



Handley Page Hampden
for X-Plane 12
USER MANUAL

Introduction

The Handley-Page Hampden was an aircraft that was very nearly obsolete when it went into service. One of the first British bombers to see service in World War, it carried a payload similar to the Wellington and Whitley, but was much faster and more maneuverable. It was the newest design of these three, sporting a very slender fuselage and fixed guns. It was indeed faster and more agile but the defensive armament was inadequate and was later updated. Known as the "Flying Suitcase" due to its narrow fuselage and cramped crew positions, the Hampden was nearly as fast as the Blenheim but carried 4 x the load twice as far. It was initially used in daylight raids until combat losses dictated an improvement in defensive armament as well as a switch to night ops. At night, the Hampden continued with success in raids on Germany and participated in the first "1,000 bomber" raid before being withdrawn in 1942.



Support

Should you experience difficulties or require extra information about the Virtavia Handley Page Hampden, please e-mail our technical support on tech.support@virtavia.com

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Exterior Model

About this model

This model has many improvements over its predecessor which was made for X-Plane 11 and was released at the end of 2021. The cockpit has been retained, but the exterior model is now the much-improved MSFS2020 one, with all-new textures as well as a correctly modelled TB Mk.1 torpedo-carrying variant. There are also the two new liveries from MSFS - Swedish AF and Soviet AF and the new MSFS authentic crew figures. The XP12 Hampden now supports droppable bombs and comes with 500lb and 1,000lb free-fall bombs as well as a droppable MkXII torpedo for the Hampden TB Mk.1 variant (unfortunately the torpedo has to act as a bomb due to lack of support in X-Plane). New engine sounds are also a feature of this new version. Sadly, it was not possible to make the Auto Controls work in XP12, however this new version is exceptionally stable and can be trimmed to hands-off flying easily.

The exterior model has all the usual animations such as ailerons, elevators, landing gear and flaps. The leading edge slats extend automatically at 100 kts (only fitted to one version, depicting one of the first Hampdens as slats were not used after 1940). Additional animations on the exterior model are:

Canopy

Press shift-F1 and the pilot's canopy will slide open. Alternatively there is a handle at the top of the canopy frame inside the cockpit which will perform the same function when clicked with the mouse.

Gunner's Canopy

Pressing shift-F2 operates the rear gunner's canopy.

Crew Access

The ventral crew hatch can be open or closed using shift-F3.

Bomb Bay Doors

The shift-F4 key press opens and closes the bomb bay. Alternatively there is a switch for this on the right side of the cockpit, at the rear.

Crew Visibility Toggle

Pressing shift-F11 will toggle the crew on and off.

DV Windows

In each side of the pilot's windshield there are oval-shaped direct-view windows which can be opened using the mouse in the cockpit or by pressing shift F-6 and shift-F7.

Lighting

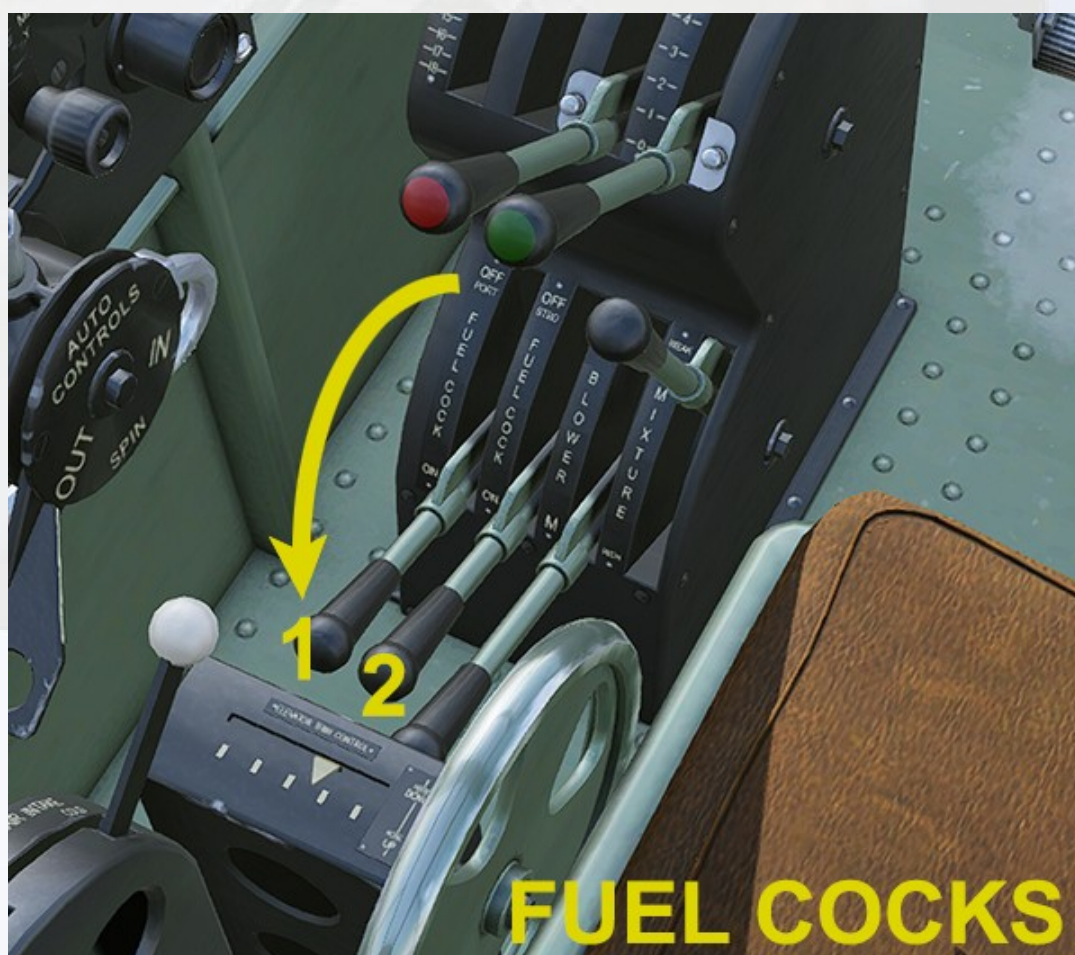
The exterior lights are turned on and off using the usual X-Plane key presses (L for landing lights, N for nav lights) or the appropriate switches in the cockpit.

