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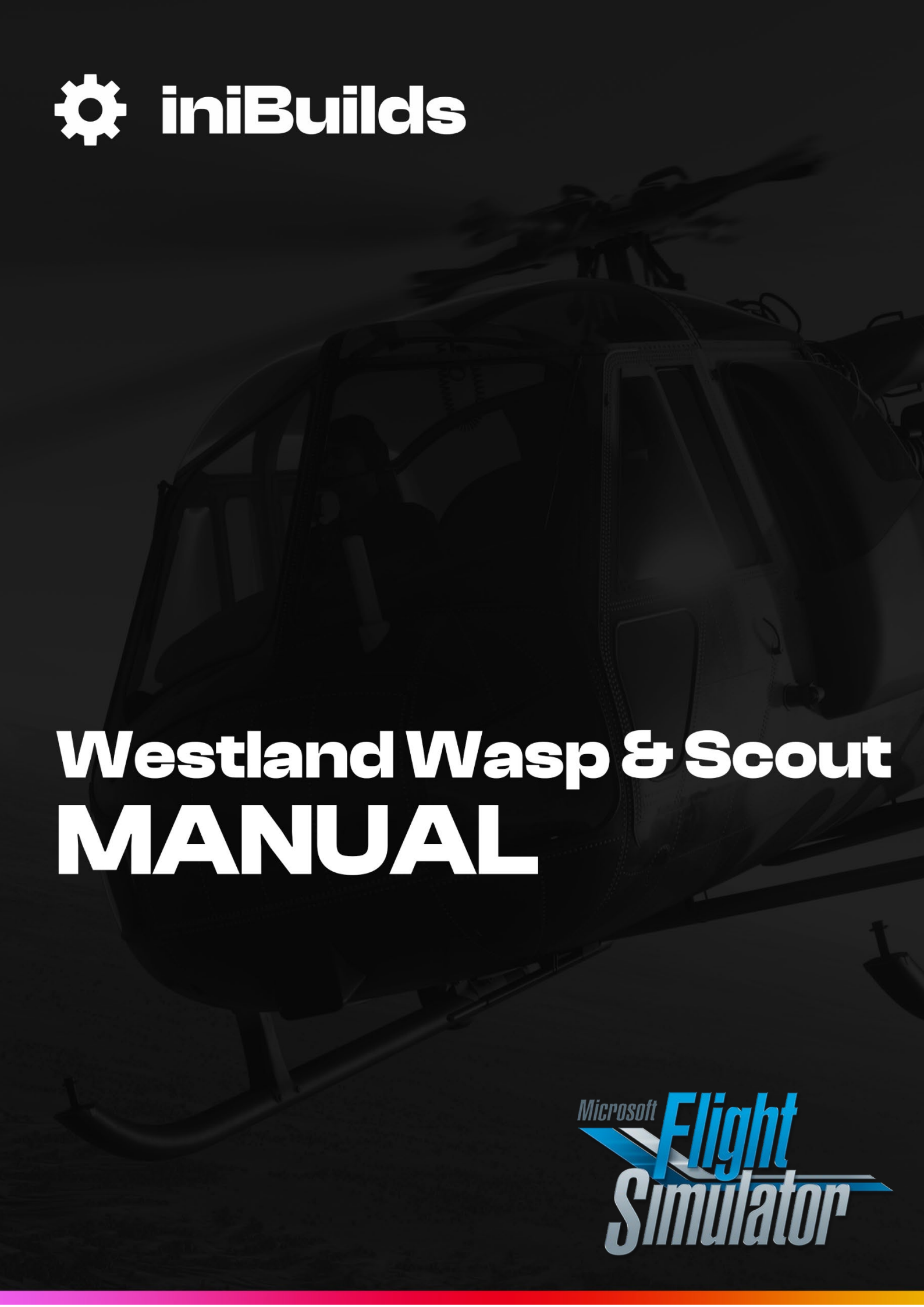

Westland Wasp & Scout MANUAL

Microsoft Flight Simulator

Preface

FOR SIMULATION USE ONLY - DESIGNED FOR SINGLE-PILOT OPERATIONS

This guide is designed to help provide a straightforward set of instructions to aid in operating the Westland Wasp and Scout aircraft.

