

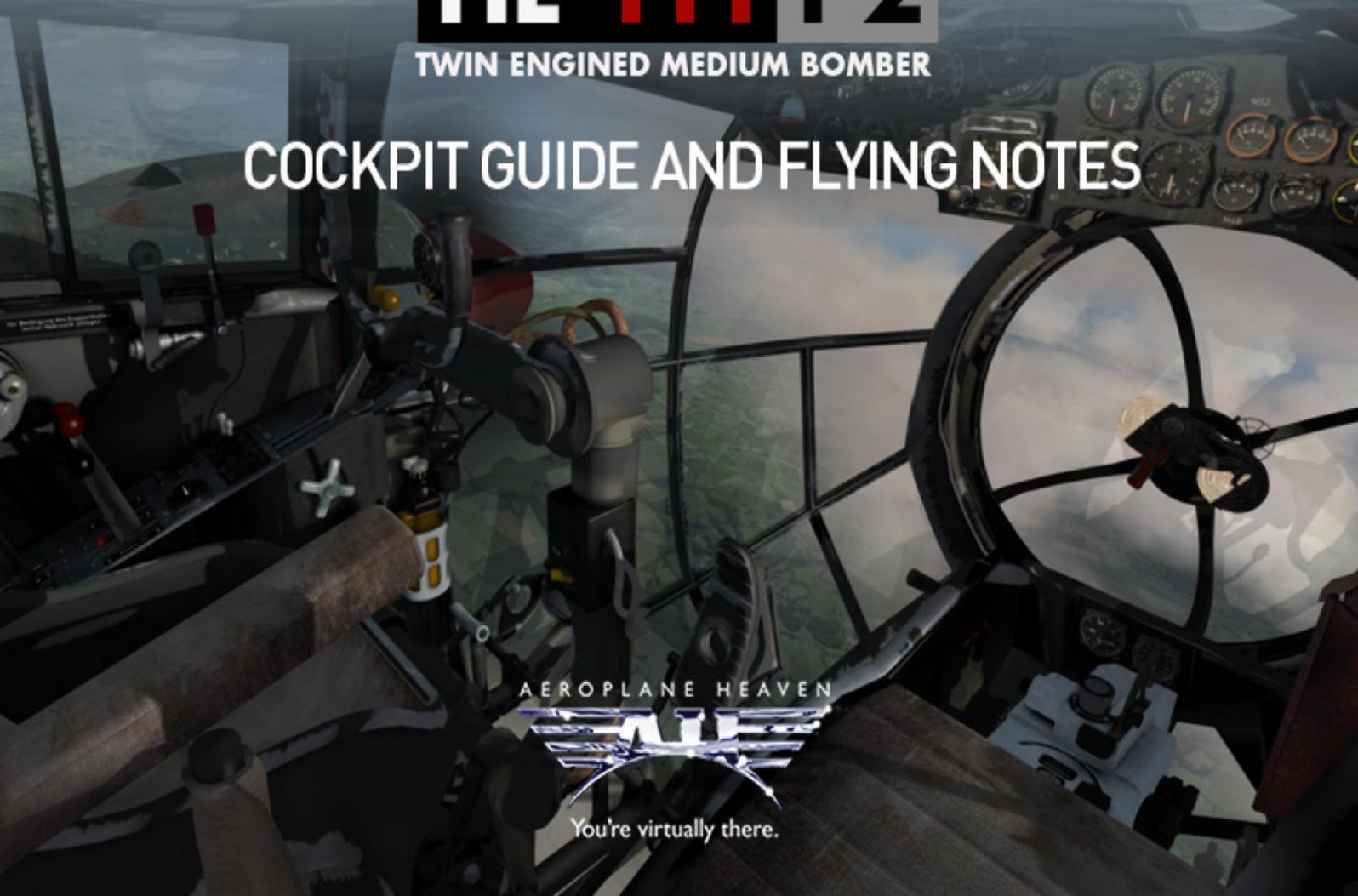


HEINKEL

HE 111-P2

TWIN ENGINED MEDIUM BOMBER

COCKPIT GUIDE AND FLYING NOTES



AEROPLANE HEAVEN



You're virtually there.

INTRODUCTION

Due to restrictions placed on Germany following World War I, military aircraft production was prohibited, especially any type of bomber. In 1934, Siegfried and Walter Gunter drew up a design for a medium-sized, twin-engined airliner for Heinkel Flugzeugwerke. Presented and disguised as an “airliner”, with the rise of a new “order” in Germany, the real purpose of the design was already known to the newly-formed “Luftwaffe”. The prototype first flew on 24th. February 1935 and was immediately praised for its high speed capability.

Before the War, in a touch of irony, Reginald Mitchell, the designer of the Supermarine Spitfire and what was to become the HE-111's nemesis, visited the Heinkel works and was impressed by the elliptical shapes used in the flying surfaces of the HE-111. This was his inspiration in designing that most beautiful of aeroplane wings and a major contribution to the Spitfire's domination of the skies across Europe and beyond.