Please refer to the cockpit section of this manual for information regarding light switch location.

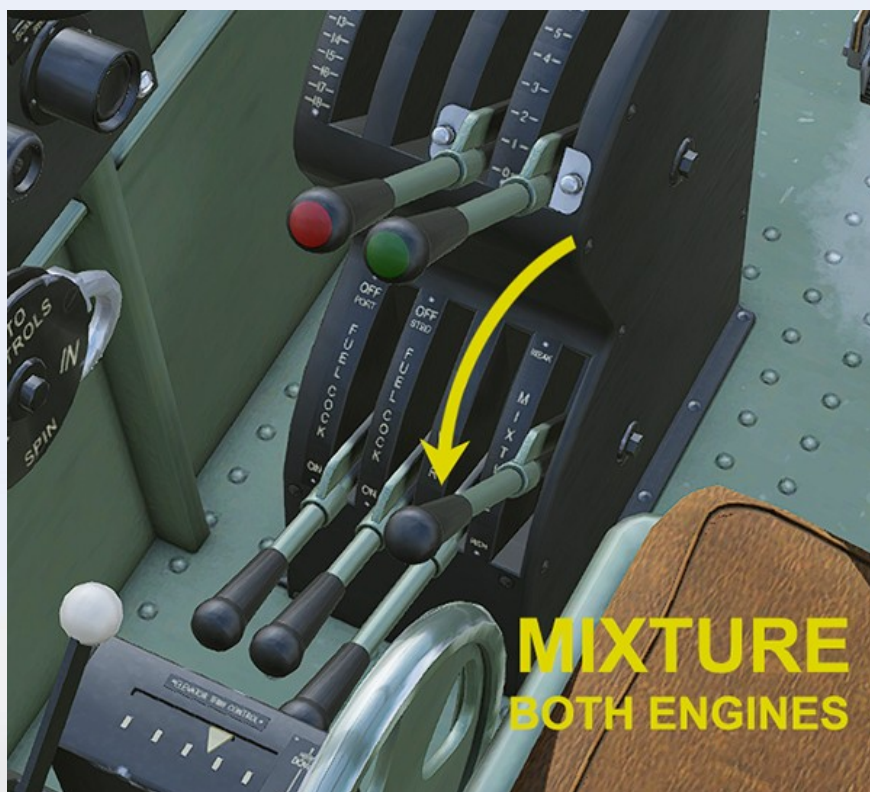
Quick Tips

Starting from cold – Assuming the aircraft was left in the fully shut down state and all switches and levers are in their usual OFF position, then follow the quick start procedure below or alternatively follow the in-game checklist, or use the historically accurate Handley Page step-by-step starting procedure at the end of this manual.

Check bomb doors are closed, flaps up, park brake is on (lever is on the steering yoke). Set the left & right fuel cocks on the throttles pedestal to ON (X-Plane sets these in the correct down (ON) position on load-in).



Set mixture lever on the throttles pedestal to RICH (down position).



Turn on both battery switches (undercarriage status lamps will light up).