PHOTOSENSITIVE SEIZURE WARNING

A very small percentage of people may experience a seizure when exposed to certain visual images, including flashing lights or patterns that may appear in video games. Even people who have no history of seizures or epilepsy may have an undiagnosed condition that can cause these "photosensitive epileptic seizures" while playing video games.

Immediately stop playing and consult a doctor if you experience any symptoms.

These seizures may have a variety of symptoms, including light-headedness, altered vision, eye or face twitching, jerking, or shaking of arms or legs, disorientation, confusion, or momentary loss of awareness. Seizures may also cause loss of consciousness or convulsions that can lead to injury from falling down or striking nearby objects.

Parents should watch for or ask their children about the above symptoms. Children and teenagers are more likely than adults to experience these seizures.

You may reduce risk of photosensitive epileptic seizures by taking the following precautions:

- Play in a well-lit room.
- Do not play if you are drowsy or fatigued.

If you or any of your relatives have a history of seizures or epilepsy, consult a doctor before playing video games.

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Version 1.0.4 – July 22nd, 2024

About the Westland Wasp and Scout

Westland Wasp

The Westland Wasp is a sea-based, military multi-role helicopter with an emphasis on anti-submarine operations. It is derived from the Saunders-Roe P.531 and P.531-0N which were used to develop a suitable undercarriage design and to demonstrate the potential military benefit of embarking a small rotorcraft onto small anti-submarine warships. Wasp development was completed by Westland Helicopters (now known as Leonardo) of the United Kingdom following its acquisition of Saunders-Roe in 1959. The Wasp took its maiden flight on October 28, 1962 and it entered service in 1963.

During its operational tenure, the Wasp primarily served as a platform for delivering weapons to counter threats posed by submarines that were detected by specialized ship-based sensors. It also performed the roles of personnel transport, ISR (intelligence, surveillance, and reconnaissance) data collections, liaison, and casualty evacuation. Crewed by a single pilot, it could carry up to four passengers. When equipped with guided air-to-surface missiles, it was operated with a crew of two, pilot and weapon system controller. The Wasp was operated by the British Royal Navy and the navies of several other countries. The wasp was used as a military helicopter until 2000.

The history of the Wasp began in November of 1957. British aerospace company Saunders-Roe undertook an initiative to develop a military utility helicopter as a successor to their earlier Skeeter model. The 2-seat, piston-powered Skeeter was the first helicopter widely used by the British Army Air Corps and proved highly successful. The replacement, a turbine-powered, 5-seat prototype helicopter called the P.531, used several components from the Skeeter for convenience but the later production variant would replace these items as part of their new design. The P.531 took its maiden flight on July 20, 1958.

When Westland Helicopters acquired Saunders-Roe in 1959 the intended production standard helicopter, the P.531-2 had already taken its maiden flight. In October 1959, a pair of P.531-0N standard helicopters, derived from the earlier P.531 prototype, were delivered to the Navy for evaluation, where they would remain for 18 months. A great deal of time was spent on developing and demonstrating various undercarriage solutions to suit deep water, rough seas, and small ship operation. Westland developed the P.531-2 into the Wasp for the Royal Navy based on the experience gained using the P.531-0N. Compared to its sister helicopter, the Army Scout, the Wasp was equipped with a folding tail, a unique wheeled undercarriage, and a more powerful version of the Rolls-Royce Nimbus engine.

The Wasp features a fully glazed cockpit, an efficient 4-blade main rotor system that folds for stowage, and a folding tail boom for stowage. It uses a long-legged landing gear system with castering wheels for maneuvering on flight decks. The helicopter's main rotor system can be set for negative pitch to press it against a flight deck. At the time of its development, it used the most advanced rotorcraft flight controls, avionics, and weapons control systems available.