Promoted as the fastest airliner in the World, with a top speed in excess of 250 MPH., development of the design continued as a medium bomber as the dark clouds of war gathered and other manufacturers like Junkers and Dornier joined the drive to equip the Luftwaffe with the best aircraft. Originally powered by BMW engines, the early HE-111s were slower than their Junkers counterparts. A change to Daimler Benz DB 600 engines saw a marked increase in power and speed. The early models had a conventional “stepped” cockpit design, the characteristic bullet-nose shape was not to appear until much later. The new engines would often suffer balance issues, producing the well-known non-synchronised sound that always signalled the approach of the bomber over its target. During the Blitz of London, it was, perhaps one of the most feared sounds, the roar of the “phasing” engines heralding the arrival of that night's attacks.

The early models saw combat duty in the Spanish Civil War with the Condor Legion and much was learned from this experience. The need for an increase in defensive armament was a major lesson - the type could not rely purely on speed to evade enemy fighters. As part of this increase, a new nose section was designed almost entirely of perspex with narrow framework and fitted with a semispherical gun mount - “Ikara” at the very front of the aircraft. The nose section continued the main fuselage profile, dispensing with the need for the stepped cockpit of the “E” models. Thus, the instantly recognisable “Heinkel HE-111 shape” was born. This “P” variant is the one we have modeled in this simulation.

One would have thought that the new design of the nose with all that Perspex would afford the pilot excellent visibility but in reality this was far from the truth. Pilots reported limited vision due to suspended equipment and instrument panels inside the nose and the framework itself. So, a system was installed to allow the pilot seat, together with all the flying controls, to be raised. The pilot would fly with his head protruding through the main overhead hatch and protected from the elements by a special retractable aeroscreen. The system was used mainly for takeoffs and landings and whenever forward vision was obscured through battle damage or poor weather conditions.

A typical Heinkel HE-111 crew consisted of the Pilot, Bomb-Aimer/Navigator/Nose Gunner, Radio Operator/Dorsal Gunner (the dorsal gun position was open, protected by a sliding Perspex hood) Ventral Gunner (prone position in the belly of the aircraft). Sometimes a separate Navigator was carried who also performed the duties of a “side-gunner” when extra machine guns were fitted to each side window. Up to 4,400 lbs of bombs could be stored in the main internal bomb bay and in later variants, external racks were fitted to carry up to 7,900 lbs but these racks prevented the use of the internal bomb bay. The bombs were stored vertically, and upon release would exit via a system of small, individual external bomb doors. As they fell, they would tumble into a horizontal position - another characteristic visual of the Heinkel in combat.

By the beginning of WW2, The Heinkel was Germany's most numerous bomber type and was to bear the major workload in the coming "Blitzkrieg" bombing strategy across Europe.

As the German invasion of Europe continued at lightning pace, the Heinkel was at the forefront, combining with its stablemate, the Junkers JU87 "Stuka" to wreak havoc right across Western Europe, all the way to the French coast.

It was then, during the Battle of Britain, that the Heinkel's supremacy came to an abrupt end when it met the Hurricanes and Spitfires of the Royal Air Force. No match for the Rolls Royce Merlin-powered fighters and their skilled pilots, the Heinkel was vulnerable to frontal attack and soon began to suffer major losses. Starved of adequate fighter cover due to the Messerschmitt fighter support suffering a lack of fuel range, scores of Heinkels fell to the guns of the British fighters. By the end of the Battle, the Heinkel HE-111 was withdrawn from use in such numbers and never again would be used in the mass "armadas" so typical of Blitzkrieg strategy.

However, the design continued to be developed through many variations and was used with success in all theatres including the Eastern Front.

Post-war, German-built HE-111s remained in service in Spain and the design continued to be built by the Spanish, under licence as the CASA 2. The irony here was that the CASA aircraft were powered by Rolls Royce Merlin engines - the very powerplants that contributed the downfall of the HE-111 during the War.

The final two German-built HE 111s continued in service with the Spanish Air Force until 1958.

Despite being on opposite sides, it would be fair to say that the Heinkel HE-111 is as iconic a combat aircraft as a Spitfire or Hurricane, and should take its rightful place alongside these and many other famous aeroplanes in the history of military aviation.

LEADING PARTICULARS

Crew:	Typically 4
Length	53ft. 9.5ins. (16.4m)
Height	13ft. 1.5ins. (4.0m)
Wingspan	74ft 2ins. (22.6m)
Wing Area	942.92sq.ft. (87.6 sq.m)
Empty Weight	19,136 lb. (8,680 kg)
Max. Takeoff weight	30,864 lb. (14,000 kg)
Loaded Weight	26,500 lb. (12,030 kg)
Power Plant	2 x Daimler Benz DB601A liquid-cooled inverted V12 (developing 1,158.9 hp)

Maximum Speed	273mph (237.23 kn) (439.35 Kph) @ 18,000 ft. (5,500 m)
Cruise speed	200mph (174 kn), (322.25 Kph)
Stall speed	135mph (72.8 kn),(134.8Kph)
Range	1,429 miles (2,300km) maximum fuel
Service ceiling	21,330 ft. (6,500 m)
Rate of climb	850 ft/min



Aircraft in this simulation



5./Kampfgeschwader 4 "General Wever", Norway April 1940. Aircraft currently restored and maintained by the Norwegian Armed Forces Aircraft collection gardermoen, Norway.



