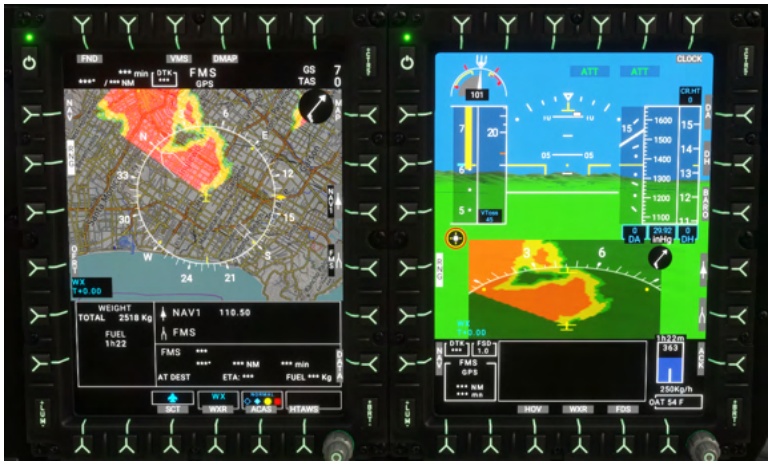
WHITE: Source is not active
GREEN: Source is active
YELLOW: Source is over limit

External Power
The tablet may be used to connect and disconnect external power. An icon will be displayed in the notification bar if the external power unit is available or connected. A message in the notification list may be used to CONNECT and DISCONNECT external power.



Note: External power will not power the aircraft unless the BATTERY MASTER switch (and subsequently the bus tie system) is ON.

Weather Radar



Weather radar is available as an option in the civilian variant, and always available in the luxury variant. The exterior radome option and weather radar are installed and uninstalled together. You can select the radar option in the tablet aircraft app.

Weather radar is available on the FND and NAVD pages. The DMAP page and the tablet Maps app use an online weather service which works irrespective of the selected radome option.

The weather radar is controlled via the WXRCP panel on the center console. The main knob has 4 functions (OFF, Standby, TEST, and On). STBY mode is used when on the ground. TEST mode is used to display a test pattern on the FND and NAVD pages when weather has been selected.

Message	Meaning	Notes
FAIL or **WXR FAIL**	Weather radar is not detected electrically. Set the WXRCP knob to ON.	Radome must be installed for WXRCP to be visible on the center console.
STBY or **WXR STBY**	Weather radar is detected but in standby mode. Set the WXRCP knob to ON.	
CHECK RANGE	MFD4 and MFD2 range knobs must match, or WXR should be de-selected.	MFD1 has independent range.
WXR TX INHIB	Weather radar is automatically inhibited when less than 50FT RA to protect personnel.	Weather radar will become available automatically when crossing 50FT RA.

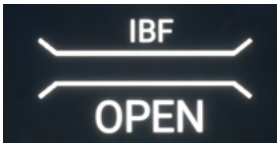
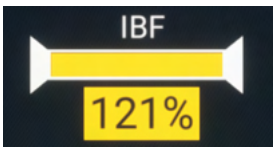
Engine Inlet Barrier Filter (IBF)

Inlet Barrier Filters protect the engine from abrasive sand causing excessive wear on the engines. The filters block sand and dirt but will eventually become clogged which will reduce engine performance. The pilot may control the operation of the bypass doors, which allow a way for air to directly reach the engine, bypassing the filters. It's best to keep the IBF system in the NORM position unless operations require otherwise. **Clogging over 100% will reduce engine performance**.

IBF controls are on the overhead panel, and IBF indications are on the VMS page and on the Message List.

Each IBF switch corresponds to the respective engine, and has 3 positions as explained below. The **Recall** switch is currently inoperative.

CLOSED: Bypass doors are closed and will not open automatically. The filters will protect the engine but in the case of OEI the bypass doors will not open automatically, meaning full power will not be available.
OPEN: Bypass doors are open and the engines are directly exposed to outside conditions.
NORM: Bypass doors will automatically open and close based on the relevant systems logic. Bypass doors will normally stay in the closed position but will open automatically in the case of clogging over 100% or in the case of OEI.

Bypass door open	With the bypass door open (either due to the switch or by automatic logic) the engine has maximum performance but sand will cause excessive wear.	
Clogging	IBF clogging up to 100% will not reduce engine performance. IBF CLOG TREND message will be associated with early clogging.	
Excessive clogging	IBG Clogging over 100% will result in performance degradation, OEI performance margin will not be guaranteed.	

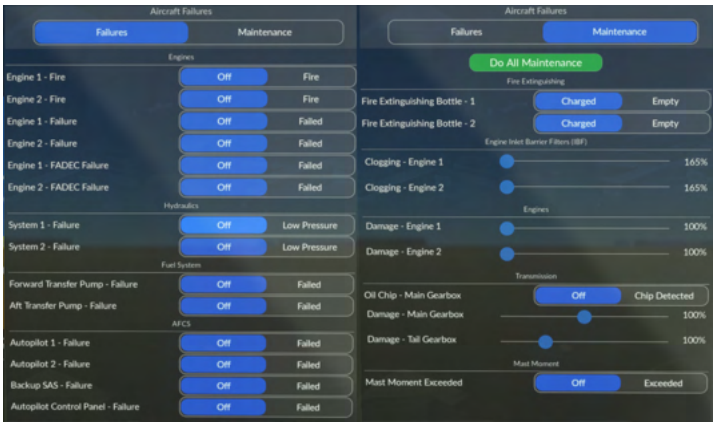
Clogging levels may be controlled in the **Failure & Maintenance** app. Clogging is disabled when the **Aircraft Damage** is set to **Off** in the Aircraft app on the setup page.

Aircraft Failures & Damage model

The H145 has a suite of failure modes and also a systems damage model for key aircraft systems. These features can be optionally disabled in the tablet Aircraft app, on the Setup page by setting **Aircraft Damage** to **Off**.

Failure & Maintenance app

The Failures page shows a list of any active failures, and the maintenance page shows damage and degradation status.



Do All Maintenance: This will reset all damage

Aircraft failures are best triggered from within the mission system, as various timers or triggers may be devised to enter or exit the failure condition.

Aircraft Failure Variables

Scope	**L:Vars**
Engines	**0-100 (percent damage)** L:H145_PERSIST_DAMAGE_ENG1_PCT L:H145_PERSIST_DAMAGE_ENG2_PCT **0 or 1 (boolean logic)** ENG ON FIRE:1 ENG ON FIRE:2 GENERAL ENG FAILED:1 GENERAL ENG FAILED:2 L:H145_FAIL_FADEC1 L:H145_FAIL_FADEC2 **Note**: Using FADEC EMER will recover from level 3 to level 2 failure and thus regain substantial engine control by use of TOT-matching the engines. Bottles 0: empty, 1: charged L:H145_SDK_FIREBOTTLE_1 L:H145_SDK_FIREBOTTLE_2 H:H145_SDK_FIREBOTTLE1_EMPTY

	H:H145_SDK_FIREBOTTLE1_FULL H:H145_SDK_FIREBOTTLE2_EMPTY H:H145_SDK_FIREBOTTLE2_FULL
Hydraulics	**0 or 1 (boolean logic)** L:H145_FAIL_HYD1_LOWPRESS L:H145_FAIL_HYD2_LOWPRESS
AFCS	**0 or 1 (boolean logic)** L:H145_FAIL_AP1 L:H145_FAIL_AP2 L:H145_FAIL_BKUP L:H145_FAIL_APCP L:H145_FAIL_PITCH_SEMA1 L:H145_FAIL_PITCH_SEMA2 L:H145_FAIL_ROLL_SEMA1 L:H145_FAIL_ROLL_SEMA2 L:H145_FAIL_YAW_SEMA1 L:H145_FAIL_YAW_SEMA2 L:H145_FAIL_COLLECTIVE_SEMA1
Fuel	**0 or 1 (boolean logic)** L:H145_FAIL_FUEL_F L:H145_FAIL_FUEL_A
Transmission	**0-100 (percent damage)** L:H145_PERSIST_DAMAGE_MGB_PCT L:H145_PERSIST_DAMAGE_TGB_PCT **0 or 1 (boolean logic)** L:H145_FAIL_MGB_CHIP
IBF System	**0-165 (percent clogging)** L:H145_PERSIST_IBF1_PCT L:H145_PERSIST_IBF2_PCT
Other	**0 or 1 (boolean logic)** L:H145_SDK_MASTMOMENT_EXCEEDED H:H145_SDK_MASTMOMENT_EXCEED_ON H:H145_SDK_MASTMOMENT_EXCEED_OFF

Hype Tablet

The tablet may be opened or closed by clicking the hinge. The home button will close apps until there are no more apps open, then will also close the tablet. If you use the hinge you may keep the app open while the tablet is closed. The tablet battery will drain if you do not turn on the helicopter and also engage the DC RECEPT switch.

Tablet Hinge: Click the hinge along the left to open or close the tablet.
Home Button: The home button will close the current app (or view) until showing the home screen, and then one more press will close the tablet.
Status bar: Action Center is available by clicking the status bar at the top of the screen.

Apps

Tablet apps are available on the dock bar at the bottom of the home screen.

Aircraft	Configure the aircraft here
Failures & Maintenance	Configure aircraft failures and restore aircraft damage here.
Missions	Discover and execute missions here.
Documents	View image charts of your choosing. A copy of the user guide and normal procedures is also included here.
LittleNavMap	View the LittleNavMap.exe view from the tablet.
Sound Mixer	Adjust aircraft sound intensities here.
Maps	View maps.
Alarms	Set alarms and timers.
METAR	Query METARs for airports (live weather).
Web	Access select (very restricted) web pages directly.
EFBConnect	Mirror web pages into the simulator.
Flappy Bird	A simple game (to be used only on the ground).
Neopad	Access the NeoFly app
Direction Finder	Configure the DF hardware with a location.
Event Tester	Test the Home Cockpit SDK events without first binding the controls.

Aircraft (Setup)

The aircraft app combines unrealistic functionality with required setup and equipment and options configuration.

Setup

Setting	Options	Notes
Gameplay Mode (Flight Model)	Realistic Arcade	Realistic mode is the default flight model and is much more advanced. Arcade mode is an older version which some users may prefer but is not recommended. **Arcade mode** will also disable advanced flight model features: - Rotor overspeed and underspeed - Vortex Ring State - Aircraft Damage
Rotor Torque	Off / On	Rotor Torque is the normal tendency of the aircraft to pull to the right unless countered with the left pedal. The real H145 has trimmable pedals which operate in sync with the AFCS, so both settings can be considered reasonable. You may prefer the **Off** setting if you do not have physical rudder/yaw pedals.
Vortex Ring State	Off / On	VRS is a dangerous condition where the aircraft descends into its own downwash. Not available in Arcade mode.
Aircraft Damage	Off / On	Damage to Transmission and Engines, IBF simulation that will restrict engine airflow and subsequent power available Not available in Arcade mode.

AFCS ATT Follow-Up Trim	Only Cruise Only Hover	When in ATT mode (**blank** on the MFD), this setting controls whether trim release is required at lower or higher speeds.
Cyclic Sensitivity	(-10)-(+10)	This setting is intended to compensate for a cyclic control which is longer or shorter (like an xbox controller or a more professional control setup)
Cyclic Deadzone	1%-100%	This configures the deadzone used by the AP to determine when you are pushing on your joystick controller vs leaving it neutral/at rest. Select the lowest value that still results in your controller being consistently detected correctly (yellow=you are pushing on it, white=at rest)
Pedals Deadzone	1%-100%	Same as above, but for pedals
AirlandFS Flight Model	(not present) Active	This item is shown only when AirlandFS has configured the aircraft for external flight model use. Once AirlandFS is closed, clicking Active will recover the integral flight model.

State Load	**Options**	**Notes**
Ready for Takeoff	Configures the aircraft for takeoff (engines, AFCS).	
Cold & Dark	Configures the aircraft for Cold & Dark at the ramp.	

Equipment

Setting	**Options**	**Notes**
Radome (Weather Radar)	Installed Not Installed	This option will be set by the livery author and may then be changed at any time.
External Weapon Pods	Installed Not Installed	Weapon pods on the right and left. **Only available on the military variant.**
Fabric Glare Shields	Installed Not Installed	Required for night flight, these fabric curtains block light from shining upwards from the ground onto the canopy window.
Emergency Floats	Installed Not Installed	
Wire Strike Protection (Top, Bottom, Skids)	Installed Not Installed	This option will be set by the livery author and may then be changed at any time.

Skid Settling Protectors	Installed Not Installed	This option will be set by the livery author and may then be changed at any time. **Not available on the luxury variant.**
Air Conditioning	Installed Not Installed	This option will be set by the livery author and may then be changed at any time.
Fuel Flow Sensor	Installed Not Installed	Endurance calculation unavailable without fuel flow sensor
Inlet Barrier Filter (IBF)	Installed Not Installed	IBF system protects engine inlets from sand ingestion while providing bypass doors for emergency power
ACAS (Airborne anti-collision system)	Installed Not Installed	Traffic alerts unavailable without ACAS
HTAWS (Terrain awareness system)	Installed Not Installed	HAT (height above terrain) database and aurals unavailable without HTAWS.

Options

Setting	**Options**	**Notes**
GTN750 FMS System Software	Pms50 GTN750 TDSSim GTNXi	See the GTN750 section of the user guide for more information. Restarting the flight is not necessary but it is not recommended to load both GTN750 software options concurrently.
Fuel Units	Lb (Pounds) Kg (Kilograms) L (Liters) Gal (Gallons)	
Weight Units	Kg (Kilograms) Lb (Pounds)	
Barometric Units	In/Hg hPa	Controls the baro readout on the 3 MFDs and IESI.
Temperature Units	C F	Displays the OAT (outside air temperature) value on the FND page in either fahrenheit or celsius.
Rotor Downwash Effects	On Off	Particle effects on dirt/grass, sand, snow, water. Has GPU impact
Pilot automatic hide	Head & Body	This setting controls whether you can slew

	Head Only	into the pilot bodies in the cockpit Use the Head Only setting if you experience the pilot flickering based on your movements with TrackIR or VR.
Rotor Blur Casts Shadow	On Off	Set to OFF to reduce flicker in cockpit
Show parking brake on tablet	On Off	Show of Parking Brake on tablet status bar. (Useful for VA/mission software that uses this as a cue to begin or end)
Tablet Clock/Time reference	PC Time Sim Time PC Time UTC	PC Time should match your Windows PC clock. Sim Time should match the time you see on the FND or VMS clock, or the MSFS Weather dialog.
Tablet Clock/time format	12-hour 24-hour	Display format AM/PM or 24 hour time.