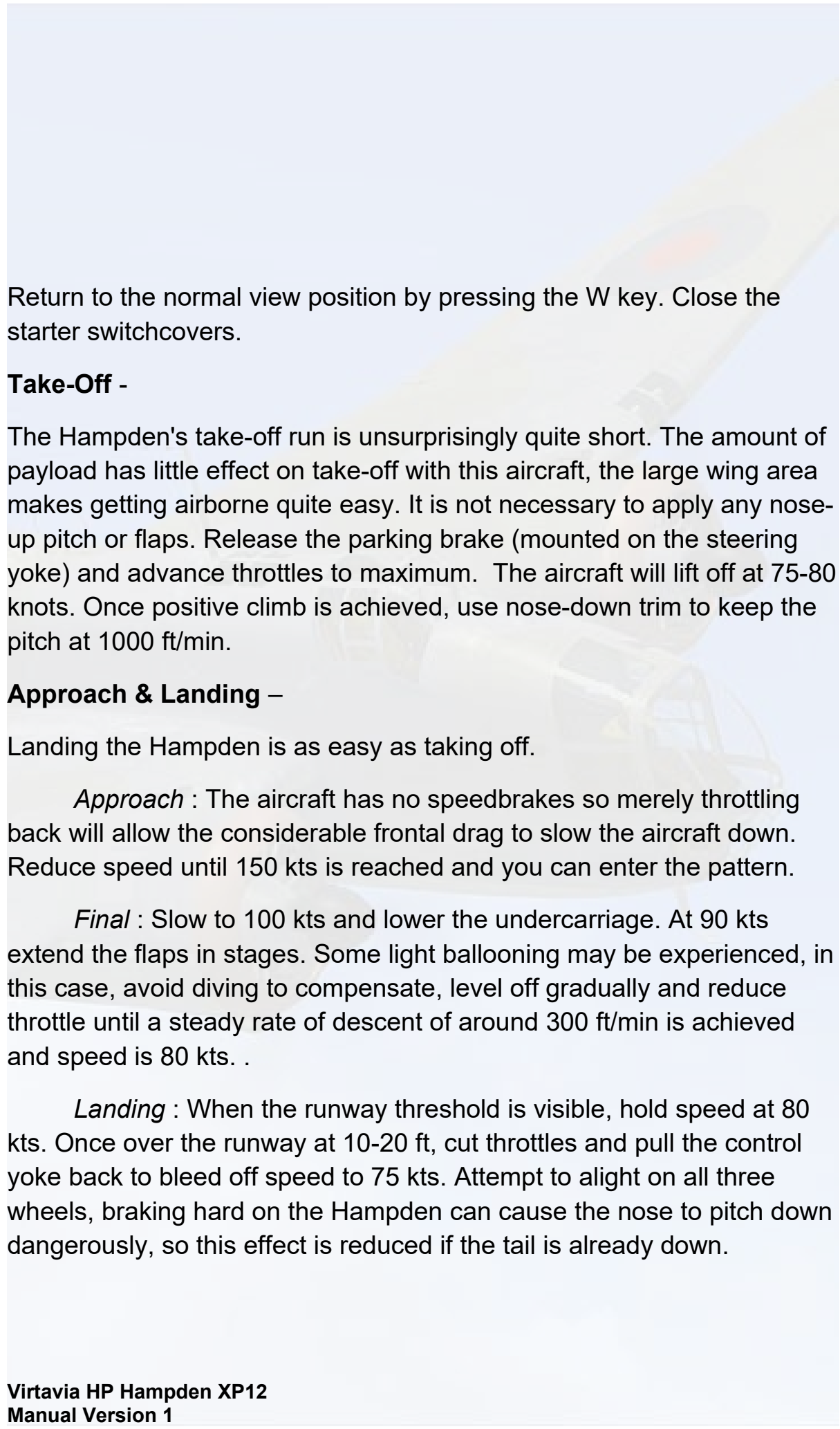


Set the magneto switches to ON.



The button for the left engine is difficult to access due to the presence of the large aileron trim controller, so it will be necessary to lower the viewpoint temporarily using the down arrow on the keyboard. Now start each engine by pressing the starter button for the appropriate engine.





Return to the normal view position by pressing the W key. Close the starter switchcovers.

Take-Off -

The Hampden's take-off run is unsurprisingly quite short. The amount of payload has little effect on take-off with this aircraft, the large wing area makes getting airborne quite easy. It is not necessary to apply any nose-up pitch or flaps. Release the parking brake (mounted on the steering yoke) and advance throttles to maximum. The aircraft will lift off at 75-80 knots. Once positive climb is achieved, use nose-down trim to keep the pitch at 1000 ft/min.

Approach & Landing –

Landing the Hampden is as easy as taking off.

Approach : The aircraft has no speedbrakes so merely throttling back will allow the considerable frontal drag to slow the aircraft down. Reduce speed until 150 kts is reached and you can enter the pattern.

Final : Slow to 100 kts and lower the undercarriage. At 90 kts extend the flaps in stages. Some light ballooning may be experienced, in this case, avoid diving to compensate, level off gradually and reduce throttle until a steady rate of descent of around 300 ft/min is achieved and speed is 80 kts. .