Heinkel He-111P 5.KG54 shot down in 21 May 1940 by a single Morane during a sortie to bomb Calais harbour, France.



He-111 P-2; coded "IG+DL" of 3./KG 27, Manster-Handorf, 10 May 1940.



He-111P-2 KG55 Dreux Chartes 1940 Night Sorties



Heinkel He-111P KG55 Black E Villacoublay
France 1940



GI+HP [W.Nr 1992] 6./KG55 was based at
Villacoublay from 23rd June 1940 to 1st August
1940 then transferred to Chartres until
18 June 1941



Bonus later model livery. He-111 H-6
Sturzkampfgeschwader 3 North Africa, 1941.



I/I Tavolfelderito szazad (long range
reconnaissance squadron) Based in
Amasovka ,Russia, July 1942.



In 1940, Hungary received 12 He-111s from Germany. Finished in Hungarian multicolor camouflage, the “wedged-shaped” markings and the serial numbers B.701 - B.712. This is B.701 Tavolfelderito szazad (long range reconnaissance squadron) Based in Budaors , July 1941.



I./KGr 26, Westerland, Germany 1939. The first German plane to be brought down on British soil during WWII - 28th October 1939.

We've also produced this scheme as a “war-weary example”. Purely fiction but a great way to view the effects of PBR, a texturing technique now available to users of Prepar3d V4.4 and up.

A NOTE ON THE TEXTURE SETS.

The default liveries have been produced with an alternative tail marking. Historically correct markings are supplied with your package. If you wish to display the authentic and historically correct tail markings, please use the “Heinkel_tailswitcher.exe” file which can be found in the “documents” folder of your package. Click the exe file, make your choice and click “next”. If you wish to return to the default tail-markings, just run the programme again.

IMPORTANT!!!

DO NOT run the Heinkel_tailswitcher.exe with the simulator running.



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ADDITIONAL PANEL INFORMATION

PRESS SHIFT+I TO ACCESS THE SPECIAL CONFIGURATION PANEL.



This panel allows you to configure the aircraft for a **COLD/DARK** start (that is all switches off and all levers and controls either off or neutral) (There is a switch on the left cockpit framing (35) which does the same thing.) You can also use this panel to open the bomb doors and drop bombs. By clicking on the question mark icon, you can bring up tape note labels for the bomb doors and bomb release process if you prefer not to use the VC controls for bomb-dropping.