Crew & Payload

Setting	**Options**	**Notes**
Seat Selection - Pilot Seat Selection - Coilot	Hype Asobo	Choose to use Hype pilot models or Asobo. **Note** only the Hype pilots may operate as headless
Seat Selection - 2	Crew Worker	Choose which human model type to use
Seat Selection - 3 Seat Selection - 4	Worker Survivor	Choose which human model type to use
Hoist Selection	Stowed Deployed Crew Crew+Stretcher Worker Crew+Survivor 1 Crew+Survivor 2 Containers Hose	Stowed (Hoist is stowed and off) Deployed (Hoist arm swings out) Choose the hoist objects currently attached. **Note** unless using a mission, the object will not automatically detach when reaching the ground **Note** options available vary per variant

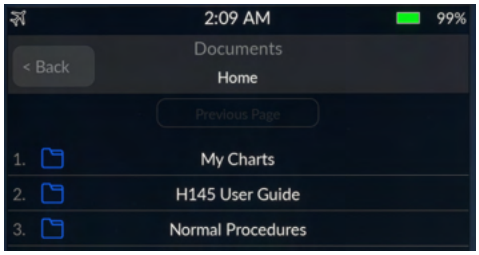
Maps app

The maps app features zoom controls and the ability to change the map orientation between North-Up and Heading-Up modes. The current magnetic heading is also displayed in a digital/numeric value at the top of the page.

Click **[…]** to reveal the maps selection panel where you may select between a variety of map sources as well as airspace and weather overlays.

Advanced Configuration (Optional)
The maps app uses OpenStreetMap tile data. You may configure the sources and their relevant options through the configuration file located at:
`html_ui\HPGH145-User\Tablet\MapsApp.json`.
Edit this file to change from the default provider of
`https://{a-c}.tile.opentopomap.org/{z}/{x}/{y}.png`.
See here for more providers: http://leaflet-extras.github.io/leaflet-providers/preview/

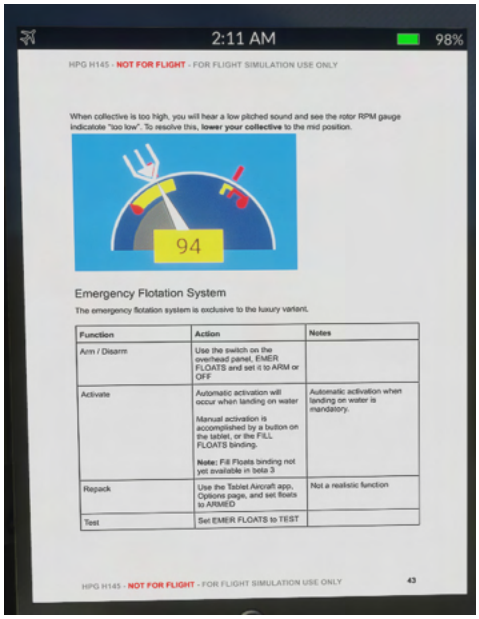
Documents app



The Documents app is a simple image chart viewer app. It will show documents built into the H145, provided by your livery, or documents of your own choosing.

To show your own “user documents”:

1. Install the UserDocuments package in your Community folder. You will install this new folder alongside the main hpg-airbus-h145 folder, don’t put it inside of the main H145 folder.
2. Place your files in
   `hpg-airbus-h145-userdocs\html_ui\HPGH145-User\Documents`
3. Double click the script **Update Docs For Sim** in the UserDocuments. This will overwrite the Index.json which the sim reads the filenames from. It will also update the package layout.json. You must restart your sim after adding or removing files.



Neopad app

Download Neofly and Neopad

The neopad app is present ONLY if neopad is installed within the simulator. You should see Neopad on the sim toolbar. Once installed, the app will be visible on the tablet. The app will simply connect to the NeoFly app, so make sure the toolbar app is working as expected if you are having any problems.

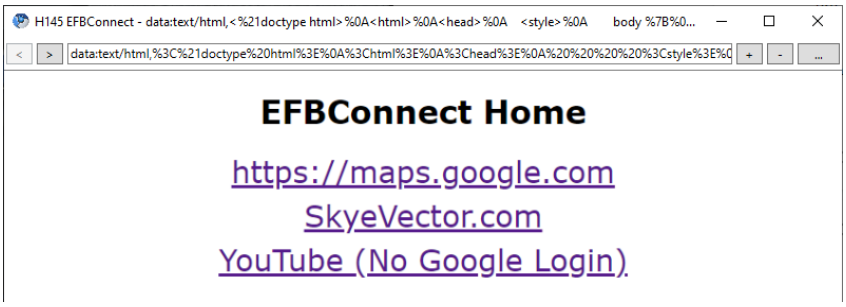
The neopad server url may be changed via: `Community\hpg-airbus-h145\html_ui\HPGH145-User\Tablet\NeopadApp.json`.

Web Browser

The browser app will load websites which have an access-allow-origin set to allow the game to access it, **which is unfortunately rare**. Web Browser app will load URLs from `Community\hpg-airbus-h145\html_ui\HPGH145-User\Tablet\WebBrowserApp.json`.

EFB Connect (Web Browser)

EFBConnect is a companion app which runs on your PC and provides a web browser with more functionality inside the sim, including some ability to stream video.



Download EFBConnect from the H145 Download Center.
It includes a quick start guide explaining the basic functionality (it is currently outdated and refers to H135).

EFBConnect will load to the configurable home page:

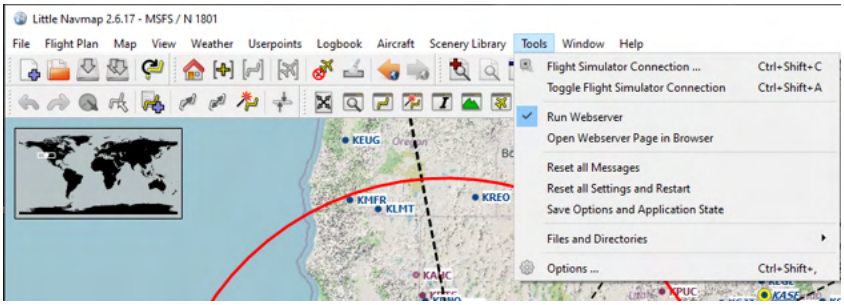
As soon as EFBConnect opens, the tablet EFBConnect app will automatically connect. You are able to send mouse clicks directly on the tablet in the sim, but currently you cannot scroll or zoom or use the back button.

Content that you view in the EFBConnect app will be mirrored in the sim, and light tasks may be accomplished directly through the sim.

LittleNavMap app

[Download LittleNavMap]

The LittleNavMap app contacts the LittleNavMap webserver. Click **Tools** then **Run Webserver** to start it. You can test that it is working by viewing the page in your browser.



Advanced Configuration

There is no need to change the below but the options are available if needed, especially changing the Url to another computer.

Configuration file: `html_ui\HPGH145-User\Tablet\LittleNavMapApp.json`.

Parameter	Values	Notes
Url	Default: http://localhost:8965	Server location (ip or host name including protocol)
FrameDelay	Default: 1000	Milliseconds to wait after receiving a farme before loading the next frame
Scale	Default: 1	Requested view size
ZoomScale	Default: 2	Zoom increment.
Format	jpg or png (Default: jpg)	
Quality	0-100 (Default: 80)	JPEG compression level.

Parameters are passed directly to the LittleNavMap web server.

Events Tester

The Events Tester app is intended as a simple way to check key bindings prior to selecting them in ConfigTool. Events Tester presents a list of categories and within each category are commands which correspond to functions in the H145. The command will execute each time you tap on the entry.

Missions

The missions app enables the user to conduct missions. See the top level Missions section in this document for more information.

Sound Mixer

The Sound Mixer app presents sliders to adjust certain aircraft sounds

Name	Notes
Rotor Bladeslap	Heavier rotor blade sounds when the air collides with recently disturbed air. Lower values are recommended
Avionics Alerts - Critical	
Avionics Alerts - Advisory	
Crew Audio	Crew guidance audio. **Not yet operative.**

Direction Finder

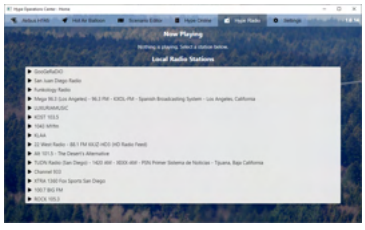
The Direction Finder (DF) app presents an interface to set entries from DFApp json as the active DF source. The DF bearing pointer is available on FND and NAVD under the BRG1 and BRG soft keys.

The file location for entries is `hpg-airbus-h145\html_ui\HPGH145-User\DFApp\index.json`.

Hype Radio

Listen to internet radio stations based on your flight simulator location. Start the **Hype Operations Center** app on your PC and then click **Hype Radio** on the tablet.

Radio stations will be updated every time you launch the app and the radio will remain playing even if you leave the range of the station, or go to the menu to change location.

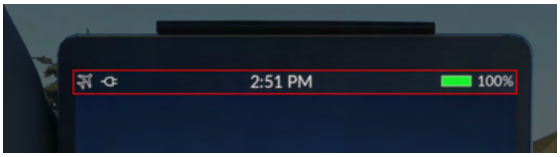


Wallpaper

The tablet wallpaper is located at `html_ui\HPGH145-User\Tablet\wallpaper.jpg`
The wallpaper may also be set based on the currently active livery. See the **Livery Author Info** section for more info.

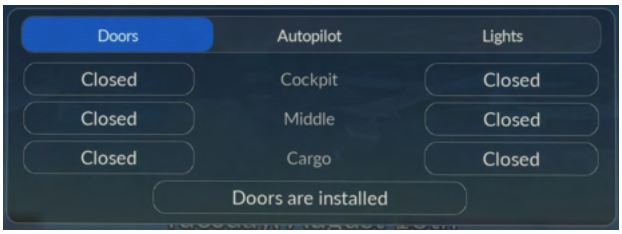
Action center

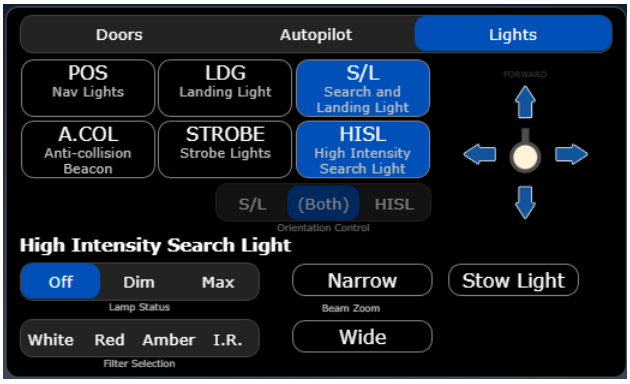
The Action Center is available from all apps and opens on top of any currently opened app. Click the clock to activate the Action Center.



Always-visible sections

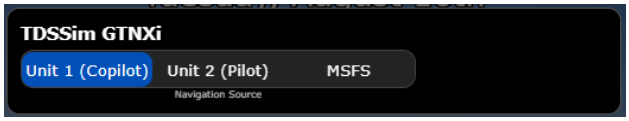
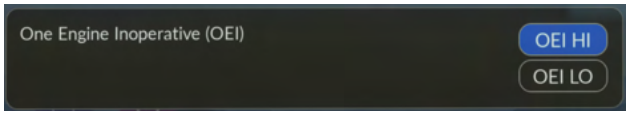
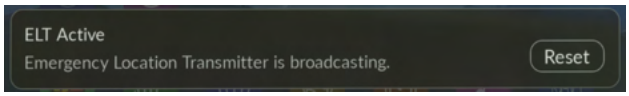
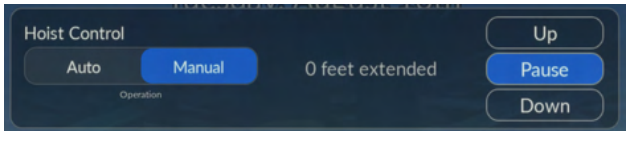
These sections are available at the top of the Action Center under all conditions.

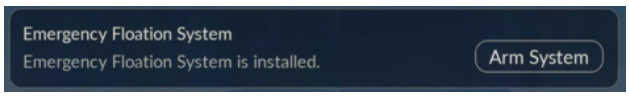
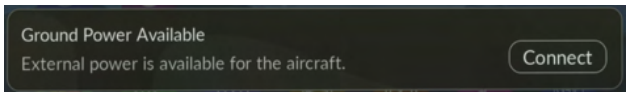
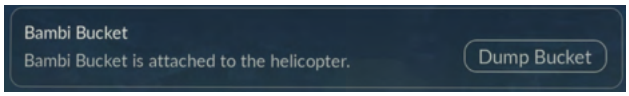
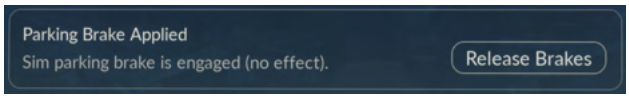
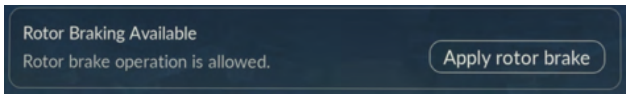
Tablet Brightness control	
Doors	
Autopilot	
Autopilot - extended controls	

Lights	
Lights - with extended HISL controls	

Contextual sections

These sections (or notifications) are available only when certain conditions are met

H145M Weapons	
TDSSim GTNXi Navigation Source	
One Engine Inoperative	
ELT Active	
Hoist Control	

Emergency Flotation System	
Ground Power Available	
Open Door	
Bambi Bucket	
Parking Brake Applied	
Rotor Braking Available	

Status bar

Icons in the status bar are always contextual based on equipment and conditions. Icons will appear and disappear based on events like the GPU being made available, and icons will use a background color to draw additional attention to specific statuses.

GPU status icons

	GPU is connected and on. You must disconnect prior to takeoff.
	GPU is available but not currently connected.

Cargo Hook (with Remote Hook) status icons

	Remote Hook is attached, no load, off the ground.

	Remote Hook is attached, no load, within range of attach/detach.
	Remote Hook is attached, with load, off the ground.
	Remote Hook is attached, with load, within range of attach/detach.