The Westland Wasp measures 30 feet, 4 inches in length, stands 8 feet, 11 inches tall, and has a main rotor diameter of 32 feet, 3 inches. It is powered by a Rolls-Royce Nimbus turboshaft engine that delivers up to 710 horsepower. It has a range of 303 miles, a service ceiling of 12,000 feet

above sea level, and it climbs at 1,440 feet per minute. It cruises at 110 miles per hour and has a top speed of 120 mph.

Westland Scout

The Westland Scout is a multi-role, land-based, military utility helicopter developed and manufactured by Westland Helicopters (now known as Leonardo) of the United Kingdom. Operated by one pilot, the single-engine Scout can carry up to four passengers. The rotorcraft took its maiden flight in August of 1959 as the Saunders-Roe P.531-2 and Westland Helicopters began deliveries to the Army Air Corps in 1963.

The Scout performed several roles during its military operational tenure. These included ISR (intelligence, surveillance, and reconnaissance) data collections, close air support, ground attack, assault support, casualty evacuation, forward observation, troop and cargo transport, search and rescue, and flight training. It was used by the British Army Air Corps among other operators.

The history of the Scout began in November of 1957. British aerospace company Saunders-Roe undertook an initiative to develop a military utility helicopter as a successor to their earlier Skeeter model. The 2-seat, piston-powered Skeeter was the first helicopter widely used by the British Army Air Corps and proved highly successful. The replacement, a turbine-powered, 5-seat prototype helicopter called the P.531, used several components from the Skeeter for convenience but the later production variant would replace these items as part of its new design. The P.531 took its maiden flight on July 20, 1958.

When Westland Helicopters acquired Saunders-Roe in 1959 the intended production standard helicopter, the P.531-2 had already taken its maiden flight. Engineers then implemented a more powerful engine and replaced the wheeled undercarriage fitted to the P.531 with landing gear skids. The P.531-2, which took its maiden flight on August 9, 1959, would go on to form the basis for a light helicopter to equip frontline squadrons in both the British Army Air Corps and the British Royal Navy. Westland developed the P.531-2 into the Scout for the Army and the Wasp for the Royal Navy.

The Scout features an extensively glazed cockpit, a powerful turboshaft engine, and an efficient 4-blade main rotor system. At the time of its development, it used the most advanced rotorcraft flight controls, avionics, and weapons control systems available. Its modular design allowed for a multitude of configurations, including casualty evacuation, troop transport, and the mounting of several weapon systems.

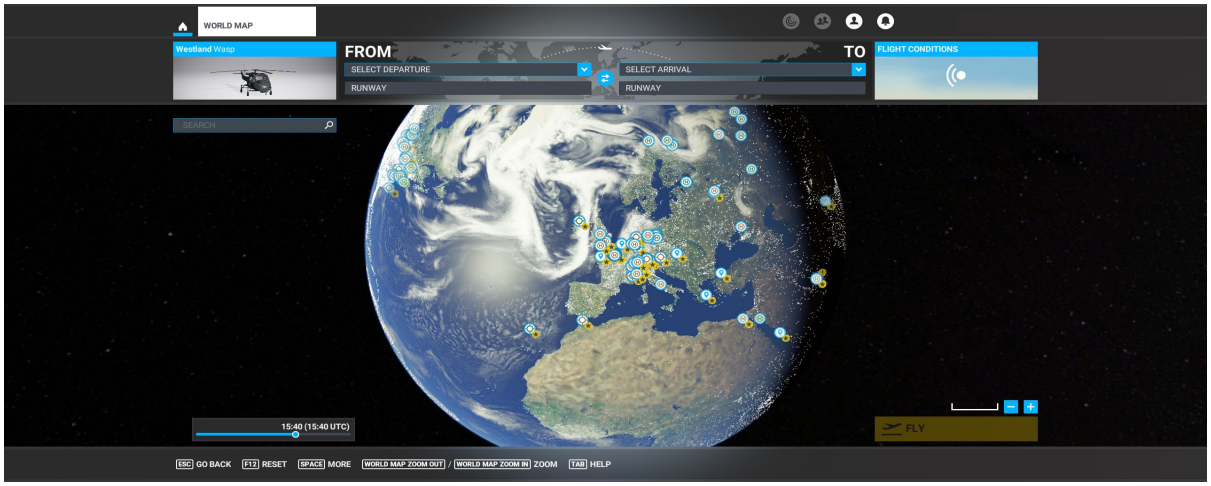
The combination of design elements made the Scout an incredibly effective military aerial platform. It could fly fast and low in nap-of-the-earth maneuvering, it could engage targets from long distances, and it could carry militarily useful loads of supplies and personnel. It could be re-armed and refueled within three minutes, and it could operate out of austere expeditionary bases. The Scout was a renowned workhorse for the Army Air Corps.