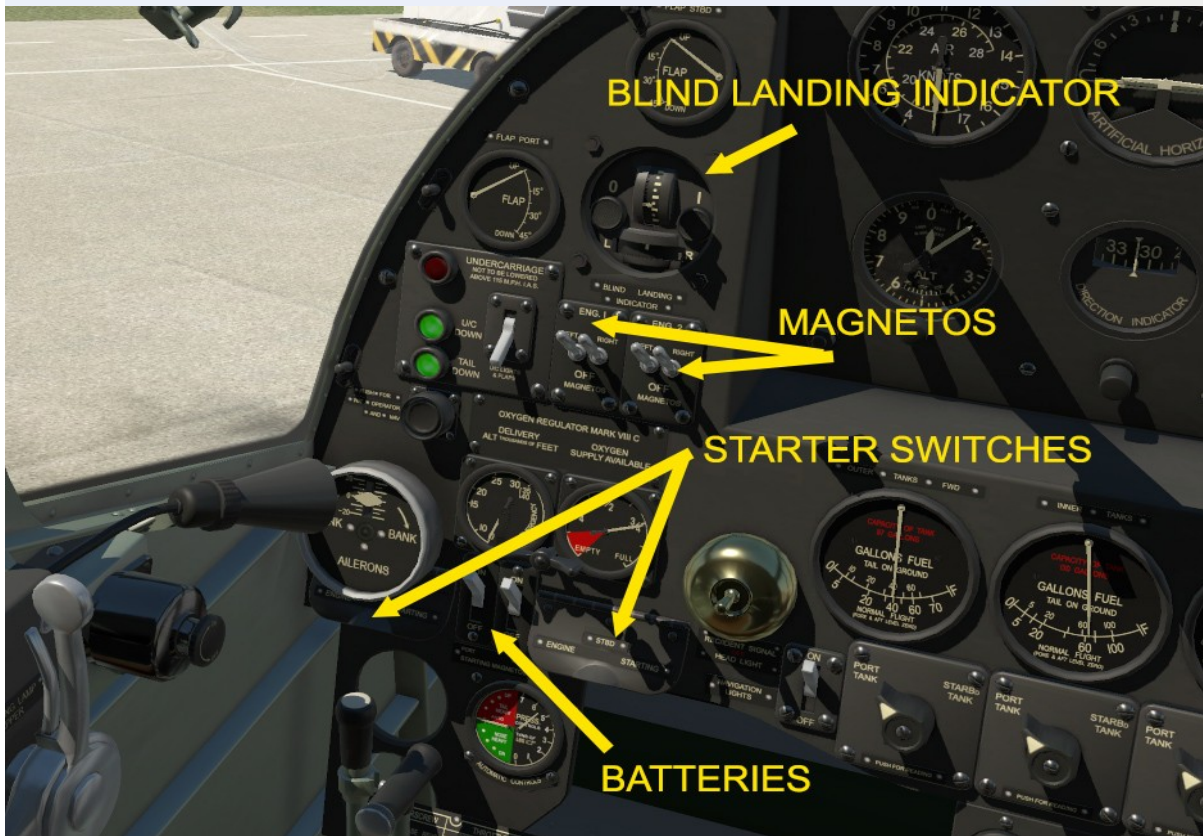
Landing : When the runway threshold is visible, hold speed at 80 kts. Once over the runway at 10-20 ft, cut throttles and pull the control yoke back to bleed off speed to 75 kts. Attempt to alight on all three wheels, braking hard on the Hampden can cause the nose to pitch down dangerously, so this effect is reduced if the tail is already down.

Hampden Cockpit

Selecting 'View/Show Instrument Click Regions' in X-Plane will highlight all the clickable objects in the cockpit. If View/Show Instrument Descriptions' is enabled, then mousing over will reveal some text describing the object. Some of the more important manipulatable parts are shown below.



The left side of the panel. Most important here are the aircraft electrical controls - switches for magnetos, batteries and starter switches :



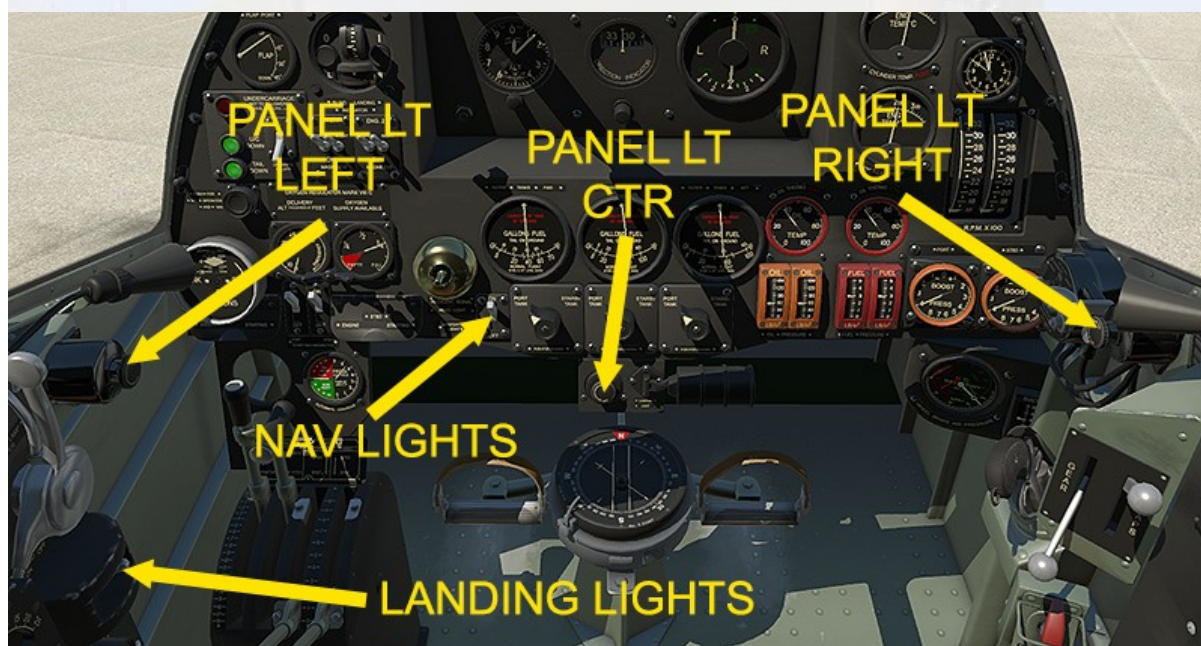
The 'Blind Landing Indicator', also known as the Lorentz Instrument, is set up in this simulation as a LOC/DME indicator.