Bambi bucket status icons

	Bambi bucket is attached, empty, and off the ground.
	Bambi bucket is attached, and below the ground level.
	Bambi bucket is attached, has water, and above the ground level.
	Bambi bucket is attached and currently dumping.

Other status icons

	One or more doors are currently open.
	Rotor braking is available
	ELT is actively broadcasting.
	Parking brake is on and the setting is also on to show it (normally hidden).

Quick Reference Handbook

General Limitations

The H145 shall be operated in compliance with the limitations in this section. This helicopter is approved for flight under VFR and IFR flight rules in addition to overwater operation.

The following are prohibited:

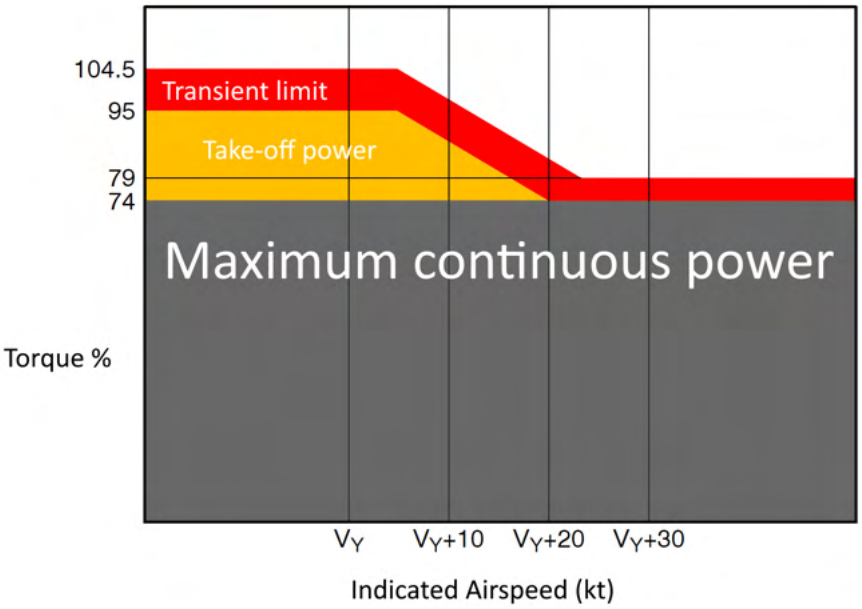
- Aerobatic maneuvers
- Flight into icing conditions. Should icing conditions be encountered unexpectedly, the conditions shall be left immediately

Limitation	
Maximum speed for starting and stopping the rotor	50kt
Maximum relative wind speed from any direction (except headwind)	30kt
Sloped landing limitation	Sloping nose down: 10° Sloping up to the right: 12° Sloping up to the left: 8° Sloping nose up: 8°
Maximum operating altitude	20,000FT PA
Maximum operating altitude for takeoff, hover and landing	20,000FT PA or DA (whichever is less)
Maximum air temperature Minimum air temperature **Or with cold weather kit:** Maximum air temperature Minimum air temperature	ISA +35C (max +50C) -30C +35C -45C
Ground operations duration when > 40C OAT	Ground operations limited to 20 minutes **NOTE:** When >35C OAT, lower cockpit temp by using max ventilation
Maximum gross mass for flight Minimum gross mass for flight	3700kg 2000kg
V[NE]	150kt or less (see Airspeed indicator)

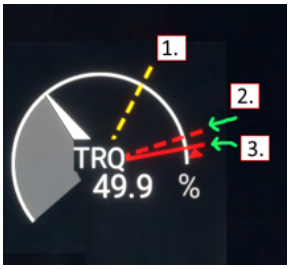
Torque limitations

	AEO Limitation	Torque
1	Max continuous power (no limit)	2x74%
2	Take-off power (30mins)	2x95% below Vy+5
3	Transient limit (unintended use)	2x104.5 below Vy+5

Above Vy+5kt, take-off power will gradually disappear. The limits on the engine indications and the FLI will move according to the chart:

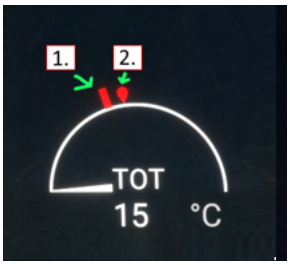


	OEI Limitation	Torque
1	Max continuous power (no limit)	1x100%
2	2-minute power	1x143%
3	30-second power	1x150%

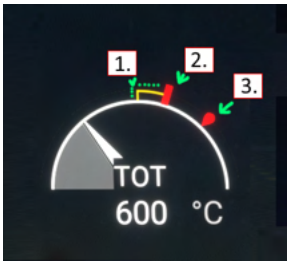


TOT limitations

	Starting Limitation	TOT
1	Continuous starting	840C
2	Transient starting (max 10 seconds)	960C



	AEO Limitation	TOT
1	Max continuous	901C
2	Take-off power (max 30 minutes)	918C
3	Transient limit (unintended use)	945C



	OEI Limitation	TOT
1	Max continuous	945C
2	2-minute power	987C
3	30-second power	1006C

N1 limitations

	AEO Limitation	N1
1	Max continuous	98.5%
2	Take-off power (max 30 minutes)	100.6%
3	Transient limit (unintended use)	101.7%

	OEI Limitation	N1
1	Max continuous	101.7%
2	2-minute power	104.3%
3	30-second power	105.7%

Aircraft Messages

Message	Explanation / Resolution Steps
ROTOR RPM	Raise or lower collective to maintain near 101% NR
FIRE ENG i	Engine is on fire. Execute the Engine Fire Procedure.
FAIL ENG i	Engine is not maintaining N1. Establish OEI flight condition, attempt engine restart.
AUTOPILOT	Complete loss of autopilot UPPER MODES and basic stabilization. Engage AP1+AP2+BKUP+A.TRIM on the APCP to re-engage autopilot systems and stabilization.
LOW FUEL i	Supply tank fuel is low. Engine will flame out in 10 minutes.
VORTEX RING STATE	You have entered vortex ring state, a dangerous flight condition which should be avoided. Avoid descending below 300fpm when in hover domain.
MBG LOW PRESS	MGB oil is slow. Check **Failures & Maintenance** app.
IDLE ENG i	Engine is in idle. Use the ENG MAIN switch to move the engine to OFF or FLIGHT.
LOW PRESS HYD i	System pressure low. Check HYD TEST switch is in OFF position. Check engine is running.
HYD TR SHUTOFF	TR actuation is disconnected. Check HYD TEST switch is in OFF position.
BAT DISCHARGING	Main battery is discharging. Connect EPU on the ground or engage generators in flight
BAT DISCONN	Main battery is disconnected/off. Set BAT MSTR to ON to connect the main battery.
STBY BAT OFF	Standby battery is disconnected. Set STBY BAT to ON on the overhead panel.
FUEL RESERVE	Center fuel tank is empty.
FIRE BOT 1+2 USED	Fire test is active or bottles used. Set FIRE TEST switches to OFF. Use the **Failures & Maintenance** app to set Bottle 1 & 2 to Ready.
EPU CONNECTED	EPU is Connected to the aircraft. Disconnect using the

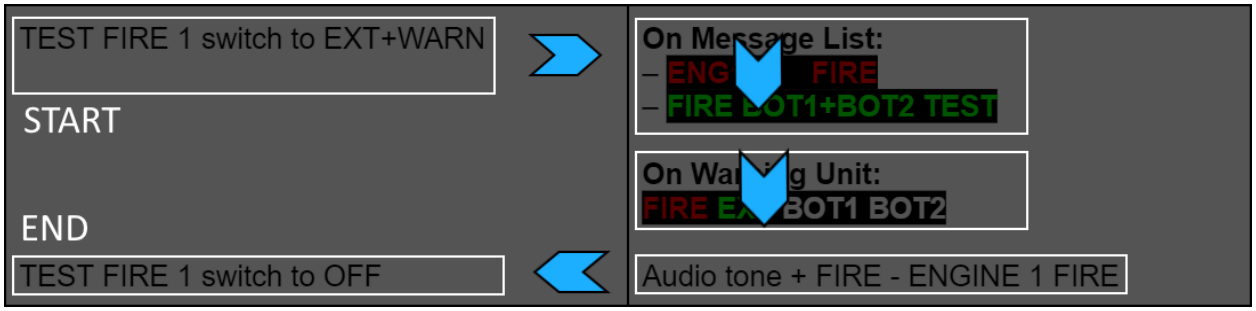
	tablet aircraft config page.
FWD FUEL PUMP	Forward fuel transfer pump (center to supply tanks) is not on. Set FUEL XFER PUMP F to ON on the overhead panel.
AFT FUEL PUMP	Aft fuel transfer pump (center to supply tanks) is not on. Set FUEL XFER PUMP A to ON on the overhead panel.
GEN i DISCONNECTED	Generator is disconnected from the system.
PRIME PUMP ON i	Fuel prime pump is on. After engine start fuel prime pumps should be set to OFF on the overhead panel.
AVIONICS OVHT **MFD OVHT**	Avionics overheating due to high temperature. Reduce outside air temperature.
PITOT HEAT OFF i	Pitot heater is off. During flight heaters should remain on. Use the overhead switch PT/STATIC HTG PILOT or COPILOT to ON
ALT STATIC SOURCE	Alternate Static Source is selected to ALT. Move the selector valve to the NORM position. (The valve is located under the pilot MFD, near the left knee of the pilot)
EMER SHED BUS ON	Emergency Shed Bus is activated. Close the guarded switch at the rear overhead to return to a normal electrical configuration.
BACKUP SAS	Backup SAS is off. On the APCP, press the BKUP button to engage the Backup SAS.
AP REDUNDANCY	Either AP1 or AP2 is off. On the APCP, press the AP1 or AP2 button to engage the respective AP system.
AP ACTUATOR	A SEMA has failed. Pitch, Roll and Yaw are redundant. Expect reduced stabilization especially in turbulence.
FLOATS	Emergency Floats have been activated and filled.
TRAINING ABORTED	OEI training mode has been aborted by the system. Training mode is no longer engaged.
WEIGHT EXCEEDED	Aircraft weight (load stations + fuel) exceeds max capability. Remove fuel or passengers/cargo to reduce weight. See the status on the VMS WEIGHT page.
IBF BYPASS CLOSED i	IBF bypass door is closed and will not open during emergency power demand
IBF CLOGGED i	IBF filter is clogged to 100% and bypass doors will open if in the NORM position

SYS i BUS TIE OPEN	Bus tie is not closed. 1. Ensure that BUS TIE switches at the rear overhead are closed and guarded 2. Select BAT MSTR from ON to ENGAGE (it will spring back)
FADEC EMER i	Engine FADEC has been configured to emergency mode. Engine N1 will be slow to respond. Do not place both engines into FADEC EMER mode.
MM EXCEEDED	Mast Moment exceeded 79%. Message will clear automatically after 2 minutes.
DOOR OPEN	Close pilot and copilot doors
FIRE BOT 1+2 TEST	Fire Test switch is active. Set both FIRE TEST switches to OFF on the overhead.
CARGO HOOK OFF	There is a load on the cargo hook but the electrical release is not active.
ENG i STARTER	Engine starter is engaged.
LDG LIGHT	Landing light is on. LANDING LIGHT switch is on the overhead panel.
S/L LIGHT	Search light is on. Use the tablet aircraft config page to toggle the S/L or use the Toggle Wing Lights binding
PWR-UP TEST **PWR-UP TEST OK**	System power-on test is in progress and then reports success or failure
START-UP TEST **START-UP TEST OK**	Engine Start-up test begins when the first engine starts and ends when the second engine successfully enters IDLE.
P-FLT TEST **P-FLT TEST OK**	Pre-Flight test sequence is engaged by the pilot using the LAMP/P-FLT switch on the overhead panel.
DOWNLOAD IN PROGRESS **DOWNLOAD COMPLETE**	After engine shutdown, the flight data will be downloaded and saved.
FLOATS ARMED	Floats are armed (overhead switch EMER FLOATS is set to ARMED or to TEST).
IBF BYPASS OPEN i	IBF bypass door is open. Switch on the overhead IBF i may be used to switch to NORM position.
LAVCS FAIL	LAVCS (aircraft anti-vibration system) is not engaged. Set the LAVCS switch on the overhead to PIL (pilot) or PAX (passenger cabin).

IBF CLOG TREND	IBF filters are clogging on the current flight. Performance is not negatively impacted until 100% clogging. Use **Failures & Maintenance** app to intervene.
DATA CARD	DTD Door is open (data card is not secure). DTD is between the two pilot seats, toward the passenger cabin, the rear of the center console. Close the door by clicking.
HOOK UNLOADED	The cargo hook release is electrically active but the hook itself has less than 5kg detected.

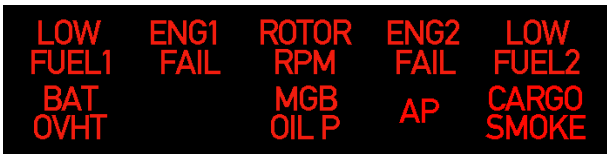
Normal Procedures (Checklists)

Procedures below are realistic, adapted from the BK-117 D2 (H145) flight manual and simplified where necessary. Execute each step starting at the top left, monitoring items on the right, and ending by doing cleanup tasks on the bottom right.



Procedure	Purpose	Notes
Cockpit safety inspection	Confirm cockpit switches are in a safe position before bringing power to the aircraft.	Not included, Cold & Dark startup at a gate has already completed these steps for you.
Power-Up Procedure	Bring electrical power to the aircraft and prepare to start engines.	
Engine Start Procedure	Start the first and then second engine.	
Hydraulic check procedure	Verify that both SYSTEM 1 and SYSTEM 2 are functional.	To be completed on the first flight of the day
After Engine Start Procedure	Prepare the aircraft for flight after engine start.	
Pre-Flight Procedure	Verify the AFCS before flight.	
After Takeoff Procedure	Verification of takeoff steps and preparation to conduct a safe flight.	
After Landing Procedure	Reduce engines to idle and prepare to stop the rotor and shutdown the aircraft.	
Engine Shutdown Procedure	Shutdown the engines and remove power from the aircraft.	