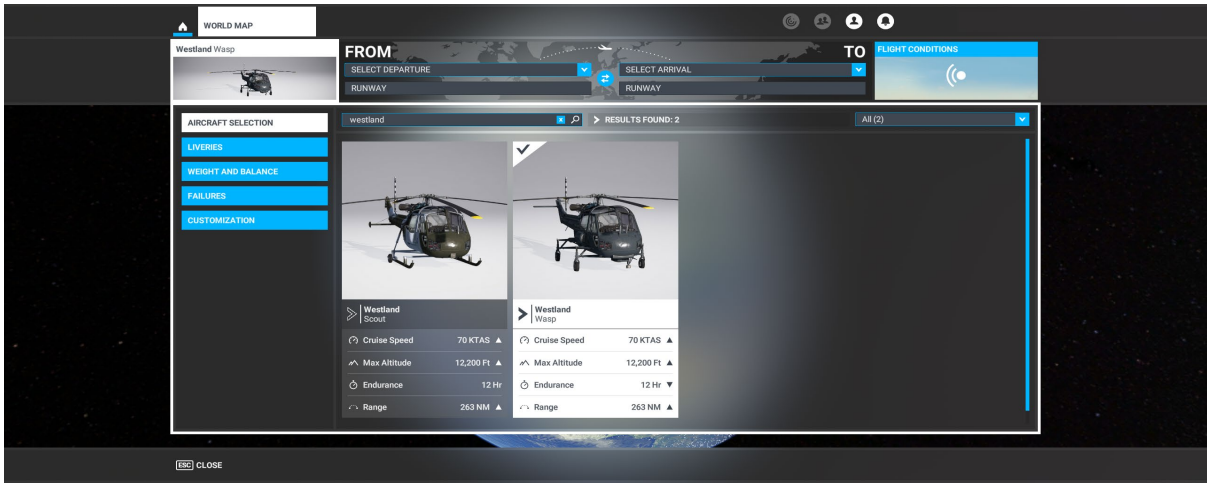
The Westland Scout measures 30 feet, 4 inches in length, stands 8 feet, 11 inches tall, and has a main rotor diameter of 32 feet, 3 inches. It is powered by a Rolls-Royce Nimbus turboshaft engine that delivers up to 685 horsepower. It has a range of 315 miles, a service ceiling of 12,000 feet above sea level, and it climbs at 1,670 feet per minute. It cruises at 122 miles per hour and has a top speed of 131 mph.