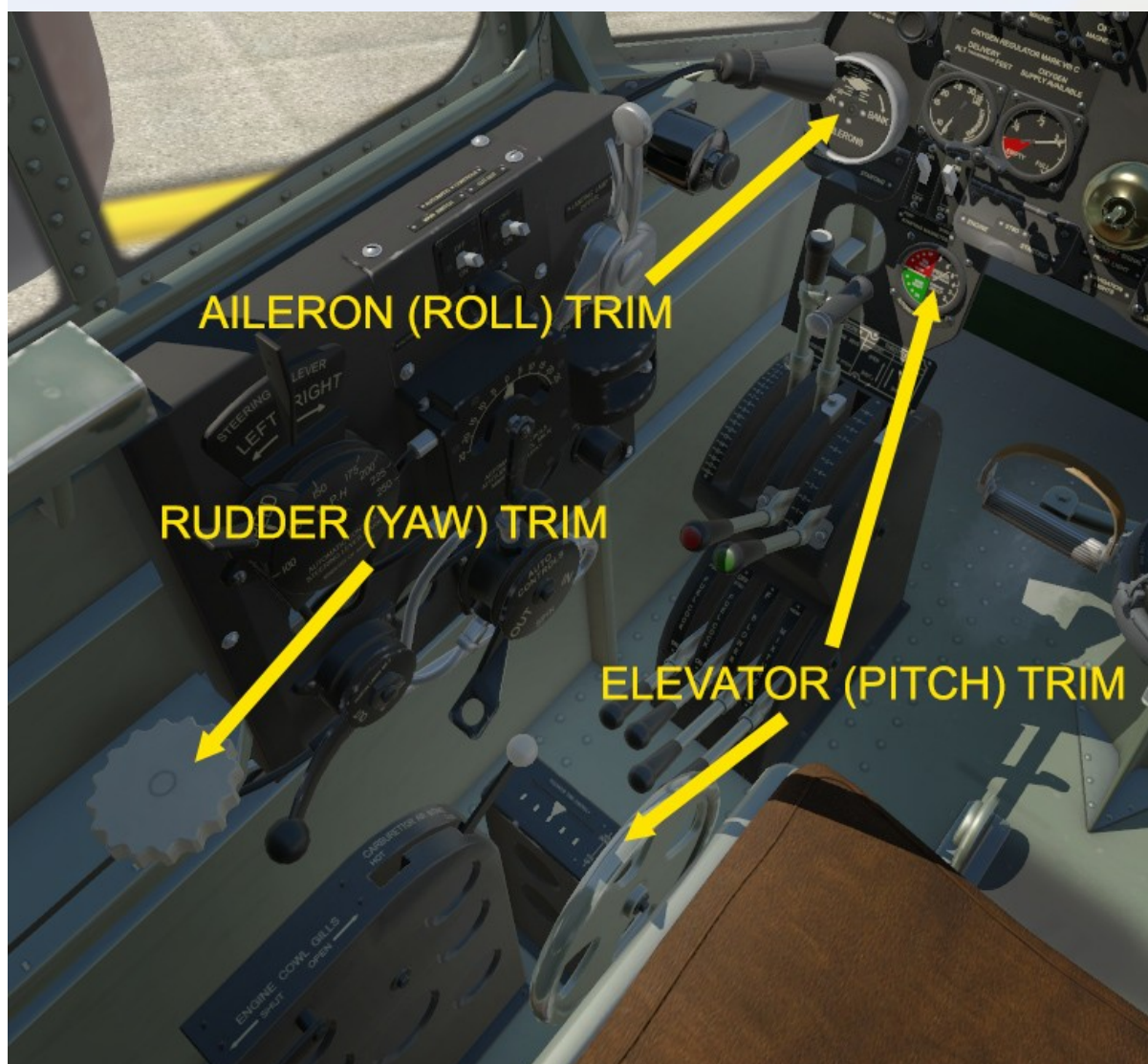
The upper instrument measures distance in nautical miles to the presently tuned NAV1 or TACAN station. The increments are 5 nm each, the needle will move downwards the closer the aircraft is to the station.

The lower instrument acts as locator needle which shows the left and right deviation from the presently tuned station. NOTE - the locator needle does not respond to TACAN or ADF, only NAV1.

Here are the locations of the lights switches. The panel lighting has three separate lamps. The left side lamp controls the gauges and panel text as well as some red flood lighting. The centre lamp only illuminates the P4 compass. The right side lamp only provides red flood lighting to the right side of the cockpit. The light intensity of all lamps can be adjusted using the mousewheel