Power-Up Procedure

BAT MSTR switch to **ON**, then **ENGAGE**	Allow 20 seconds for system startup – **PWR-UP TST OK**
TEST FIRE 1 switch to EXT	– **FIRE BOT1+BOT2 USED** Audio tone
TEST FIRE 1 switch to EXT+WARN TEST FIRE 1 switch to OFF	**On Message List:** – **ENG1 FIRE** – **FIRE BOT1+BOT2 TEST** **On Warning Unit:** **FIRE EXT BOT1 BOT2** Audio tone + FIRE - ENGINE 1 FIRE
Repeat fire test for 2	
TEST switch to LAMP TEST switch to OFF	 Audio Test – **TRAIN** (Engine CP) – APCP: all lights on – EXIT lights illuminate
VMS page, press NUM	Check Battery Voltage > 23.5
VMS page, WEIGHT subformat	Adjust **Crew**, **Payload**, and **Fuel** as required. Use the PUSH knob to advance the line
VMS page, press PREV	
FND page	**On Message List:** – **ENG 1 FAIL ENG2** – **AFT+FWD FUEL PMP** – **PITOT1 HEATER OFF PITOT2** – **PWR-UP TST OK**
Flight instruments, IESI	Wait for alignment, set baro as required
EXT LIGHTS ACOL	Set as required

Engine Start Procedure

FUEL PRIME PUMP 1 switch to ON FUEL PRIME PUMP 2 switch to ON	– FUEL 1 PRIME PUMP ON FUEL 2
ENG 1 MAIN switch to IDLE	N1: Monitor, increasing TOT, N2, NR: Monitor, increasing MGB oil pressure: increasing Hydraulic pressure: increasing – START-UP TEST At 60% N1, STARTER extinguishes. At 78% N1, IDLE appears.
Repeat for second engine	– START-UP TEST OK

Hydraulic Check Procedure

TEST HYD switch to SYS1	– LOW PRESS HYD2 Check VMS page HYD2 pressure low caution Check cyclic/collective/pedals normal forces
TEST HYD switch to SYS2 TEST HYD switch to OFF	– HYD1 LOW PRESS – HYD1 TR SHUT OFF Check VMS page HYD1 pressure low caution Check cyclic/collective/pedals normal forces

After Engine Start Procedure

PT/STATIC HTG PILOT switch to ON PT/STATIC HTG COPILOT switch to ON AVIO MSTR 1 switch to ON AVIO MSTR 2 switch to ON STBY BAT switch to ON LAVCS switch to PIL	
FUEL PRIME PUMP 1 switch to OFF FUEL PRIME PUMP 2 switch to OFF FUEL XFER PUMP F switch to ON FUEL XFER PUMP A switch to ON	
EXT LIGHTS **POS** and **STROBE**	As required
INT LIGHTS EM/EX switch to ARM	
Cockpit/Pax Ventilation	As required

Pre-Flight Procedure

Collective lever to FULL DOWN TEST switch to LAMP	
TEST switch to PRE-FLIGHT TEST switch to OFF	– **P-FLT TEST** Wait for the test to complete – **P-FLT TEST OK**
AP/BKUP ON - UP button PRESS	FND AFCS Status Strip:  (boxes will disappear after a few seconds)
AP/BKUP CUT button PRESS	**SAS SAS AFCS DISENGAGED**
AP/BKUP CUT button PRESS AP/BKUP ON - UP button PRESS	**SAS SAS AFCS DISENGAGED**
BEEP TRIM	Check all 4 directions
FIXED LANDING and S/L LIGHTS	As required
EMER FLOATS	As required
ENG 1+2 MAIN switch to FLIGHT (and latch)	

After Takeoff Procedure

Perform Hover Flight	N2, NR > 101% FLI: AEO Indication No warnings on message list

Before Landing Procedure

Fixed LANDING and S/L Lights	As required
FND & VMS pages	No messages on master list ENG 1 & ENG 2 N2 > 101% NR > 101%
DH (Decision Height)	As required

Engine Shutdown Procedure

Cyclic to neutral position Collective to FULL DOWN ENG 1 MAIN switch to IDLE ENG 2 MAIN switch to IDLE	Wait 30 seconds for engine cool down
FUEL XFER PUMP F switch to OFF FUEL XFER PUMP A switch to OFF PT/STATIC HTG PILOT switch to OFF PT/STATIC HTG COPILOT switch to OFF AVIO MSTR 1 switch to OFF AVIO MSTR 2 switch to OFF STBY BAT switch to OFF LANDING LIGHT switch to OFF S/L LIGHT switch to OFF Other electrical consumers to OFF	Check electrical load on VMS page
ENG 1 MAIN switch to OFF ENG 2 MAIN switch to OFF	– **ENG 1 FAIL ENG2** TOT: Monitor decrease N1: Monitor decrease Wait for rotor to stop
EXT LIGHTS ACOL switch to OFF	
	Check VMS FLIGHT REPORT – **DOWNLOAD IN PROGRESS** Download takes approx. 1 minute – **DOWNLOAD COMPLETE**
BAT MSTR switch to OFF	

Abnormal Procedures (Checklists)

This Section Is Unfinished

Procedure	Condition	Notes
Warning Indications: FIRE	Engine fire or overtempture in the engine compartment	

Warning Indications: FIRE

Conditions: Overtemperature in engine compartment	**On Warning Unit:** FIRE and Audio tone or **On Message List:** – ENGi FIRE and voice message FIRE - ENGINE i FIRE
FIRE on Warning Unit PRESS	**On Warning Unit:** ACTIVE BOT1
BOT1 on Warning Unit PRESS	After 15 seconds bottle 2 will become active. **On Warning Unit:** BOT2 After 1 minute if the fire is not extinguished, proceed to discharge bottle 2.
BOT2 on Warning Unit PRESS	
	On Message List: FIRE BOT1+BOT2 USED

H145M Features

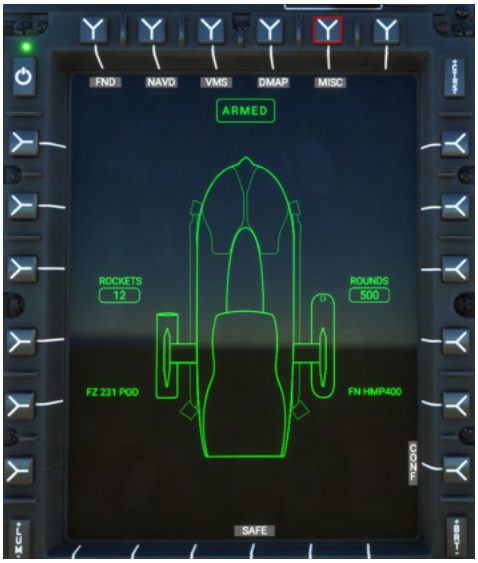
Weapon Systems

The H145 military variant is equipped with optional external weapon pods. The weapon pods may be configured for a cannon or a set of 2.75” 70mm **FZ275 LGR** rockets. (currently operating as unguided missiles).

Livery authors can choose to set the weapon pods to be on or off by default. You can use the tablet aircraft app, on the Equipment page to turn the weapon pods on or off at any time during your flight.

The default key binding to fire rockets is covered in the key bindings section of this user guide, and is configurable via ConfigTool. You may also add a custom key binding for **Reload** if you wish.

You may also reload ammunition by clicking on the box behind you in the cockpit. The tablet has an indication of rockets remaining and a button to fire if you haven’t set the key binding (click the top clock).



Weapons status is available on the MISC page on the center and copilot MFDs, as well as on the tablet Action Center.

The **Cleanup** function will immediately remove all rocket holes in the earth and rocket particles. This can be useful after firing many rockets to recover lost fps.

Sensor Pod & Monitor

The H145 military variant is equipped with a sensor pod which provides imagery to the internal monitor display. The pod rotates horizontally 180 degrees and vertically 90 degrees (full forward to straight down).

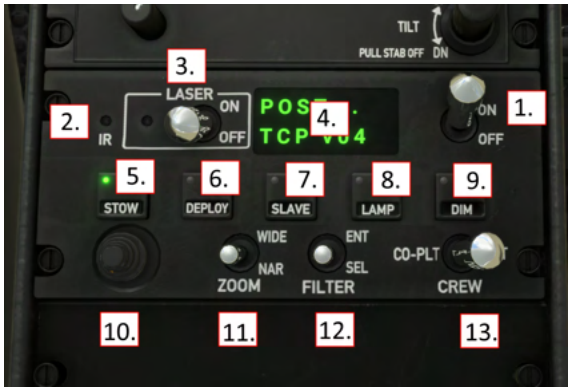
1. Power on/off
2. Pod heading
3. Move Right
4. Move Left
5. Move Forward
6. Move Aft

Key bindings may be configured in ConfigTool for the sensor pod functions.

Action Pack Features

High Intensity Search Light (TRAKKA A800 HISL)

The HISL is mounted to the front left skid and controlled with the control panel on the center console as well as a switch on the overhead for the lamp itself. There are also controls on the collective head.



1. System power on/off
2. IR status light (**inoperative**)
3. Laser control (**inoperative**)
4. System status display
5. STOW push button with status LED
6. DEPLOY push button with status LED
7. SLAVE push button with status LED
8. LAMP push button with status LED
9. DIM status button with status LED
10. Steering hat (**inoperative**)
11. Zoom control
12. Filter control
13. Crew select control (**inoperative**)

Overhead Panel:

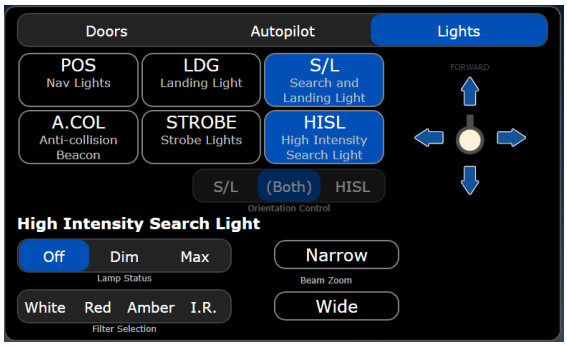
HISL Switch: Lamp power

Collective Head:

S/L STEERING: 4-way steering

ORIENT CTRL: Orientation Control, between either S/L or HISL. **Currently inoperative.**

Controls are also available on the tablet.

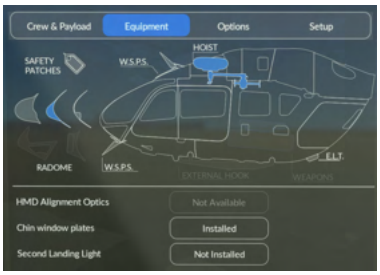


HISL Steering in 4 directions can be accomplished also with the S/L steering events (see the controls setup section of this document

Key features

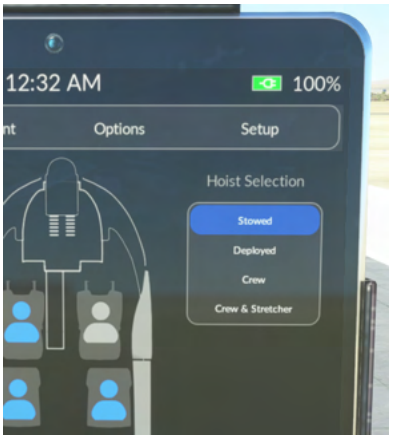
- Filters
- Zoom
- Lens colors + IR
- 4-way steering

Hoist / Winch



The Hoist is available on the EMS, Firefighter and Offshore variants. It can be used within the context of a mission or it can be managed manually by the user. The Hoist is installed exclusively on the right side of the aircraft.

Manual Hoisting



To manage the hoist manually.

1. Ensure the hoist is installed. **Tablet -> Aircraft -> Equipment**
2. Deploy the hoist, open the door and select an object. **Tablet -> Aircraft -> Cabin & Payload**. On the top left of the page you may select all of the possible states for the hoist. Don't forget to open the door and select the operator to be positioned.
3. Control the hoist using the key bindings (available in ConfigTool) or by using the tablet without any new bindings. Click the top clock on the tablet, then select **Manual** under **Hoist Control**. You may now move the hoist up, down or pause it in place.

Note: The hoist will still automatically reel up when approaching the ground to avoid the object clipping through the terrain.

Automatic hoisting

1. Start the **Rescue + Hospital Transfer (Use Anywhere)** mission, or select other hoisting missions such as **Road accident rescue**.
2. Fly to a hoisting location of your choosing or fly to the target destination of the mission.
3. Select **Begin Hoisting.**
4. The crew will automatically operate the hoist as you pilot the aircraft.

Cargo Hook

Use the `H145M Weapons - Fire (Primary)` key binding to toggle the attachment of the cargo hook to an object, and to detach from the object. To release an object you must be low enough for the hook to be unloaded (the object on the ground and no longer held by the cable). There is an icon at the top of the tablet to assist in the current status.

Enable the cargo hook option in the tablet, Aircraft app, Equipment page. You can set the object on the hook manually on the Crew & Payload page, however the object will not detach when set onto the ground.

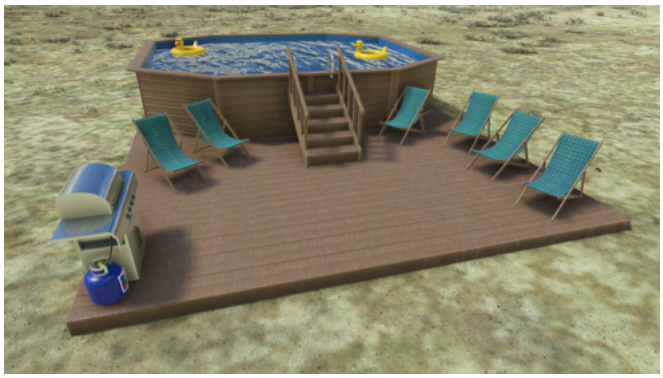
Bambi Bucket

Attach the Bambi bucket to the firefighter variant by using the tablet Equipment page and selecting the Bambi and the Cargo Hook.

You may dump the bucket by using the `H145M Weapons - Fire (Primary)` key binding for activation. There is also a soft button in the tablet action center when applicable.

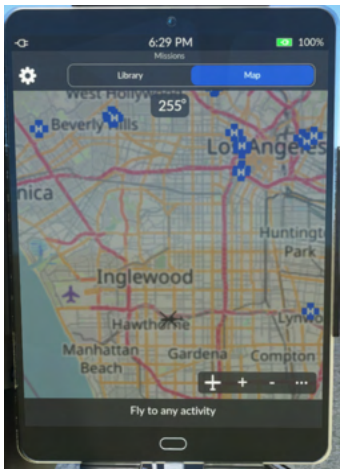
The DATA soft key on the VMS page will display the cargo hook status. The box will be empty when there is no weight on the hook and otherwise display the detected weight.

The bucket may be filled from any MSFS water source, or from dynamic objects designated as water sources. Two alternative water source objects are provided and may be placed with the Scenario Editor.