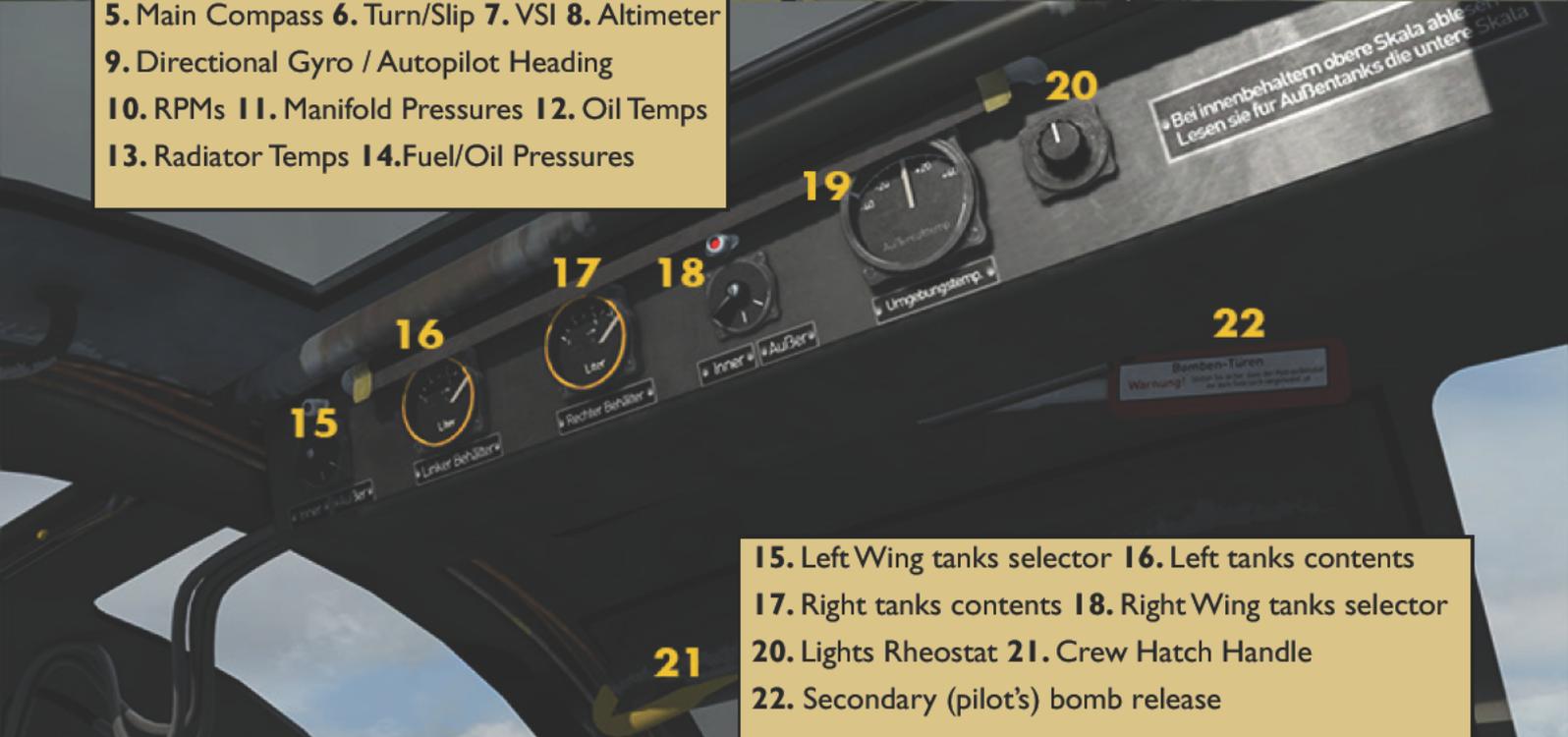
PRESS SHIFT+2 TO ACCESS THE EYE POINT TOOL

Clicking on the buttons allows you to change your viewpoint or seat height and lateral positions. The reset button will return you to the default viewpoint.





1. Artificial Horizon 2. ILS 3. Lorenz 4. Airspeed
 5. Main Compass 6. Turn/Slip 7. VSI 8. Altimeter
 9. Directional Gyro / Autopilot Heading
 10. RPMs 11. Manifold Pressures 12. Oil Temps
 13. Radiator Temps 14. Fuel/Oil Pressures



15. Left Wing tanks selector 16. Left tanks contents
 17. Right tanks contents 18. Right Wing tanks selector
 19. Lights Rheostat 21. Crew Hatch Handle
 22. Secondary (pilot's) bomb release



23. Hydraulic lock 24. Flaps 25. Landing gear 26. Engine Starters 27. Supercharger Controls
 28. Battery 29. Oil Radiator Doors 30. Fuel Valves 31. Autopilot 32. Landing Light Switch
 33. Magnetos 34. Propeller controls 35. Throttles 36. Pilot's sliding window



35.NavLight Switch 36. Pitot Heater 37. Master Cockpit lights 38. Prop Pitch Indicators 39. Flaps Indicator 40. Landing gear lights 41. Emergency pump 42. & 43. Water radiator controls 44. Fuel Tank Cocks 45. Aileron Trim control 46. Elevator Trim control

THE RIGHT COCKPIT WALL



47.Magnetic Compass **48.** Fold-up engineer's seat **49.** RMI **50.** NAV Radio **51.** ADF Receiver

In the real-world Heinkel, the radios were mounted in a special compartment beyond the bomb-room. As we have not simulated this area, we have provided authentic-appearance radio sets for those wishing to use radio navigation as part of their simulator flying experience. The system consists of two period radios, one for VOR (Nav 1) frequencies and one for ADF frequencies (**50 & 51**). By clicking on the folded seat (**48**), it will drop into position and reveal a "Navigation" radio box (**49**). Open the lid and inside is a full functional navigation RMI with NAVI (broadbuff-coloured arrow) and ADF (thin red arrow) needles and an RMI compass ring card.

USING THE RADIOS

The NavI VOR radio has two control knobs and a frequency window. PLEASE NOTE: this radio ONLY tunes and indicates the ACTIVE frequency - there is NO STANDBY FUNCTION.

To operate, click on the folding knob handle and then the ring of the knob to turn it. Your frequency changes will show in the display window at the top of the radio. The left knob changes the whole values and the right, the fractions.



The ADF radio operates in a similar fashion but has three knobs to change the frequency.