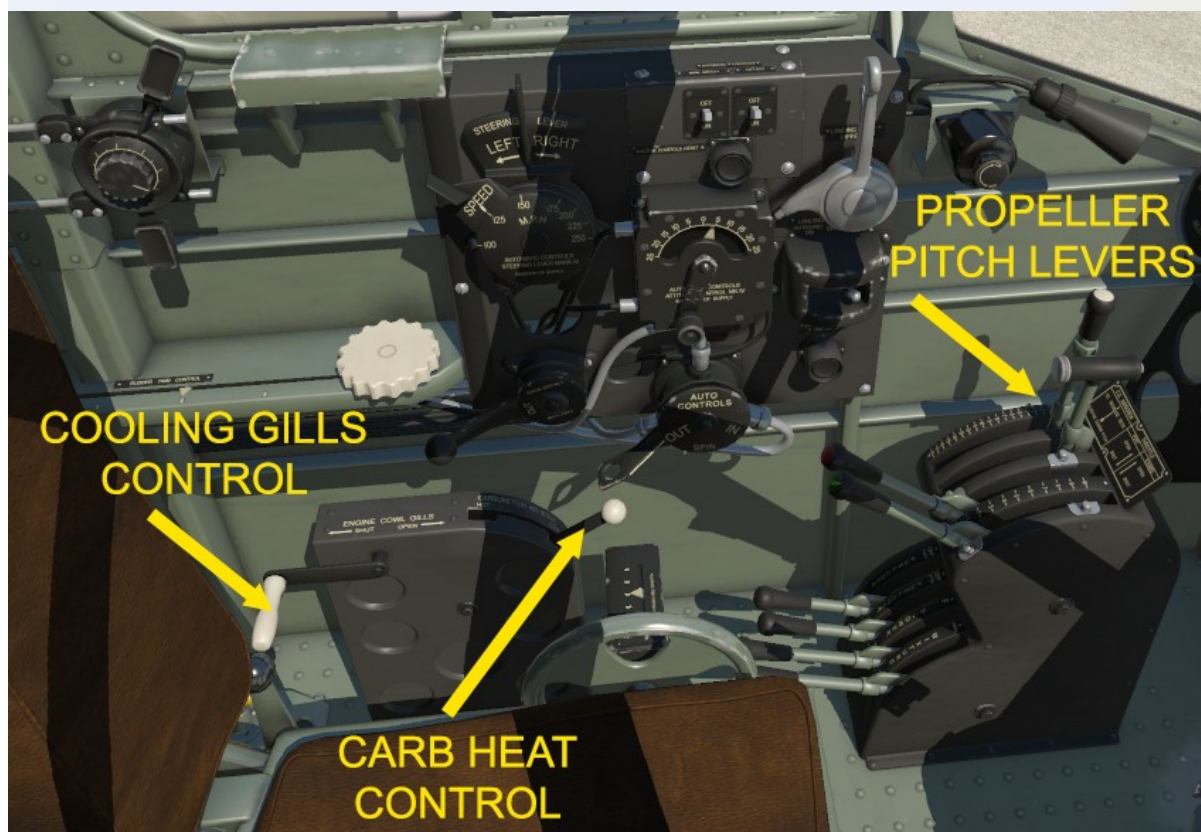


The next image shows the three trim controls and their indicators :



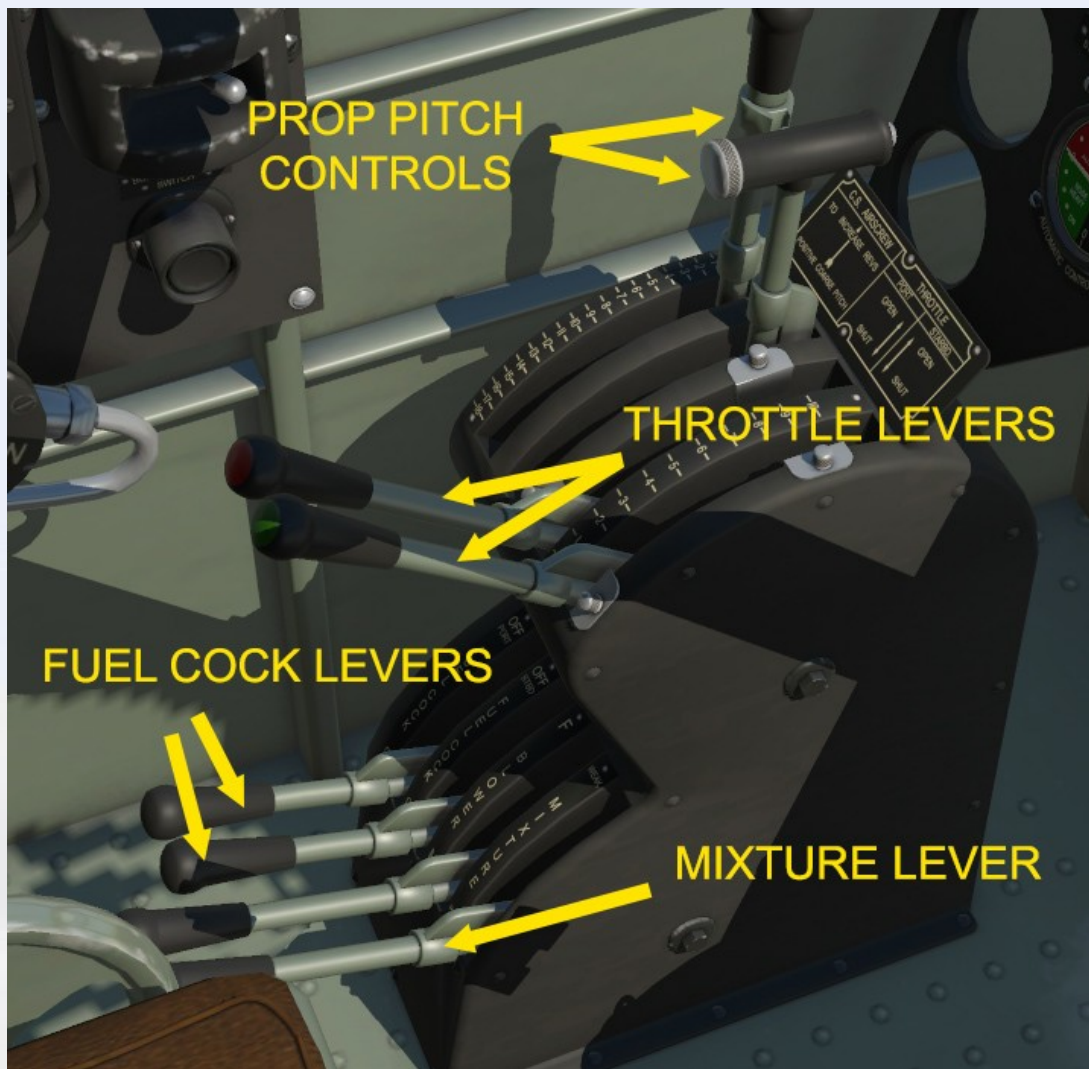
The rudder and aileron trim knobs are easy to manipulate with the mouse cursor, the elevator trim wheel however is awkward to use given its orientation and position relative to the user so is not usable with the mouse. It is advised that the joystick buttons are used for elevator trim.