The bambi bucket can be controlled on the equipment page in the tablet aircraft app.

Missions



The H145 comes with a built-in mission system.
Access the Missions app from the tablet home screen.

To begin a mission, fly to the icon on the mission map, or select a mission directly from the **Library**. When you complete a mission, you will return to the default mission which simply shows all start locations on the map. When you complete a mission, you will automatically be returned to the default mission.

You can install third party mission packs, and some missions can delegate their logic to a cloud service or an app running on your PC.

Missions can currently have two types of start locations:

1. Map missions. You will see an icon on the map and you may fly to this location. Press the **Enter Mission** button (on the Map page of the Missions app) to begin.
2. Library missions. You will see a list entry in the Library page of the mission app, and you may tap the entry to immediately begin the mission, regardless of where you are right now.

Map missions

These missions you must find on the mission map and land to begin.

Mission	
Transport **Luxury and Civil variants only.**	Fly to an identified helipad Ⓗ and proceed to transport passengers to a nearby helipad. You may also choose the specific location from nearby helipads which have names.
Hospital transfer **HEMS variant only.**	Fly to any identified local hospital on the map, land and place engines to idle and click **Enter Mission**. You will be dispatched to deliver the patient to a nearby hospital.
CALFIRE Golden State Highway fire **Firefighter variant only.**	Begin at Whiteman airport (KWHP) ⚑. Follow I-5 North and find a wildfire near the highway. Crew has established several tankers and a portable fire fighting pool nearby for a quick attack. Extinguish the fire and return to base at KWHP.
CALFIRE Hollywood Hills / Beverly Hills fire **Firefighter variant only.**	Begin at Van Nuys airport (KVNY) ⚑. You will be dispatched south to attack a fire in the Hollywood hills or Beverly hills area. Nearby lakes will provide ample water supply. Extinguish the fire and return to base at KVNY.

Real world fires **Firefighter variant only.**	Data sources: https://inciweb.nwcg.gov/ https://feuxdeforet.fr/cartes/feux/ Fly to the fire icons 🔥 and within 20NM you will be able to **Enter Mission** to begin. The scenario is the same as the landfill fire but from real world data.
Turbine Service (to fixture) LFMP - Windfloat Turbine **Offshore variant only.**	Start or land at LFMP Ramp position 4. A van will arrive and the crew will board. You are to take them and their cargo to the Windfloat turbine. They will descend by hoist, you must maintain a position very close to the platform to allow them to descend. Scenery: https://flightsim.to/file/18453/windfloat-france
Turbine service (from fixture) Windfloat Turbine - LFMP **Offshore variant only.**	This is the return leg from the Windfloat turbine back to LFMP. Pick up the workers and their cargo and deliver them to ramp 4 at LFMP, a van will arrive to take the crew after you land. Scenery: https://flightsim.to/file/18453/windfloat-france

Library missions

Missions you can find in the library and begin anywhere.

Mission	
Rescue - Nearby Road accident **HEMS variant only.**	You will be dispatched to a road accident and subsequently deliver the patient to a nearby hospital (which may or may not be the hospital that you depart from).
Rescue - Nearby Mountain accident **HEMS variant only.**	Same as **Road accident rescue** above, but a mountain peak or saddle accident. You may also select the accident range.
Rescue - Nearby Farmyard accident **HEMS variant only.**	Same as **Road accident rescue** above, but a farm accident. You may also select the accident range.
Hospital-to-Hospital Patient transport **HEMS variant only.**	Same as **Hospital Transfer** above, but you do not need to begin at a hospital.
Rescue - Anywhere (You Pick Locations)	This mission assumes you will take off and then fly to an accident site of your choosing. At that time you may land or select **Switch to Hoisting**. The crew will load a patient and you are expected to fly to

HEMS variant only.	a nearby hospital or otherwise suitable location to disembark the patient. This mission is intended for use where no other missions are available, and also allows arbitrary use of the hoist.
Landfill fire **Firefighter variant only.**	This mission will search for a landfill within 40km and create a fire at this location. While this scenario lacks a little realism, you will often find a pond very close by to the landfill fire and you may find this a fun training exercise.
Rescue - Windfloat Medical Evacuation **HEMS variant only.**	Fly to the Windfloat turbine and conduct a hoisting operation to pick up an injured worker. Deliver the worker to a nearby hospital. Scenery: https://flightsim.to/file/18453/windfloat-france
Oil Rig Medical Evacuation **HEMS variant only.**	Fly to the marked oil rigs  in either CA or AK. The injured worker will be loaded and you will deliver them to a nearby hospital. Scenery: https://flightsim.to/file/5627/santa-barbara-oil-rig-placements https://flightsim.to/file/5697/alaska-cook-inlet-oil-rig-placements
Offshore - Nearby water rescue **Offshore variant only.**	One of two types of rescues will be created in open water in front of you. Either a life raft from a ditched plane or one of two sinking boat styles will be created. Rescue either one or both people and then deliver them to a nearby IATA airport. **Take care to position yourself into water before starting the mission**.
Cargo Anywhere Test **Cargo and Offshore variants only.**	This is a simple mission that spawns an object in front of you. You may attach to it with your hook and then drop it where you please.
Quick Crew Walkaround	This mission has the crew in the back exit the helicopter and do a walk around the perimeter. This is a demo as these procedures are not very accurate (sort of a hybrid between a departure check and a fire guard posted during engine start).
Connect to Scenario Editor	Scenario Editor app must be installed and running, and you must choose a scenario. Then, the aircraft will always display the loaded scenario regardless of its start location. This tool is intended for two purposes 1. Planning and verifying missions are working as expected with objects placed properly and not inside of a tree. 2. Multiplayer firefighting is accomplished by connecting more

	than one player to a single Scenario Editor instance.

Mission Settings

These settings are available under the gear icon and persist with each H145 variant.

Mission map update rate	Low (Performance), High This will control how often the map updates and may or may not help performance generally
Mission map resolution	Low (Performance, High The map will have larger but more blurry text and better fps on the Low setting, but will have crisper text and a higher resolution on the High setting.
Mission Flares	Higher Visibility, Realistic (No Smoke) Realistic version will only show smoke for actual marine or mountain rescue. This is configurable from the object by the mission author.
Mission Entry Markers	High Visibility, Map Icon Only Show blue mission entry markers at the site of the location marked on the mission map.
Mission Fire Quality	Low (Performance), High High quality fire has substantially more smoke. May impact fps especially for very large fires. **High quality fire requires Top Gun Maverick DLC to be installed in MSFS.**
Data Query Service	Overpass DE Mail.RU Kumi OSM RU Overpass API choices are driven by `MissionSystem.json`. Previously Mail.RU was very very fast but now we have changed the default to Overpass DE which is reliable but slower.

Mission Library

The mission library will show all available missions which do not have a natural start point on the map. Once selected they will show as highlighted to indicate they are active.

REFRESH: Reloads the mission index from disk and then the default mission visualizes all start locations on the map and allows entry into the missions. This will also clear any in progress mission.

Adding mission packs

1. Install one or more mission packs to your Community folder, like any other livery or scenery addon. You install mission packs in their own folder, not into the H145 folders.
2. Run `Community\hpg-airbus-h145\Tools\Update Mission Index.cmd`. This will scan for all missions within your Community folder, and save them to a file that H145 can read. You can run this script at any time. Alternatively Scenario Editor has a button **Update Mission Index** which is the same function.
3. If the sim is already running, open the mission catalog and press REFRESH to reload missions from disk.

Updating the mission index

The mission index is stored in the H145 aircraft folders, so it needs to be updated with the content of all the missions that you have installed into your Community folder.

To update the mission index, run `Community\hpg-airbus-h145\Tools\Update Mission Index.cmd`. This will scan for all missions within your Community folder, and save them to a file that H145 can read. Alternatively Scenario Editor has a button **Update Mission Index** which is the same function.

You can run this script at any time, whether the simulator is open or not. If the simulator is open, you'll need to press **Refresh** in the Missions app under the Library tab.

Note: You will also need to update the mission index after each new H145 build is installed.

Developing custom missions

Use the Scenario Editor to begin with mission development. Check the **H145 Mission System Documentation** included with the Action Pack download. There is a sample object as well as the complete API reference for the mission system commands. Scenario Editor is suitable for all users, editing the exported code is something more advanced that only some will do.

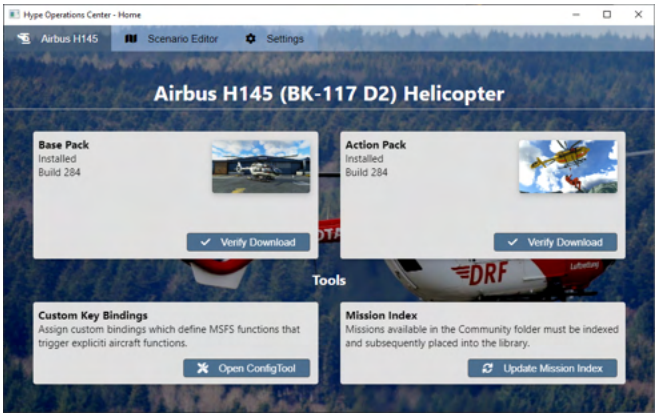
Scenario Editor App

Download the Scenario Editor installer from the H145 download center. Install the program and it will create a shortcut on your Windows Start menu. You may discard the installer after it opens the program.

Settings page

You must set your Community location. MS Store and Steam installations will be automatically detected, but you may need to select a folder manually or pick for a dual installation.

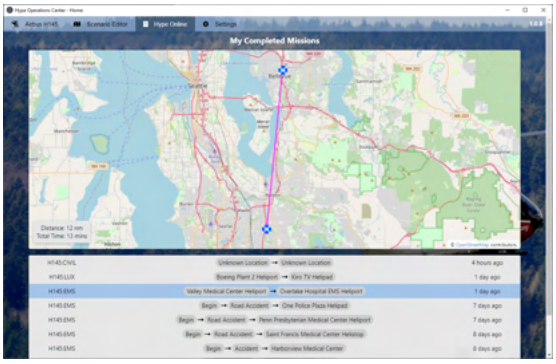
H145 aircraft page



H145 base pack and action pack are detected from your Community folder. If you have an `hpg-airbus-h145` and `hpg-airbus-h145-ap` folder within your selected Community folder they will be shown here with the related tools. Note that you **must not rename the folders** right now or they won't be detected.

Verify Download will check the integrity of the files within your H145 installation.
Open ConfigTool will launch ConfigTool.
Update Mission Index will update your mission index within H145, enabling mission packs to be read by H145 directly. You should do this each time you add or remove a mission pack from your Community folder, or when you export one of your own missions. The sim may be running but you must select **Refresh** within the Library in the Mission app on the H145 tablet to actually reload the updated index.

Hype Online page



Hype Online displays your past mission results. Click an item to see that specific mission, or all previously recorded missions will be displayed.

You will be asked at the end of compatible missions if you would like to log the results.

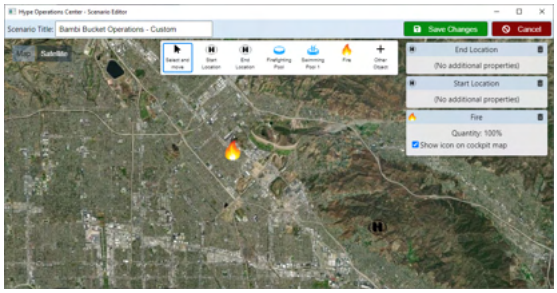
Scenario Editor Dashboard page

My Scenarios
All the scenarios which you have worked on are presented here for you to open them and begin work again.

Create new Scenarios
All the installed scenario templates are presented here, enabling you to create a new scenario from an existing template. Scenario templates (.scenariometa files) are loaded from the Community folder.
Your scenarios are stored at `%appdata%\Hype Aircraft\User Scenarios`

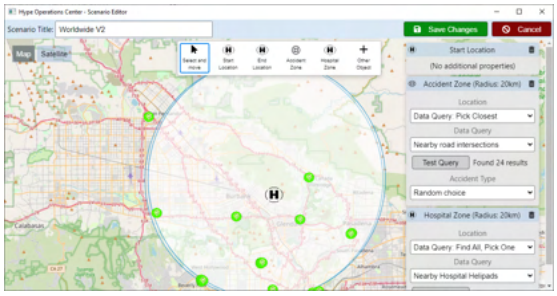
Scenario Developer
At the bottom of the list is the advanced Scenario Developer tool which lets you quickly send mission code to the sim. This is the most complicated way to build scenarios and scenario templates but also the most powerful.

Scenario Editor

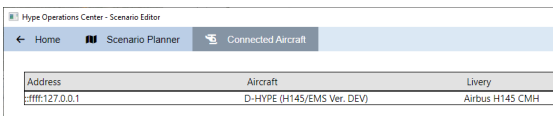


The Scenario Editor is a graphical tool that enables configuring your scenario. The key idea is to use tools from the toolbar to configure objects and zones for the mission.

Mission objects and zones are displayed on the right side when in edit mode. Click the header to center the map on that object or zone. Select the relevant options to configure the objects' appearance, behavior or the behavior of the zone that will be used for the mission.



Once you can see the Scenario Editor map **and have selected Save Changes at least once**, you are ready to connect from the H145. Using the H145 tablet mission app, visit the Library and select **Connect to Scenario Editor on my PC**. Your aircraft will be listed under Connected Aircraft and you will see a helicopter icon somewhere in the world.



Export your missions

When you are finished with a mission and want to test it without needing Scenario Editor or to share with others, select **Export for MSFS**. Choose a location like `Community\my-cool-missions\hpgmission`. (That is to say, make a new folder under Community, then an hpgmission folder within that, and place your mission json within that hpgmission folder). Then, run **Update Mission Index** either by the script in the tools folder or by using the H145 page of Scenario Editor. Once you export a mission, you can use it without using the Scenario Editor app.

Scenario Editor Workflows

Note that Scenario Editor has two modes of operation. The first mode is where you Connect from H145, and are forced into the mission you are developing. The second mode is where you export, Update Mission Index and then are able to load missions without using Scenario Editor. This is what enables end users to avoid installing Scenario Editor at all if they do not prefer it. Scenario Editor is also required for Multiplayer firefighting.

Multiplayer Missions

Only the static fire fighting scenario may be conducted with multiple players.

NOTE: OPENING PORTS TO THE INTERNET POSES A SECURITY RISK. CHANGES TO YOUR FIREWALL SHOULD BE CONDUCTED WITH KNOWLEDGE OF NETWORK SECURITY.