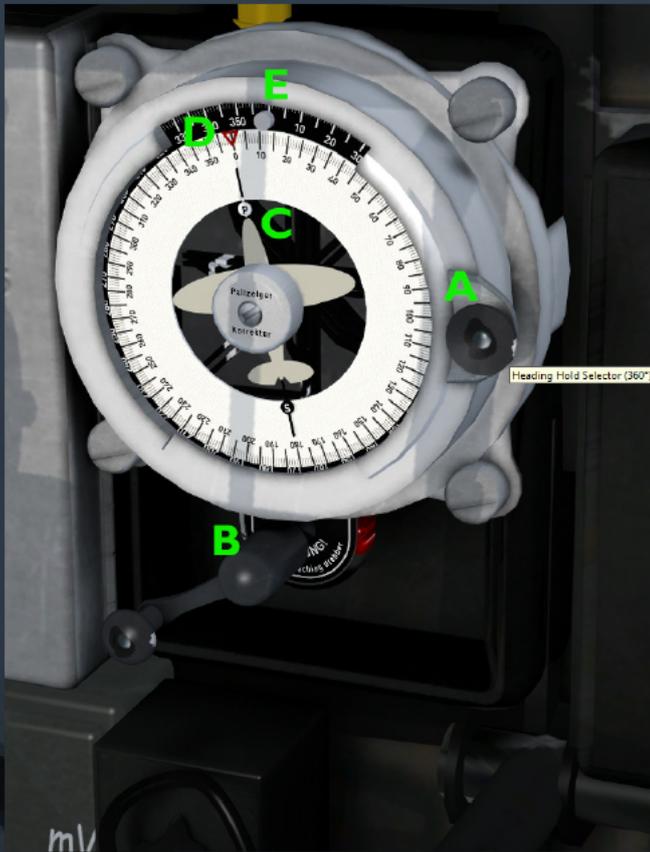


Behind the radio box door you will find the RMI gauge. This will display two needles. The RED one is ADF direction and the BUFF one is the VOR Radial Direction.

If you are fully acquainted with VOR/ADF Navigation techniques, you will know how to use this instrument. If not, there are many guides available on the web which cover the processes involved in VFR and IFR navigation.

USING THE COMPASS

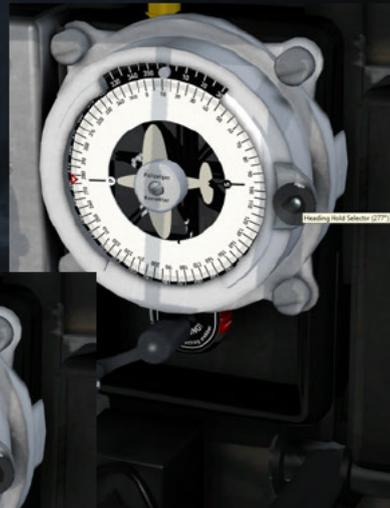
The Magnetic Compass (47) on the right cockpit wall is your main navigation instrument and “flight computer”. It has a number of controls and a little time spent with them will prove beneficial when setting up for navigation or autopilot procedures.



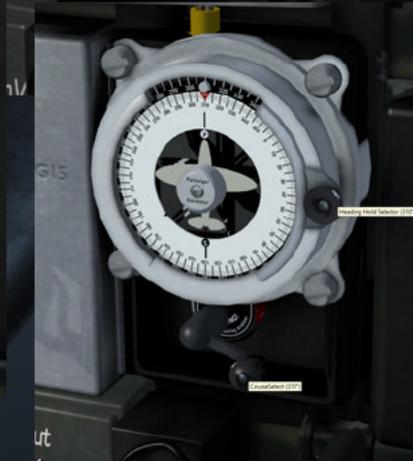
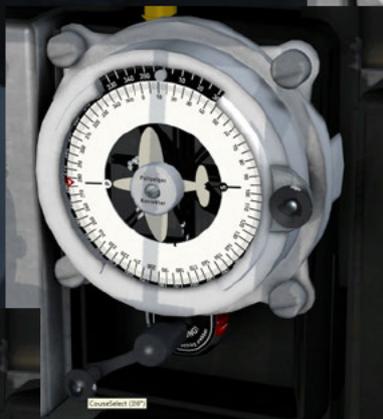
On the right side of the instrument body is a small wheel control (A). This is the HEADING selector, used to set the desired heading, ahead of using or during use of the AUTOPILOT. The RED triangular pointer (D) is the HEADING marker or “Bug”. Turning the selector wheel will position the marker at the desired heading on the Compass Rose Card (C). The large handle (B) at the base of the instrument is the control to set a desired COURSE.. Turning the handle will rotate the BLACK course ring to bring the desired course in degrees, in line with the small white disc immediately above the top of the compass ring. (E).

A short demonstration of the instrument in use:

First we set our desired heading using the heading wheel.



We set our desired course - 310. Note that the Course Ring has now turned to line up the course 310 with the small disc.



Finally, by turning the aircraft until the RED pointer lines up with the small disc, we will be on our desired course and our heading will also have changed to 310.

A BRIEF NOTE ON HYDRAULICS

The Heinkel HE-111 is fitted with hydraulically operated flaps and landing gear. To prevent inadvertent use of these two vital components, a Hydraulic Lock Valve is employed to “lock-out” the flap and gear controls when not in use. So, it is important to remember this device before using either flaps or landing gear!