Aircraft Selection and Liveries

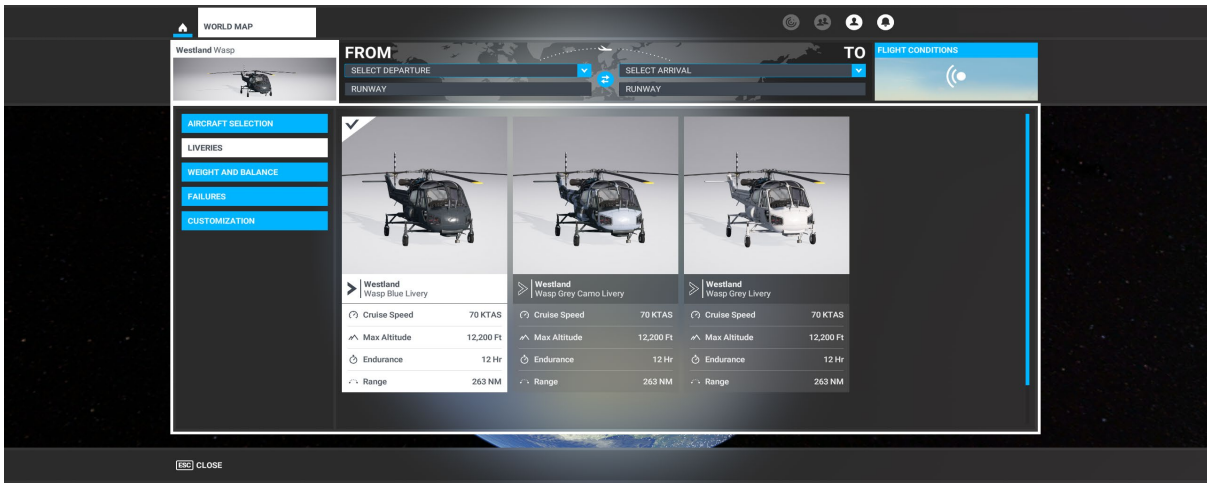
To fly the Westland Wasp or Scout, you will need to select it from the Aircraft Selection menu. Click on WORLD MAP in the Main Menu and click the AIRCRAFT SELECTION icon on the top left.

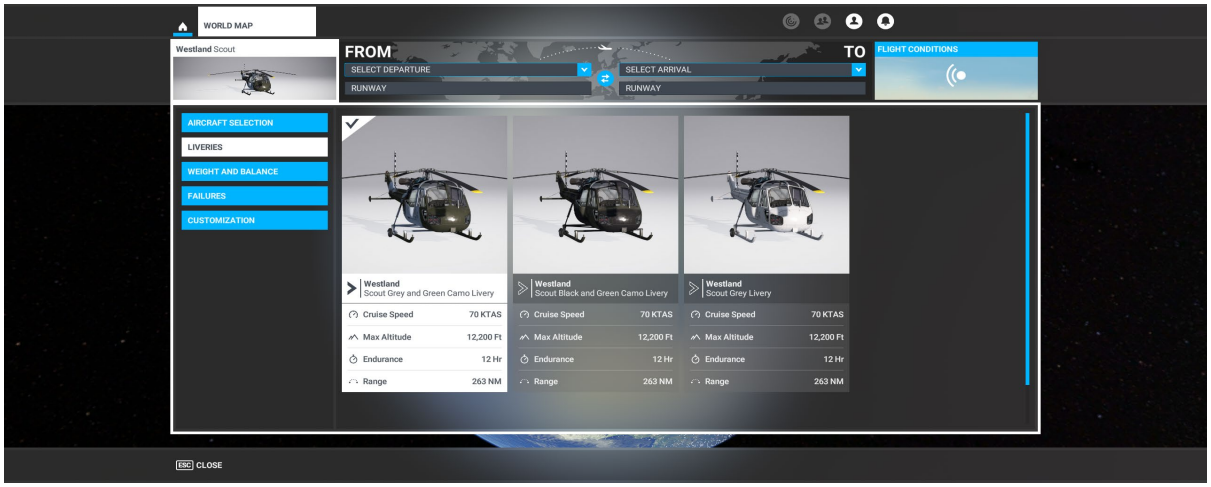
Scroll until you see the Wasp or Scout or type “Westland” in the search bar, and it will appear.





Once you have selected the Wasp or Scout variant, click on Liveries to select any of the various designs available for that variant.





Cockpit Interaction

Some knobs within the cockpit have interaction where you can push, pull, or scroll them for their functionality.