To begin a multiplayer firefighting session:

1. Identify your public IP address. Make a copy of the file in `hpg-airbus-h145\hpgmission\Scenario Editor Server.json`. Edit the file and replace localhost with your public IP address, and to change the title to `My Server`. Name the file `My Server.json`.
2. Share My Server.json to your friends and instruct them to place it into the `hpg-airbus-h145\hpgmission\` folder and then run **Update Mission Index**.
3. Configure your firewall to allow port 40510 to be routed to your PC. This may require both editing the firewall on your router and also the Windows firewall.
4. Start Scenario Editor and load a firefighting mission.
5. Invite other players to load their H145s at the desired location, and to select **My Server** from the mission app on the Library page.
6. Players should be visible on the map and in the aircraft list in Scenario Editor.

Scenario Templates

Using Scenario Editor you may build custom scenarios with your own object placements and location choices.

Templates that use “zones” are randomly picking between like zones and data query results in those zones. The point is that you can define an area of POIs or an area that should get random locations, and this way you can create missions for a region which are randomized but still keep you within the defined area and using only the defined locations.

Templates that are “custom” are usually a single mission but everything can be defined, including placing objects at the (e.g.) accident site.

Troubleshooting

Symptom	Resolution
LOADING H145 SOFTWARE message does not disappear, even after 5 minutes **or** The MFDs and tablet have black screens only.	This could be a conflict with other mods. Remove **every** folder other than `hpg-airbus-h145` from your Community folder and try again with a fresh download. Remember to reboot your PC, as various things like Xbox Gaming Services may be in a torn state after an update.
Cannot read throttle axis even though correctly mapped	First follow the guidance in the installation section about binding specifically to **THROTTLE AXIS.** Check for a file called SimConnect.cfg in your **PC's main Documents folder.** If found, rename to SimConnect.off.cfg and restart your simulator.
I have no rudder authority **OR** The aircraft noses down unexpectedly **OR** The aircraft is out of control sometimes	Check that you have ASSISTANCE settings in MSFS set to HARD. Features like auto-rudder on takeoff or AI trim assistance will conflict with H145. Make sure these are all **OFF**. TAKE-OFF AUTO RUDDER ASSISTED YOKE ASSISTED LANDING ASSISTED TAKEOFF AI ANTI-STALL PROTECTION AI AUTO-TRIM ASSISTED CONTROLLER SENSITIVITY
I installed the aircraft but don't see it in the aircraft list.	1. Check the installation section screenshots for how the folders should look. **It is very common to have a second HPG-Airbus-H145 folder from your unzip program.** 2. Check that you don't have any old versions of H145 concurrently installed. 3. Check that you have correctly located your Community folder. You may open the UserCfg.opt file on your PC and observe the path at the bottom is the Community folder path. **Windows Store:** LocalAppData\Packages\Microsoft.FlightSimulator_8wekyb3d8bbwe\LocalCache\UserCfg.opt **Steam:** RoamingAppData\Microsoft Flight Simulator\UserCfg.opt

I'm having CTDs (crash to desktop) with H145.	So far we don't observe any issues directly related to H145. You may use the generic advice on clearing caches which has often fixed many issues: - Check that MSFS is not in "Developer Mode" as some aircraft inexplicably trigger a CTD when being loaded through dev mode - Check for CTDs related to graphics drivers - Reboot your PC - Remove **ALL** items from your Community folder - Clear your MANUAL CACHE in the game settings - Clear your ROLLING CACHE in the game settings - Clear your package cache: **Windows Store:** LocalAppData\Packages\Microsoft.FlightSimulator_8wekyb3d8bbwe\LocalState\packages **Steam:** RoamingAppData\Microsoft Flight Simulator\Packages
When I take off I fall to the ground shortly after. Why?	Don't use 100% throttle. See the section on Rotor Rpm Management. Check the **Activity Log** app to see why you fell out of the air (VRS, rotor over or under speed). Use the **Gameplay Mode** option in the tablet and set it to **Arcade** if you find these effects to be too cumbersome.

When I load a civilian livery, the rotor is pink/purple and so are many other parts. What is wrong?	With beta 9 we have reduced duplicate files on disk, and livery authors OR end users need only
	1. Locate the existing file **texture.cfg** within their livery
	2. Change the contents of this file to:
	`[fltsim]`
	`fallback.1=..\..\hpg-airbus-h145-civ\texture`
	`fallback.2=..\..\hpg-airbus-h145\texture`

I cannot takeoff. The helicopter is stuck to the ground.	- Check that ACTIVE PAUSE is not engaged in MSFS - If AirlandFS is running, make sure to select the `airlandfs_H145.cfg` profile.
Click-spots for virtual cockpit controls are off by a little bit, making some very hard to click	Disable the MSFS **Lens Correction** setting, as it causes this issue with controls not being in the expected click location.

Advanced topics

User Setup

ConfigTool.exe will create the `hpg-airbus-h145-usersetup` folder within your Community folder, next to your `hpg-airbus-h145` folder. ConfigTool will read and write key bindings to this location. ConfigTool will automatically edit the JSON for you, so you need not continue below if you wish to set up only hotkeys.

Advanced Functions

The additional functions of UserSetup are:

- Commands executed after loading H145 cold & dark
- Commands executed after loading H145 with power

Example UserConfig:

```
{
    "ColdAndDarkAutoExecCommands":  [
          {"Name":"L:DAVUX_RW_DEBUG", "Value": 0},
          {"Name":"L:DAVUX_CD_DEBUG", "Value": 1}
     ],
    "PoweredOnAutoExecCommands":  [
          {"Name":"L:DAVUX_RW_DEBUG", "Value": 1},
          {"Name":"L:DAVUX_CD_DEBUG", "Value": 0}
     ],
     "KeyBindings": [
          {"EventId":"TOGGLE_MASTER_ALTERNATOR", "Action":
"H:H145_SDK_OH_EMER_SHED_BUS_ON" },
          {"EventId":"TOGGLE_MASTER_ALTERNATOR", "Action":
"H:H145_SDK_ECP_MAIN_2_UP" }
     ]
}
```

NOTE: You must ensure your JSON format is valid. You can paste your file into any online **JSON Validator** to confirm its validity. Invalid files will be silently ignored, this will save you frustration.

AutoExecCommands are run 4 seconds after loading a flight. The two sections correspond to cold & dark (starting on the ramp or at a gate) vs starting on the runway or in the air. Commands are sent to the game directly and all prefix types of L:, K:, A:, H: are supported.

TIP: Enable dev mode and use the **Behaviors** dialog, the **Local Variables** tab, and you can see whether or not your commands have been run. The purpose of `DAVUX_RW_DEBUG` and `DAVUX_CD_DEBUG` above is to be able to confirm which set of command had been run.

KeyBindings are registered with the simulator. **EventId** can be found in the `Official\OneStore\fs-base\en-us.locPak` file included with your simulator. Remove KEY_ from the event for use. **Action** is similar to the AutoExecCommand and again goes directly to the simulator enabling all types of prefixes. **ActionValue** may be used for an L:Var set or other operation that requires a value. Multiple actions may be bound to the same EventId and all will be called when the key binding is triggered. **IsPassThrough** is an advanced option that can be used to piggyback an action on a key binding without suppressing the default action from occurring.

Home Cockpit / SDK

L:Vars and H:Events below may be used with tools like FSUIPC and SPAD.NEXT..

PLEASE NOTE: There are many additional variables and events in the form of **H145_00000000000000000000** used throughout the product. These variables and events will change from build to build and time to time. Ask us for additional features instead of reverse engineering the implementation variables, as otherwise your scripts and tools will stop working. We will try to accommodate all requests.

Listing of L:Vars (Local Variables)

Note: This list is not complete. Use the Behaviors dialog in MSFS, select the Local Variables tab and search for H145_SDK_ to find all L:Vars.

H145_SDK_ECP_FADEC_EMER_1
H145_SDK_ECP_FADEC_EMER_2
H145_SDK_ECP_MAIN_1
H145_SDK_ECP_MAIN_2
H145_SDK_ECP_MAIN_LATCH_1
H145_SDK_ECP_MAIN_LATCH_2
H145_SDK_ENG_1_STATUS
H145_SDK_ENG_2_STATUS
H145_SDK_ENG_1_N2
H145_SDK_ENG_1_TRQ
H145_SDK_ENG_2_N2
H145_SDK_ENG_2_TRQ
H145_SDK_EQUIP_EMERGENCY_EXITS
H145_SDK_EQUIP_EMERGENCY_FLOATS
H145_SDK_EQUIP_SEARCHLIGHT_ON
H145_SDK_EQUIP_SEARCHLIGHT_X_POS
H145_SDK_EQUIP_SEARCHLIGHT_Y_POS
H145_SDK_HYD_PRESSURE_1
H145_SDK_HYD_PRESSURE_2
H145_SDK_IBF_1_CLOGGED
H145_SDK_IBF_2_CLOGGED
H145_SDK_MGB_PRESSURE_1
H145_SDK_MGB_PRESSURE_2
H145_SDK_MGB_TEMPERATURE
H145_SDK_AFCS_CRHT_BUG
H145_SDK_AFCS_GTCH_ALT
H145_SDK_AFCS_GTCH_LAT
H145_SDK_AFCS_GTCH_LON
H145_SDK_AFCS_MASTER
H145_SDK_AFCS_MODE_COLLECTIVE
H145_SDK_AFCS_MODE_COLLECTIVE_ARMED
H145_SDK_AFCS_MODE_PITCH
H145_SDK_AFCS_MODE_ROLL
H145_SDK_AFCS_MODE_ROLL_ARMED
H145_SDK_AFCS_CYCLIC_TRIM_IS_RELEASED
H145_SDK_AFCS_COLLECTIVE_TRIM_IS_RELEASED
H145_SDK_AFCS_CYCLIC_USER_PUSHING_ON_SPRINGS
H145_SDK_APCP_ALT
H145_SDK_APCP_AP1
H145_SDK_APCP_AP2
H145_SDK_APCP_ATRIM
H145_SDK_APCP_BKUP
H145_SDK_APCP_CRHT
H145_SDK_OH_GEN_1
H145_SDK_OH_GEN_2
H145_SDK_OH_BUSTIE_1
H145_SDK_OH_BUSTIE_2
H145_SDK_OH_EMER_SHED_BUS
H145_SDK_OH_AIR_CONDITIONING
H145_SDK_OH_AUDIO_ACAS
H145_SDK_OH_AUDIO_HTAWS
H145_SDK_OH_BATTERY_MASTER
H145_SDK_OH_BLEED_HEATING_POT
H145_SDK_OH_COCKPIT_VENT

H145_SDK_OH_COCKPIT_VENT_POT
H145_SDK_OH_DC_POWER_RECEPTACLES
H145_SDK_OH_EMERGENCY_FLOATS
H145_SDK_OH_ENG1_FIRE_TEST
H145_SDK_OH_ENG2_FIRE_TEST
H145_SDK_OH_FUEL_ENG1_PRIME
H145_SDK_OH_FUEL_ENG2_PRIME
H145_SDK_OH_FUEL_TRANSFER_AFT
H145_SDK_OH_FUEL_TRANSFER_FWD
H145_SDK_OH_FUZZ_CHIP_BURNER
H145_SDK_OH_HYD_TEST
H145_SDK_OH_IBF_1
H145_SDK_OH_IBF_2
H145_SDK_OH_IBF_RECAL
H145_SDK_OH_INT_LIGHT_CARGO_PAX
H145_SDK_OH_INT_LIGHT_EMERGENCY_EXITS
H145_SDK_OH_INT_LIGHT_INSTRUMENT_PANE
H145_SDK_OH_INT_LIGHT_INSTRUMENT_PANEL_POT
H145_SDK_OH_LAMP_AND_PREFLIGHT_TEST
H145_SDK_OH_LAVCS_SYSTEM
H145_SDK_OH_WINDSHIELD_WIPER
H145_SDK_ROTOR_RPM
H145_SDK_SYSTEM_COLLECTIVE
H145_SDK_SYSTEM_COLLECTIVE_USER
H145_SDK_SYSTEM_ISACTIVATED
H145_SDK_SYSTEM_LOADED
H145_SDK_TEST_POWERUP
H145_SDK_TEST_PREFLIGHT
H145_SDK_TEST_STARTUP
H145_SDK_MISC_DOWNLOAD
H145_SDK_MISC_RADIOHEIGHT
H145_SDK_MISC_FMS1_ENABLED
H145_SDK_MISC_FMS2_ENABLED
H145_SDK_DOOR_COCKPIT_L
H145_SDK_DOOR_COCKPIT_R
H145_SDK_DOOR_PAX_L
H145_SDK_DOOR_PAX_R
H145_SDK_DOOR_CARGO_L
H145_SDK_DOOR_CARGO_R
H145_SDK_DOORS_INSTALLED
H145_SDK_AIRCP_DEFOG
H145_SDK_AIRCP_AIRMIX
H145_SDK_PILOT_CAPT
H145_SDK_PILOT_FO
H145_SDK_ROTOR_BRAKE
H145_SDK_LUX_DIVIDER
H145_SDK_MFD1_STOPWATCH_SECONDS
H145_SDK_MFD2_STOPWATCH_SECONDS
H145_SDK_MFD4_STOPWATCH_SECONDS
H145_SDK_ELT_SWITCH
H145_SDK_GPCP_PWR_SWITCH
H145_SDK_GPCP_STATUS
H145_SDK_WXR_STATUS
H145_SDK_MFD1_POWER
H145_SDK_MFD4_POWER
H145_SDK_MFD2_POWER
H145_SDK_LIMITS_VY
H145_SDK_LIMITS_VNE
H145_SDK_LIMITS_VNE_POWEROFF
H145_SDK_LIMITS_Condition
H145_SDK_MISC_TABLET_HINGE
H145_SDK_LAST_LANDING_RATE
H145_SDK_DF_LAT
H145_SDK_DF_LON
H145_SDK_DF_ALT
H145_SDK_DF_FREQ
H145_SDK_COLLECTIVE_OEI_HILO
H145_SDK_OH_PITOT_1
H145_SDK_OH_PITOT_2
H145_SDK_OH_STANDBY_BATTERY
H145_SDK_OH_AVIONICS_1
H145_SDK_OH_AVIONICS_2
H145_SDK_APCP_GPSMODE
H145_SDK_WXR_TILT
H145_SDK_EQUIP_WSPS_TOP
H145_SDK_EQUIP_WSPS_BOTTOM
H145_SDK_EQUIP_WSPS_SKID
H145_SDK_EQUIP_RADOME
H145_SDK_EQUIP_SKID_SETTLING_PREVENTERS
H145_SDK_EQUIP_AIRCONDITIONING
H145_SDK_EQUIP_ACAS
H145_SDK_EQUIP_IBF
H145_SDK_EQUIP_HTAWS
H145_SDK_EQUIP_FUELFLOWSENSOR
H145_SDK_EQUIP_WEAPON_PODS
H145_SDK_EQUIP_WEAPON_SIGHT
H145_SDK_AFCS_VS_BUG
H145_SDK_AFCS_FPA_BUG
H145_SDK_WARNINGUNIT_LOW_FUEL_1
H145_SDK_WARNINGUNIT_ENG_FAIL_1
H145_SDK_WARNINGUNIT_ROTOR_LOW
H145_SDK_WARNINGUNIT_LOW_FUEL_2
H145_SDK_WARNINGUNIT_BATTERY_OVERHEAT
H145_SDK_WARNINGUNIT_MGB_LOW_PRESSURE
H145_SDK_WARNINGUNIT_AUTOPILOT
H145_SDK_WARNINGUNIT_CARGO_SMOKE
H145_SDK_WARNINGUNIT_ENG1_FUEL_SHUTOFF_ACTIVE
H145_SDK_WARNINGUNIT_ENG2_FUEL_SHUTOFF_ACTIVE
H145_SDK_WARNINGUNIT_ENG1_FIRE
H145_SDK_WARNINGUNIT_ENG2_FIRE
H145_SDK_WARNINGUNIT_ENG1_EXT
H145_SDK_WARNINGUNIT_ENG1_BOTTLE1
H145_SDK_WARNINGUNIT_ENG1_BOTTLE2
H145_SDK_WARNINGUNIT_ENG2_EXT
H145_SDK_WARNINGUNIT_ENG2_BOTTLE1
H145_SDK_WARNINGUNIT_ENG2_BOTTLE2
H145_SDK_MFD1_NavSource
H145_SDK_MFD2_NavSource
H145_SDK_MFD4_NavSource
H145_SDK_AP_NavSource
H145_SDK_AP_MasterSide
H145_SDK_WEAPONS_MASTER_ARM
H145_SDK_WEAPONS_POD_LEFT_TYPE
H145_SDK_WEAPONS_POD_RIGHT_TYPE
H145_SDK_WEAPONS_POD_LEFT_QUANTITY
H145_SDK_WEAPONS_POD_RIGHT_QUANTITY