The valve is spring-loaded and the handle should be UNLOCKED before using the FLAPS or LANDING GEAR levers. Once the flaps or landing gear have completed their travel the lock lever will spring back to the locked position automatically. When in LOCKED position the FLAPS and LANDING GEAR levers will still operate but the FLAPS and LANDING GEAR themselves will not.



THE IKARA GUN-MOUNT

When the design of the HE-111 changed to the all-perspex “bullet-nose” cockpit, a flexible gun-mount in a rotatable frame was installed in the nose dome. Called the IKARA mount, the frame could be rotated to reposition the machine gun to alter its field of fire. We have simulated this system in the model. By clicking and dragging the circular frame, you can rotate the gun-mount to the desired position. The exterior model will follow suit and for a little more realism, we have animated the working gears of the frame’s gearbox.



RAISING THE PILOT SEAT AND CONTROLS

The Heinkel HE-111 had acres of clear perspex canopy, yet surprisingly, the pilot's forward vision was obscured quite a bit by the main panel, the Ikara gun-mount and frame and the cockpit framing itself. So, for an unobscured view, the pilot could elect to raise his seat and all flying controls high enough for his head to protrude through the roof hatchway, once a special aeroscreen had been erected to provide protection from the airstream and flying debris.

The pilot could operate the aeroplane quite comfortably from this position and the system was recommended in the flying notes for all takeoffs and landings

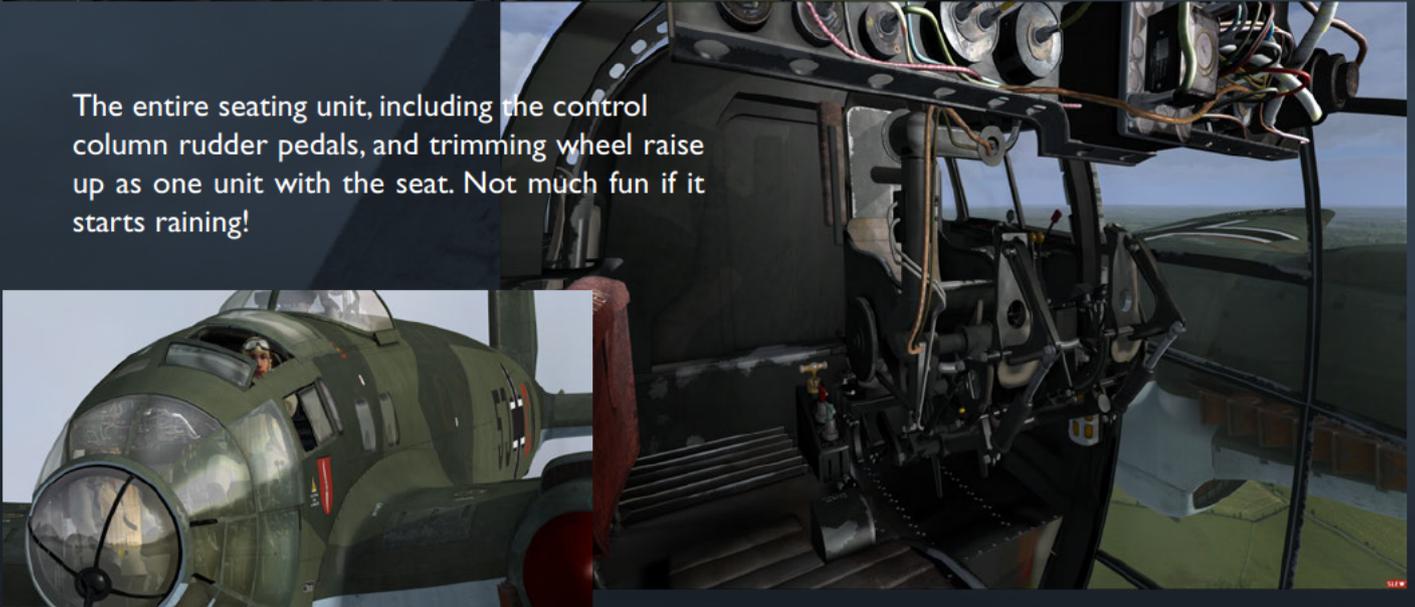
To set up your position, first open the main hatch by pulling on the handle above your head or using Shift/E. Then, open the AeroScreen by clicking on the frame or using Shift/E+I. Now use the keystrokes Shift/E+3 to raise the seat. You will need to adjust your view height manually, using wither the keystrokes or the special viewpoint tool.

A quick visit to an exterior view will reveal your pilot sitting in the raised position with his head behind the AeroScreen.

Try taxiing and taking off, using this position. You will find things much easier and you get a great view all round the aircraft.