The image below shows the left side of the cockpit :



The cooling gills (cowl flaps) lever is operated by click-and-hold, the lever will rotate and both engines' gills will open/close as long as the lever is turning. The carb heat lever is self-explanatory. It will be necessary to raise the arm rest out of the way to access these levers, do this by clicking on any part of it.

This image shows the engine control pedestal. The two throttle levers are self-explanatory, the adjacent propeller pitch levers can be set manually by the user (these were automatically controlled in the previous version). The Hampden.acf file can be edited if desired to change the setting in the Prop section to Constant Speed if desired. The boost gauges are similarly controlled by the prop pitch setting, from 'positive coarse pitch' to maximum r.p.m, more boost will show when pitch is coarse.



The mixture lever controls both engines, the down position (RICH) is the normal setting for running engines. It can be raised to about half way to waeken the mixture, any higher and the engines will stall. The two fuel cock levers control the fuel supply to left and right engines. The supercharger lever is presently non-functional, as this is not supported by X-Plane.

Weapons

This XP12 version of the Hampden now supports droppable ordnance in the form of free-fall bombs on the B.Mk1 and a free-fall torpedo on the TB.Mk1, which is specially modified with a partially-open bomb bay and a reduced depth rear ventral area to provide the space needed for the British Mk.XII torpedo, which did not fit in the normal Hampden bomb bay. The torpedo has to be set as a bomb as X-Plane does not support a proper torpedo function, therefore a low-level drop of this weapon is not possible as the explosion will destroy the aircraft.

A special pop-up weapons control box is used to arm the weapons and provide other functions.

Nose Gun -

The Hampden was fitted with a single .303 Browning machine gun just forward of the cockpit over on the left side. How the gun can be fired is explained below.

Hampden B.Mk1 variant - how to drop bombs / fire the nose gun

The weapons control box on the B.Mk1 variants will appear when the bomb bay is opened using the special switch on the left side of the cockpit at the rear -



The control box will now appear at the cockpit right side :



X-Plane sets the weapons system to ARMED, but the weapons must be SELECTED before they can be operated.

To fire the nose gun, set the GUN switch UP. The bomb bay switch can now be set OFF and the control box will disappear. The gun can now be fired at will using the keyboard spacebar. There is no limit to the ammunition with the gun.





To drop bombs, open the bomb bay using the switch shown above.



The weapons control box now appears, set the bomb select switch UP -



Bomb Release Modes -



The bomb bay will contain 4 bombs, these will be 500lb or 1,000lb bombs, or a mix (payload choice can be set in X-Plane's aircraft configuration/weapons section). The Mode Switch on the control box is used to set how the bombs are released ('RIPPLE' is not used, this is reserved for rockets, which the Hampden did not carry).

To release the bombs, either the RELEASE button or the keyboard spacebar can be used.



Re-arm

The original Hampden bomb release switch has been repurposed to provide the user with a quick way to re-arm the aircraft. A simple mouse click and the bomb bay will be re-stocked. It is also possible to set a keypress to have this function.



Releasing the Torpedo

A TB.Mk1 Hampden variant must be selected in order to carry the torpedo.



As the bomb bay is already open on the TB version, the weapon control box now has its own switch :



The torpedo release system is the same as for the bombs, only the Bomb Release Mode switch is redundant as there is only one weapon.



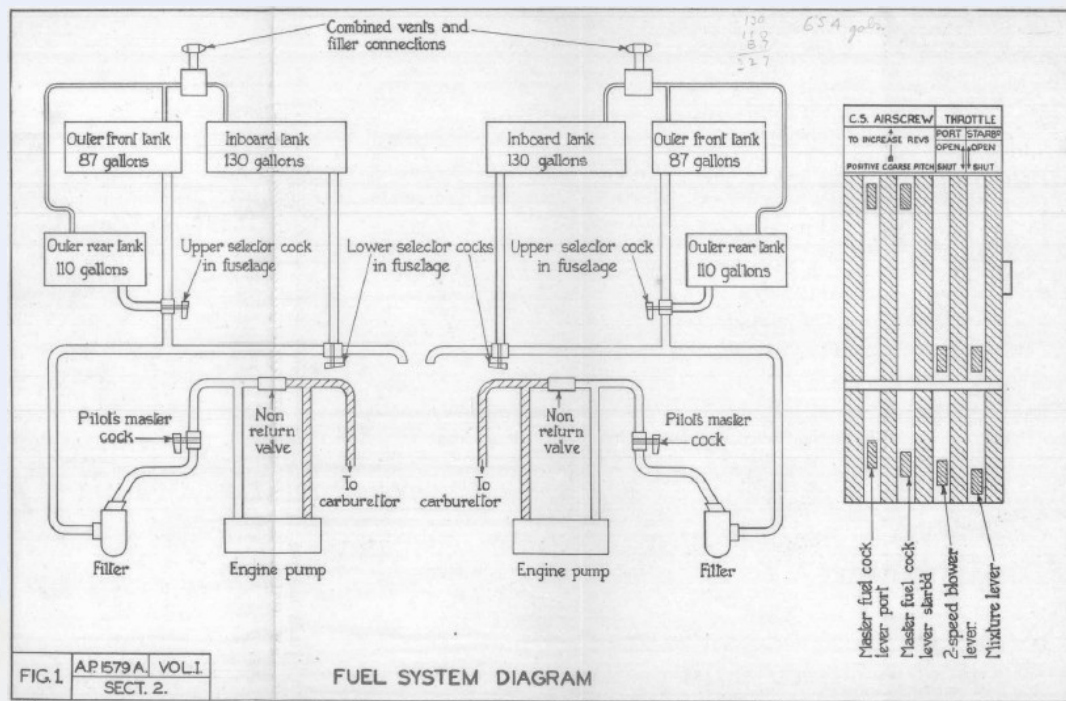
Warning ! Do not release the torpedo at low level as the explosion will destroy the aircraft (torpedo is modelled as a bomb in X-Plane).