Listing of H:Events (Html Events)

See `hpg-airbus-h145\html_ui\HPGH145-System\H145_Keys.txt` for a full listing with descriptions (over 500 commands for cockpit functions).

Livery Author Info

This section is for those who make aircraft paints (liveries). Many liveries are available already at https://flightsim.to/c/liveries/airbus-h145/. Please do share your liveries with the community.

Paint Kit

Download Official Paint Kit (Version 6)

You may also find these community resources helpful:

- Livery starter templates: https://flightsim.to/file/24614/h145-livery-templates-for-creators
- Getting started with liveries for MSFS: https://www.youtube.com/watch?v=3atVWEEITQ0

Selecting Variant

Your livery aircraft.cfg **base_container** should point to:

Luxury (Base Pack)	hpg-airbus-h145
Civilian (Base Pack)	hpg-airbus-h145-civ
Military (Base Pack)	hpg-airbus-h145-mil
HEMS (Action Pack)	hpg-airbus-h145-ems
Firefighter (Action Pack)	hpg-airbus-h145-fire
Offshore (Action Pack)	hpg-airbus-h145-offshore
Civilian Cargo (Action Pack)	hpg-airbus-h145-civcargo
Military Cargo (Action Pack)	hpg-airbus-h145-milcargo

Texture.cfg (Luxury)

```
[fltsim]
fallback.1=..\..\hpg-airbus-h145\texture
```

Texture.cfg (Civilian)

```
[fltsim]
fallback.1=..\..\hpg-airbus-h145-civ\texture
```

```
fallback.2=..\..\hpg-airbus-h145\texture
```

Texture.cfg (Military)

```
[fltsim]
fallback.1=..\..\hpg-airbus-h145-mil\texture
fallback.2=..\..\hpg-airbus-h145-civ\texture
fallback.3=..\..\hpg-airbus-h145\texture
```

Texture.cfg (HEMS)

```
[fltsim]
fallback.1=..\..\hpg-airbus-h145-ems\texture
fallback.2=..\..\hpg-airbus-h145-mil\texture
fallback.3=..\..\hpg-airbus-h145-civ\texture
fallback.4=..\..\hpg-airbus-h145\texture
```

Texture.cfg (Firefighter)

```
[fltsim]
fallback.1=..\..\hpg-airbus-h145-fire\texture
fallback.2=..\..\hpg-airbus-h145-ems\texture
fallback.3=..\..\hpg-airbus-h145-mil\texture
fallback.4=..\..\hpg-airbus-h145-civ\texture
fallback.5=..\..\hpg-airbus-h145\texture
```

Texture.cfg (Offshore)

```
[fltsim]
fallback.1=..\..\hpg-airbus-h145-ems\texture
fallback.2=..\..\hpg-airbus-h145-civ\texture
fallback.3=..\..\hpg-airbus-h145\texture
fallback.4=..\..\hpg-airbus-h145-mil\texture
fallback.5=..\..\hpg-airbus-h145-fire\texture
fallback.6=..\..\hpg-airbus-h145-civcargo\texture
```

Texture.cfg (Civil Cargo)

```
[fltsim]
fallback.1=..\..\hpg-airbus-h145-civ\texture
fallback.2=..\..\hpg-airbus-h145\texture
fallback.3=..\..\hpg-airbus-h145-offshore\texture
fallback.4=..\..\hpg-airbus-h145-fire\texture
fallback.5=..\..\hpg-airbus-h145-ems\texture
fallback.6=..\..\hpg-airbus-h145-mil\texture
```

Texture.cfg (Military Cargo)

```
[fltsim]
fallback.1=..\..\hpg-airbus-h145-mil\texture
fallback.2=..\..\hpg-airbus-h145-civcargo\texture
```

```
fallback.3=..\..\hpg-airbus-h145-fire\texture
fallback.4=..\..\hpg-airbus-h145-civ\texture
fallback.5=..\..\hpg-airbus-h145\texture
```

Controlling External Parts

In order to control the parts for your livery, you must include a new file within your livery package named `Livery\<Title>.json`. Change only **<Title>** to match your aircraft. The **<Title>** comes from your aircraft.cfg, fltsim.0 title=**<Title>** line. For example the built-in package uses a configuration for the livery matching the title **Airbus H145 Civilian Livery 2.**

Sample Configuration

```
{
      "Commands": [
            {"Name":"H145_WSPS_Top", "Value":1},
            {"Name":"H145_WSPS_Bottom", "Value":1},
            {"Name":"H145_WSPS_Skids", "Value":1},
            {"Name":"H145_SkidSettlingPreventers", "Value":1},
            {"Name":"H145_Radome", "Value":1}
      ],
       "CrewTitle": "Airbus H145 Example Crew"
}
```

NOTE: Invalid JSON will be rejected. Use JSON Validator to check your file.

Command	Values	Notes

`H145_WSPS_Top`
`H145_WSPS_Bottom`
`H145_WSPS_Skids`
	0 or 1	Wire Strike Protection system options.
		
		Bottom WSPS not available on Military variant.

`H145_SkidSettlingPreventers`	0 or 1	Skid-settling-preventers presence. Not compatible with skid snow skis.
`H145_SkidStrutCaps`	0 or 1	Skid struct covers near cockpit door
`H145_SECOND_LANDING_LIGHT`	0 or 1	Add a second fixed LDG light
`H145_ROTOR_BLUR_STRIPES`	0 or 1	Turn on rotor visuals with a split top and bottom texture, better for rotor designs where the top has stripes but the bottom is black.
`H145_Radome`	0: none	Weather Radar and Radome presence.

	1: small 2: large	**Large radome on HEMS, Firefighter, Offshore, Civil Cargo variants only.**
H145_RocketPods	0 or 1	External Weapon Pods installed **Military variant only.**
H145_WeaponSight	0 or 1	Cockpit Alignment optics installed **Military variant only.**
H145_CHIN_WINDOW_PLATES	0 or 1	Chin window plates installed instead of glass. **Civil, HEMS, Firefighter, Offshore, Civil Cargo variants only.**
H145_HOIST	0 or 1	Hoist installed **HEMS, Firefighter, Offshore variants only.**
H145_ELT	0 or 1	ADELT installed **HEMS, Firefighter, Offshore, Civil Cargo variants only.**
H145_SNOWSKI	0 or 1	Snow Skis installed. Not compatible with floats Not compatible with skid settling preventers **HEMS, Firefighter, Civil Cargo variants only.**
H145_HISL	0 or 1	High Intensity Search Light installed **HEMS, Firefighter, Offshore, Civil Cargo variants only.**
H145_FLOATS	0 or 1	Emergency Floats installed **HEMS, Firefighter, Civil Cargo variant only.**
H145_LONG_SKID	0 or 1	Long Skids installed (implicit with floats). **HEMS, Firefighter, Civil Cargo variant only.**
H145_CARGO_HOOK	0 or 1	Cargo Hook installed. **Firefighter, Offshore, Civil Cargo, Military Cargo variants only.**

Configuring external crew

To set the crew models which appear detached from the helicopter, you can use the `CrewTitle` token to select any of the default crews that come with H145. **Action Pack only**.

Title	Description
Airbus H145 ADAC Crew	ADAC style
Airbus H145 DRF Crew	DRF style
Airbus H145 CMH Crew	Generic red style
Airbus H145 Norsk Luftambulanse Crew Airbus H145 HeliOtago Crew Airbus H145 Bundeswehr Crew	Generic orange style
Airbus H145 CAL FIRE Crew	CAL FIRE style

Custom external crew

If you paint the crew models you must include a second aircraft.cfg which points to the crew base container. The second aircraft.cfg is based on hpg-airbus-h145-crew and should have a texture.cfg which points to your aircraft main livery texture folder. There is no need to duplicate any textures, you will simply add one more aircraft.cfg and texture.cfg to your livery package.

The CrewTitle should then be set to your crew livery name, which is recommended to be in the form of `YourLiveryTitle Crew`

Setting Tablet Wallpaper

Include a **wallpaper.jpg** file in your package: `html_ui\Livery\<Title>\wallpaper.jpg`

Adding documents to the Documents app

Your livery may add documents to the Documents app. They will be merged in with the documents provided by the system and the user.

1. See the **Documents app** section for how to generate **user documents**.
2. Move everything (including Index.json) in:

`hpg-airbus-h145-userdocs\html_ui\HPGH145-User\`**`Documents`**

To:

`<your livery>\html_ui\HPGH145-User\`**`LiveryDocuments\<livery title>`**

Known Issues

Bug	This is a bug and we intend to fix it.
Planned	This is a feature we intend to build or complete.
Not Planned, Canceled	We don't plan to do this work at this time.
Asobo FM	We expect Asobo Flight Dynamics work to be related to this.

Feature	**Status**	**Notes**
CG is broken (don't touch it)	Asobo FM	
Provide an installer for updates	Planned	Scenario Editor will become installer
Fuel consumption is 20% low	Bug	
Forward-looking HTAWS	Not Planned	Use TDSSim GTNXi
Built-in Sim Checklists	Not Planned	Up for reconsideration
Rotors are synced in multiplayer	Not Planned	Up for reconsideration
Shared Cockpit support	Cut/Future	
LUX TV's are inoperative	Cut/Future	We ran into a problem and the TV's are disabled for now. We will revisit this once we determine if the issue is with the sim or our data.

Changelog & Version History

Release 0.97 (Build 34X)

- Launch Offshore and Cargo variants
- New Offshore and Coast Guard liveries (PHI, KN Helicopters, USA CG, Philippines CG)
- New Missions and props
- Hoisting audio guidance
- Hoist to moving objects
- Sling load cargo pickup/drop
- New offshore templates for Scenario Editor
- Hype Radio now available

NEW MISSIONS

Offshore Utility
- Transport crew LMPG to Windfloat fixture
- Pick up crew from Windfloat fixture .. deliver to LMPG

SAR / Coast Guard
- Nearby Anywhere: Sinking boat rescue (two styles), one rescue ... deliver to IATA
- Nearby Anywhere: Plane ditching - crew (2) in liferaft ... deliver to IATA

SAR / Offshore Medical Evacuation (HEMS)
- Oil rig medevac (CA and AK placements) ... deliver to nearby hospital
- Windfloat medevac (FR) ... deliver to nearby hospital

- Fixed pink offshore textures
- Fixed civil cargo 1 livery name
- Fix for red star showing up instead of the expected mission object
- Fix FF landfill mission / Fix a bug with zone.minRadius (query would error if it was missing)
- Fix overlapped offshore toolbag and medkit bag on the hoist
- Fix EMS crew missing backpack when going down the hoist
- Fix `L:H145_SDK_HOIST_STATUS` not updating
- Add `L:H145_SDK_CARGO_HOOK_LOAD_STATUS` for cargo hook status
- Add a "Both" ATT follow-up trim mode

Release 0.96 (Build 336)

New Features
- Missions can now be logged to Hype Online (all missions and templates except the legacy HEMS Anywhere)
- Firefighter: Add Helitorch (not currently able to start fires on the ground)
- HEMS: Add hospital transfer mission (replaces the hospital icon mission which is available in the Library)

- Add a Nearby Golf Course accident mission (HEMS), Add a golf cart prop to Scenario Editor
- Add a Nearby Farm yard accident mission (HEMS), Add a tractor prop to Scenario Editor
- Add camping tent prop to Scenario Editor and Nearby Mountain Rescue mission
- Add a simple helipad-to-helipad transport mission for Lux and Civil variants
- Add a simple transport template to Scenario Editor for Lux/Civil and Military variants
- Add Nearby Mountain Rescue mission
- Add many new props