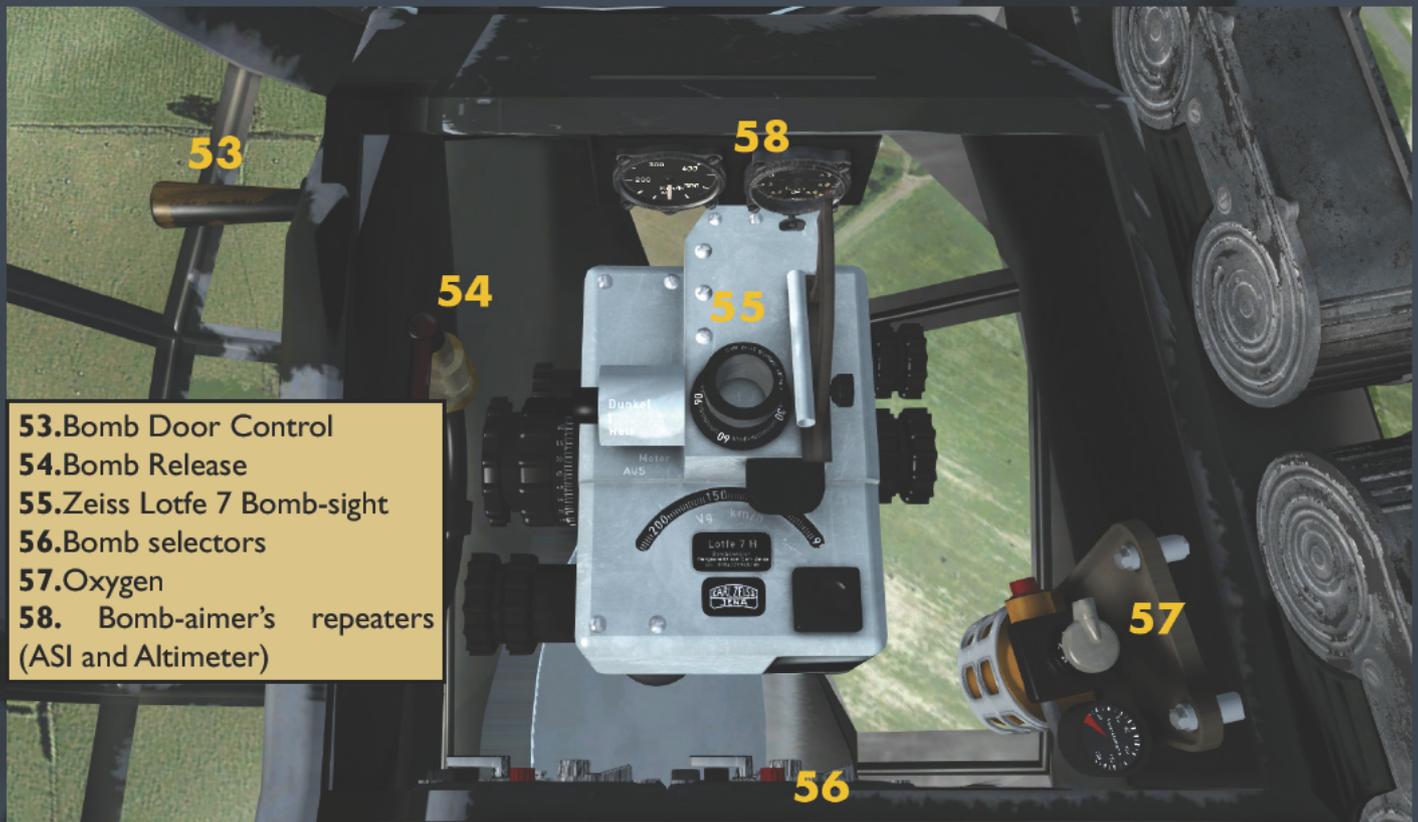
The entire seating unit, including the control column rudder pedals, and trimming wheel raise up as one unit with the seat. Not much fun if it starts raining!



BOMB CONTROLS

The Heinkel HE-111 could carry up to 5,600 kgs (12,300lbs) of bombs. 2,000 kgs were carried in the internal bomb bay. Stored vertically, when dropped, the bombs would tumble chaotically until they stabilised in the airflow as they fell. Two wind deflectors automatically deploy in front of the bays when the bomb doors are opened.

Use the configuration panel (Shift+I) or the bomb door handle in the cockpit (53) to open the doors.



Set up your bomb-run and press the release handle (54) or use the 2D panel switch when you are ready.



Close the bomb doors and hight-tail it for home. Stay low-there will be Spitfires around for sure!

FLYING THE HEINKEL HE-111

For the purposes of this guide, we are assuming that you have at least moderate skill and a working knowledge of flight simulators. It is not the purpose of this document to teach you how to fly but rather guide you through the process of getting the HEINKEL HE-111 started and into the air.

Let's begin with setting the simulation for a "COLD/DARK" start. That's all switches OFF and all controls and levers at least in neutral or OFF.