The bomb bay can be closed after the torpedo has been released.



The Fuel System of the Hampden :



In the real aircraft, the fuel gauges can read the contents of either left or right tanks by turning the associated left/right selector knob. It was not possible to replicate this function in X-Plane so the gauges read only the left side. However, as the tanks drain uniformly, there would be no difference under normal circumstances between the contents of either side. Capacities are in US gallons (XP limitation) rather than Imperial gallons.



Hampden Specifications

Specifications (nominal, clean configuration)

- Engines: Two Bristol Pegasus XVIII 9-cylinder air-cooled radials
- Power: 1,000 h.p. at 3,000 feet
- Maximum speed: 247 mph at 13,800 feet
- Cruise speed: 206 mph at 15,000 feet
- Service ceiling: 19,000 feet
- Combat radius: 1,790 miles
- Wingspan: 69 feet 2 inches
- Length: 53 feet 7 inches
- Height: 14 feet 11 inches
- Wing area: 668 square feet.
- Empty Weight: 12,764 pounds
- Maximum Weight: 22,500 pounds
- Armament: One fixed .303 Browning M1919 machine gun in upper nose position, two pairs of .303 Vickers K machine guns in dorsal and ventral positions. Later aircraft used an extra single .303 in the glazed nose.
- Maximum bombload: 4,000 pounds, one 18 in. torpedo or mines

Speed Limitations

- Full Flaps: 80 kts
- Landing Gear: 100 kts
- Maximum indicated speed: 215 kts

Hampden Procedures

Engine Start

1. Set Parking Brake ON.
2. Turn both Battery switches ON.
3. Turn Nav lights ON.
4. Set Throttle Levers to IDLE.
5. Set Cooling Gills to fully OPEN.
6. Set Mixture lever to RICH.
7. Set Blower Lever to M (automatic).
8. Set Airscrew Levers to fully FINE (forwards).
9. Set Carb Heat Lever to COLD.
10. Set both Fuel Cock Levers to ON.
11. Shout to Ground Crew 'Petrol on, switches off !'.
12. Wait for Ground Crew signal that both engines are primed.
13. Shout to Ground Crew 'All clear both engines - contact !'.
14. Starter Button Engine 1 PRESS.
15. Engine 1 Oil Pressure 80 psi & Temperature 40-60 deg. CHECK.
16. Engine 1 Fuel Pressure approx. 3 psi CHECK.
17. Repeat steps 14-16 for Engine 2.
18. Brake Air Pressure 120 lbs min. CHECK.
19. Landing Flaps operation CHECK.
20. Altimeter set to ZERO.
21. Fuel Quantity Status CHECK.

Taking Off

1. Set Parking Brake OFF.
2. Check Mixture Lever RICH.
3. Airscrew Pitch Levers fully FINE (forwards).
4. Set Cooling Gills fully CLOSED.
5. Brakes SET.
6. Full power APPLY.
7. Brakes RELEASE.
8. At 70 kts tail will lift, apply back stick and lift off.

After Take- Off

1. Landing Gear RAISE.
2. Pitch Trim ADJUST LEVEL.
3. Cylinder Temperature 210 deg. max. in climb CHECK.

Descent

1. Set Carb Heat Lever to HOT (as required, only if icing possible).
2. Blower Lever set to M CHECK (automatic).

Approach and Landing

1. Airfield can be approached at high speed.
2. Retard throttles to idle, raise nose to lose speed.
3. Switch Landing Lights ON, as required.
4. Set Canopy OPEN.
5. Extend Landing Gear at 100 kts.
6. Extend Landing Flaps in stages at 90 kts.
7. Apply power and trim to maintain speed to runway threshold.
8. Limit descent rate to 300 fpm.
9. Apply back stick to lose speed at 10 ft.
10. Make 3-point Touchdown at 75 kts.

After Landing

1. Apply brakes only under 50 kts, taking care not to raise the tail.
2. Landing Flaps RAISE.
3. Set Cooling Gills fully OPEN.
4. Taxy to parking area.
5. Set Parking Brake ON.
6. Set Landing Lights to OFF.

Shutdown

1. Set both Engines' Magneto Switches to OFF.
2. Set both Fuel Cock Levers to OFF.
3. Set Mixture Lever to fully WEAK.
4. Set Nav Lights to OFF.
5. Set Panel Lights to OFF (as required).
6. Exit aircraft.