Flight Model Changes
- Adjust hover turbulence (increase)
- GTC.H hands-on is a little more tame making for easier repositioning
- Inverted flight will result in rapid rotor rpm decay
- Add Rotor Torque on/off option for Arcade mode
- Add VRS on/off option for Realistic mode
- Inverted flight now results in rotor overspeed instead of underspeed
- Flight Model: AFCS OFF will no longer do turn coordination
- Flight Model: Adjust arcade mode to not have the new hover domain effects
- Flight Model: Add a weathervaning tendency (reminder on aircraft limits: do not exceed 30kt crosswind to avoid loss of TR authority)
- Adjust Ground Effect smoothing time
- Adjust hover exit forces again
- VRS: model now accounts for power-on-autorotation (power must be 25-100% to encounter VRS)
- Flight Model: Add a swinging pendulum effect / replace previous logic
- Flight Model/AFCS: ATT Follow-Up is now Only Cruise by default, use Only Hover and CYCLIC TRIM RELEASE for the most realistic behavior

Aircraft Failures
- Added aircraft damage on/off option for Realistic mode
- Added damage sliders for engines & transmission (TGB and engine not yet triggering failure)
- Add slow leak fuel failures for all 3 tanks
- Add single and dual Pitch/Roll/Yaw/Collective SEMA failures
- Add failure indications to AFCS Status Strip, SYST page, hands-on aural trigger etc
- Add MGB damage to eventually result in MGB loss of pressure and destruction
- MGB LOW PRESS, MGB HIGH TEMP indication added and Main Gearbox, Low pressure aural
- MGB will be damaged when exceeding torque limits
- MGB will be damaged when executing aerobatic maneuvers
- Hydraulics failures added (SYS1, SYS2 and SYS1+SOV TR SHUTOFF)
- Add failures for fuel pumps XFER FWD and AFT
- MGB CHIP added with associated FUZZ BURN logic
- Added FADEC level 3 failures (frozen fuel valve) and associated indications
- Add Engine Failure to Failures app (non-fire)
- Add AFCS systems failures to Failures app

- Add APCP failure and associated AP CONTROL message, lack of input
- Engine damage will now result in engine failure at 100%
- MGB damage results in higher oil pressure until MGB OVER LIMIT and eventually loss of system pressure
- Add MM EXCEEDED to failures app (high cyclic deflection while on ground)

Bugfixes
- Add a data query service selector with alternate services, and change the default to Overpass DE
- Adjust visuals for Bambi tablet icon
- Move MissionSystem.json to base pack and change the data format to include multiple sources. There will be a stray file in action pack if you upgrade, it is ignored.
- Fix external crew Engineer-2 texture being pink
- ALT.A on tablet is now functional with controls for plus/minus
- ALT.A setpoint is set nearby to the altitude you start the flight at
- Add an Aircraft Refueling section to the Cabin & Crew page
- Add a Cargo Hook option section to the Cabin & Crew page
- Fix error message in HEMS Custom template regarding injured human 'at lest one' to 'exactly one'.
- Adjust the tablet Lights panel to be more friendly
- Traffic display on map is tied to ACAS (FND, NAVD, DMAP) and will be visible again
- Tweaks to HSI and GS visuals when coupled to a nav source, hide FSD when nav radio selected
- Fixes to SVS and FDS visuals, reduce some clipping and add hooks to SVS attitude bars
- Add a 150ms key de-bounce to address some input problems due to variable frame rate
- H145_ROTOR_BLUR_STRIPES livery option fixed
- Add 4-way steering to the sensor pod camera display, and H:Events for key bindings
- Deprecate the sensor pod automatic sweeping movements
- Add support for not_intersection query (add a default query for Helipads that aren't near Hospitals)
- Update firefighting zone template and landfill mission to have the ability to spawn a portable pool
- Implement LOD (better performance in multiplayer)
- Update to new OpenAIP endpoints (OpenAIP deprecated their tile endpoint)
- Fix tablet 12/24hr time not being persisted
- ACAS, HTAWS, IBF and Fuel Flow Sensor options are now persisted
- deprecate H:Events H145_SDK_OH_INT_LIGHT_INSTRUMENT_PANEL_OFF and H145_SDK_OH_INT_LIGHT_INSTRUMENT_PANEL_ON, add
H145_SDK_OH_INT_LIGHT_INSTRUMENT_PANEL_DAY
H145_SDK_OH_INT_LIGHT_INSTRUMENT_PANEL_NIGHT
H145_SDK_OH_INT_LIGHT_INSTRUMENT_PANEL_NVG.
- Fix tablet Sim Time being off by one hour (this may still be a DST issue)
- Prevent aircraft sounds and shutdown AMC when aircraft is without power
- UserSetup now allows a sleep command (value is number of seconds to sleep)

- Fix a bug causing missions to be logged without the proper name for hospital locations
- Add compass tape to H145M sensor pod camera display
- Hard hat can now be colored by livery authors
- Add explicit mission command key bindings (they were no longer connected to primary action). commands 1-6 are provided corresponding to the order shown in the tablet mission app
- Adjust transition to/from hover (smoothing, less rigid)
- Mission system: zone data queries can now display a list of results for specific choice
- HEMS Hospital/Nearby Road mission now has a list to pick the specific nearby hospital
- HEMS Nearby Road & Mountain mission now has a button to open the location in your PC browser
- Add VS indication to HMD
- Disable primary-fire activating the top button on the tablet, as this conflicts with mission tasks now
- AUTOPILOT message list entry and HANDS ON aural changed to not depend on BACKUP SAS being also disengaged
- AFCS Status strip adjustments for animated states
- Rotor Brake white frame added to FND and VMS / remove red range when in braking range
- Add a Change Location and Accept Dispatch sequence to the default HEMS mission
- Add coordinates prior to dispatch for HEMS missions
- Replace/Combine the Nearby Road and Hospital icon mission (hospital mission now gets range)
- Add a button to real-world Firefighting missions to spawn a truck+pool at your nose (land or low hover)
- Fixes for Ground Effect in all flight modes (from previous build)
- Add 12/24h time selector on tablet
- Add zulu time to pc/sim/zulu time tablet reference
- Reset to defaults button will now also set damage and other settings
- Move the ATT follow-up setting to the Setup page with the other flight model settings
- Add a new setting Tablet > Aircraft > Options Pilot automatic hide with settings Head & Body and Head. This can be used if the pilot body is flickering as you move your head in VR
- FLI gong will now play when cross into the transient power rating (AEO) or when exceeding the 30second power in OEI
- DSAS and APOFF should now have correct logic relative to the new torque
- Speed up the HSI/compass rose to be buttery smooth
- Add a fix so the tailboom camera doesn't consume an extra bing map
- Update instrument panel switch to have DAY/NIGHT/NVG positions that impact the base display brightness
- Fix issues with pilot and center MFD weather (but this also eats another bing map)
- Pilot bodies will now auto-hide similar to the pilot heads, when the camera moves into them
- Asobo pilot models will auto-hide based on the body instead of the head
- Engine starter sound will fade out (not the best) when aborting a start, instead of playing the whole sound
- Fixed missing DEGRADED FADECi for use of FADEC ULTIMATE BACKUP MODE (TOT matching)

- Added USAGE EXPIRED message when exceeding OEI30 or OEI2min ratings
- Fix rating timer not reading all three limits (N1, TOT, TRQ)
- Update IBF graphics to reflect white and yellow indications, and bypass door open
- IBF now impacts flight model (100% clogging begins performance degradation)
- IBF bypass doors now automatically open during OEI
- IBF bypass doors automatically open at 165% clogging to prevent engine failure
- IBF CLOGGING and IBF CLOG TREND messages fixed
- Fix civil floats being available by invisible click
- Fixed indications on VMS SYST page relating to SEMA/TRIM status
- Maximum speed aural now repeats
- Add HOV mode to HMD (follows pilot MFD selection)
- Fix problem with picking up water from portable firefighting pool
- Fix problem with sinking too soon after filling bambi bucket (water line accounting)
- Fix for crazy GTC oscillations with higher gains
- Add sound mix slider: Avionics - Critical, Avionics - Advisory
- Boost Avionics sounds by default
- Audio Test sound updated/balanced
- Add Asobo pilot model option back
- Move pilot options to Crew & Payload page
- Blade bend is fixed when in flight
- Fix stretcher walking crew has a pink hat
- Add a No HMD Livery option for those struggling to start the flight with VR
- Update OSM query for hospital helipads. Re-export missions to pick up the new query.
- Fixes for SU10 yaw shaking

Home Cockpit & Key Bindings
- Add H:Events ON/OFF for things which only had TOGGLE previously (APCP, doors, etc.)
- Add H:Events to set the TDS nav source
- Add H:Events to control the H145M sensor pod camera display (on/off)
- L:Vars and H:Events for pax and hoist status
- L:Vars and H:Events for mast moment exceed and fire bottles
- Add brightness L:Vars for displays
- Add an L:Var H145_SDK_MFD2_NAV_CPL_STATUS 0(no couple possible) 1(coupling available) 2(uncoupling available) .. to match the tablet red NAV button
- L:Vars for internal cargo
- Add H:Events for TDS nav source "next"/loop and Weather radar power button
- Add L:Vars for GTC velocities

Release 0.95 (Build 300)

- Flight Model: Big changes to inertia and feeling
- Flight Model: Vortex Ring State is back (avoid descent exceeding 500fpm when relative wind is less than 25kt). Autopilot has VRS protection.
- Add passengers and custom pilots for all variants (Asobo copilot option available)

- Sound: Engine bladeslap, blade stall and Flight/Idle transition, cargo doors, switches, prime pumps
- Some elements in the cockpit will now shake based on rotor condition
- Engine startup smoke and fire VFX
- Engine fire indications fire extinguishing system is implemented
- Failures app, Sound Mixer app, H:Event Test app, new Equipment & Crew pages
- Pilot heads now based on camera position - pilot & copilot are headless
- Installed Helmet Mounted Display
- Installed Tail Boom camera
- Avionics: TDSSim and pms50 GTN750 are now swappable from the tablet Options page
- Avionics: Various performance improvements
- Avionics: Airspeed, Vertical Speed and Heading rose will now update at a higher rate
- Add passengers and custom pilots for all variants (Asobo copilot option available)
- Chin window plates are now selectable on some variants
- Safety patches are now available for all variants (for aircraft storage)
- Dual landing light is available for all variants
- Various cosmetic and functional bugfixes throughout the aircraft such as fixes to MFD visuals and aircraft textures

Action pack

- Launch HEMS variant with new medical interior
- Launch Firefighter variant with functional bambi bucket and utility interior
- Launch H145 Mission System, a framework for building interactive scenarios for H145
- Launch Scenario Editor, a graphical tool for building interactive scenarios for H145
- Add manual hoist control & bindings, ability to set the hoist explicitly outside of a mission
- Add Nearby Road Accident missions at hospitals and launchable from the library
- Add Firefighting missions based on real world wildfires & add a data query Landfill mission
- Third party objects are now supported in the H145 Mission System

Release 0.9 (Build 232)

Acronyms and terms

ACAS - Airborne Collision Avoidance System
ACOL - Anti-collision light
ADC - Air data computer
ADELT - Automatic deployable Emergency Locator Transmitter
ADF - Automatic direction finder
AEO - All engines operating
AFCS - Automatic Flight Control System
AGL - Above ground level
AHRS - Attitude Heading Reference System
ALT - Altitude or Altitude hold
ALT.A - Altitude acquire
AMC - Aircraft Management Computer
APCP - Autopilot control panel
A.TRIM - Automatic trim system
ATT - Attitude or Long term attitude hold
BAT - Battery
BKUP - Backup SAS
BOT - Bottle
CRHT, CR.HT - Cruise height
DA - Decision Altitude
DEG, DEGR - Degraded
DG - Directional gyro
DH - Decision height
DISCH - Discharge
DISCON - Disconnected
DMAP - Digital Map System
DME - Distance measuring equipment
DSAS - Digital SAS
DST - Distance
DTD - Data Transfer Device
DTK - Desired Track
EFB - Electronic Flight Bag
ELT - Emergency Locator Transmitter
EMER - Emergency
EMS - Emergency Medical Services
EPU - External power unit
FADEC - Full Authority Digital Engine Control
FDS - Flight Display System
FLI - First limit indicator
FMS - Flight management system
FND - Flight and Navigation Display
FPA - Flight Path Angle
GA - Go Around
GEN - Generator
GPS - Global positioning system
GS - Ground speed
GTC - Ground trajectory control
GTC.H - Ground trajectory control with hover mode
GTN - GARMIN GTN 750
HAT - Height Above Terrain
HDG - Heading
HEMS - Helicopter Emergency Medical Services
HIGE - Hover in ground effect
HISL - High Intensity Search Light
HMD - Helmet Mounted Display
HOGE - Hover out of ground effect
HTAWS - Helicopter Terrain Awareness and Warning System
IAS - Indicated airspeed
IBF - Inlet Barrier Filter
IESI - Integrated Electronic Standby Instrument/Indicator
IMA - Integrated Modular Avionics
LAVCS - Light Helicopter Active Vibration Control System
LDG - Landing (Landing Light)
LNAV - Lateral Navigation approach (non-precision)
LNAV+V - Non–precision LNAV approach with vertical guidance

LNAV/VNAV - Lateral Navigation and Vertical Navigation approach
LOC - Localizer
LOW ALT - Low altitude
LP - Localizer Performance without vertical guidance
LP+V - Localizer Performance with advisory vertical guidance
LPV - Localizer Performance with vertical guidance
L/VNAV - Lateral Navigation and Vertical Navigation approach
LSK - Line select key
MFD - Multifunction display
MGB - Main gearbox
MISC - Miscellaneous
MSG - Message
MSTR - Master
MTOW - Maximum Takeoff weight
N1 - Gas generator speed
N2 - Power turbine speed
NAVD - Navigation display
OAT - Outside air temperature
OBS - Omni Bearing Selector
OEI - One engine inoperative
OGE - Out of ground effect
OVHT - Overheat
PAX - Passenger
pb - Push Button
QTY - Quantity
RA - Radar altitude
RNAV - Area Navigation
SAS - Stability augmentation system
SBAS - Satellite Based Augmentation System
SEMA - Smart electro-mechanic actuator
SL, S/L - Search Light
sk, SK - Select Key or Soft Key
STBY- Standby
SUSP - Suspended
SVS - Synthetic Vision System
SYS, SYST - System
TAS - True airspeed
TGB - Tail gearbox
TOP - Takeoff power
TOT - Turbine outlet temperature
TRQ - Torque
TRK - Track
V.APP - Vertical approach
VENT - Ventilation
VMS - Vehicle Management System
VNE - Never-exceed speed
VNE power off - Maximum speed in autorotation
VOR - VHF omnidirectional radio ranging
VRS - Vortex Ring State
VS - Vertical speed
VTOSS - Takeoff safety speed
VY - Best rate-of-climb speed
XFER - Fuel transfer pump