You can do this by using Shift+1 (or your assigned keystroke or joystick controller assigned switch) to toggle on the Configuration Panel, and then clicking the switch. You will note that the battery turns off and all electrically driven instruments and controls are now dead. Also, all crew will be removed from the aircraft. You can toggle the crew back on by using the small switch (59) on the control column. Also, for a better view forward, you can remove the control yoke by pressing the centre nut of the control yoke arm (60)



Before we start, make sure you have clicked the "Secure Aircraft" switch (61) on the control column. This will toggle on the wheel-chocks and the crew boarding ladders. Open the crew and pilot hatches.

OK now we are ready for our first check flight.

PRE-START AND START CHECKLIST

TANK SELECTION

The aircraft has four tanks - a main and reserve in each wing. The mains contain 700 litres (154 gallons imp.) and the reserves 1000 litres (225 gallons imp.) each. On the right upper roof panel, you will find the two multi-reading gauges and their selector switches. Here you can check contents of the four tanks.

The tanks are controlled by two levers on the right of the pilot seat. Selecting each lever down will open the valves to the inner "main" tanks. Up and you select the outer "reserve" tanks

For starting and general flying duties the mains are used so always start with the levers down.

PRE-START

BATTERY	ON "EIN"
THROTTLES	CLOSED
FUEL TANKS	DOWN (Inner tanks selected)
FUEL VALVES	OPEN (FORWARD)
SUPERCHARGERS	LOW GEAR (FORWARD)
PROPELLERS	FULL FINE PITCH -100% - SHORT NEEDLE AT 12'O'CLOCK
MAGNETOS	TO BOTH (M1&M2)

START AND RUN (Same procedure for both engines, starting left engine first)

YOUR HEINKEL DOES NOT HAVE A PARKING BRAKE!! ENSURE THAT BRAKES ARE FIRMLY HELD ON BEFORE STARTING! (If you must, you can use the keystrokes for park brake for safety)

RADIATORS	OPEN
THROTTLE	CRACK 4%
STARTER	PULL UP
INSTRUMENTS	CHECK WATER RADIATOR TEMP. @ 40c> CHECK OIL RADIATOR TEMP. @ 40c>

IMPORTANT!! ONLY RUN ENGINES ON THE GROUND FOR THE SHORTEST POSSIBLE TIME. THE DB600 SERIES ENGINE IS PRONE TO OVERHEAT AND YOU WILL SEE THE TEMP GAUGES RISE QUICKLY. ENSURE RADIATORS ARE FULLY OPEN AND LIMIT YOUR GROUND RUNNING TIME.

STARTER	PULL UP
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SWITCH OFF THE "SECURE AIRCRAFT" SWITCH TO STOW BOARDING LADDERS AND CHOCKS.

TAXY

For best visibility for taxiing and takeoff, you need to raise the seat. and alter your viewpoint. Study the special section on raising the seat.

Taxying can be carried out using engine control an differential braking. The engines are powerful and do not require large amounts of throttle.

TAKEOFF

FLAPS UP (or 20% on full load)

THROTTLES OPEN FULLY, GRADUALLY

Push the stick forward to unstick the tail wheel at around 120 Kph (65 knots) and rotate at around 150 Kph (80 knots) by pulling gently back on the yoke.

Continue to accelerate to 200 Kph (108 knots) and raise the flaps and gear. REMEMBER TO DISENGAGE THE HYDRAULIC LOCK! to enable the flaps and gear levers to operate.

THROTTLES To give 1.15 ATA (Manifold pressure)

PROPELLERS 23,00 RPM

You should climb at around 240 Kph (130 knots) at 850 ft per min. Do not be tempted to raise the nose higher as the Heinkel can power-stall quite easily.

Lower the seat and viewpoint and close all hatches.

Level off at cruise altitude and throttle back for best economy.

Use of the AUTOPILOT is recommended for longer flights, for no other reason than to relax, keeping the aircraft in a steady attitude.

All conventional navigation processes can be employed using the radios and magnetic compass inputs.

APPROACH and LAND

PROPELLERS FULL FINE PITCH -100% - SHORT NEEDLE AT 12'O'CLOCK

THROTTLES To give 200 Kph (108 knots)

RADIATORS OPEN

HYDRAULIC LOCK UNLOCK

FLAPS FULLY DOWN

LANDING GEAR DOWN - (Green lights)

RAISE SEAT AND VIEWPOINT

REDUCE THROTTLES and TOUCH DOWN AT APPROXIMATELY 140 Kph (75.5 knots)

APPLY BRAKES GENTLY AND INTERMITTENTLY This will slow the aircraft without risking a nose-over or worse.

Raise the flaps and taxi to the hard-stand.

To stop the engines, pull the fuel cut-off levers back fully.

You have now completed your first check-flight in the Heinkel HE-111. Please study the various sections of this manual to fully understand this simulation. We are confident that it will bring hours of satisfaction.

We hope you enjoy your Heinkel HE-111 P2 just as much as we did creating it.

The Aeroplane Heaven Team. April 2019

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