This functionality will vary depending on your simulator's specific settings under GENERAL OPTIONS > ACCESSIBILITY.

If a control is set to "Lock," left click (and hold the left mouse button) the knob and push the mouse for "push" interaction and pull the mouse for "pull" interaction. Some functions also may have middle-mouse button "scroll" or "push" and right-mouse click "set" functions.

If it set to "Legacy," you will see an icon appear to the left, right, above, or below, which you use the middle-mouse wheel to scroll as if a circular arrow, and left click to "set" as if an up or down arrow icon.

On the Xbox, press **A** to interact with the knob and use **A** to "push," **X** to "pull," Right Stick to "scroll," and **B** to finish the control input.

Checklists

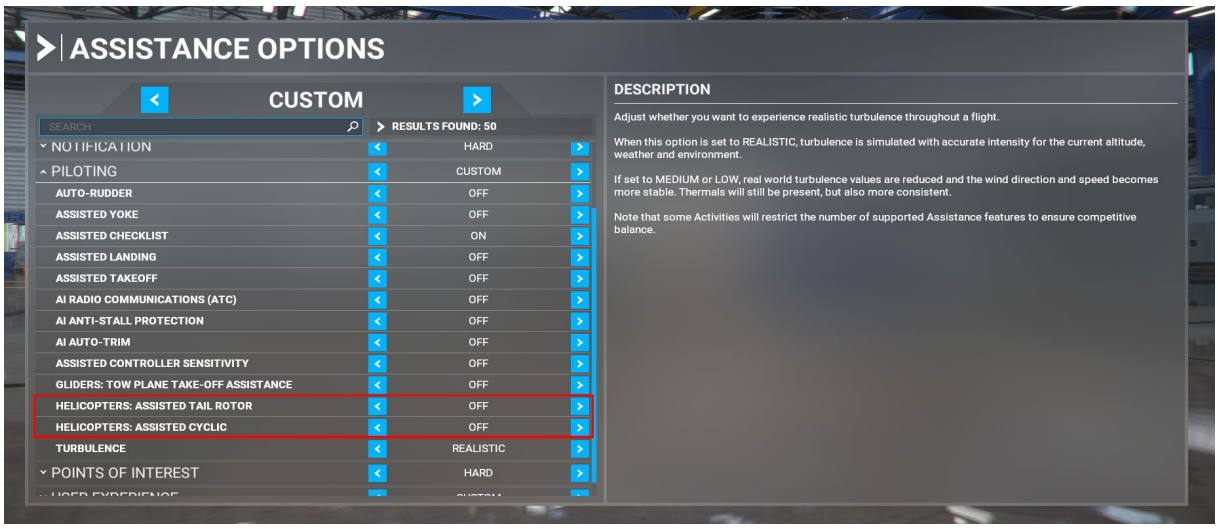
While this guide offers comprehensive operational instructions that are functionally complemented by the Quick Reference Card (QRC), iniBuilds has incorporated expedient procedural checklists within the simulator. These can be accessed via the top-of-screen drop-down menu by selecting the Checklist option.

Clicking the blue eye icon to the right of the checklist item will switch your view to the requisite panel where the button/switch/dial/gauge is located. You can use the AUTO COMPLETE option to expediently tick off the item from the checklist.

Important Notes and Substitutions

The aircraft use the new Computational Fluid Dynamics (CFD) flight model along with new fuel system and engine physics. Care should be taken while flying the aircraft not to stress the airframe and engines beyond their intended limitations as the aircraft, including all of its internal structural elements, reacts realistically in the system under these new simulation mechanisms.

If you are new to helicopter flying, within the simulator Assistance Options you can switch on the Helicopter assist modes which gives you an easier flying experience.



“Adjust whether you want assistance with tail rotor controls in helicopters. “
“Adjust whether you want assistance with cyclic controls in helicopters. “

Recommended Control Bindings

To control the throttle during start up and provide greater control during manoeuvres we recommend binding the following axis:

“SET HELICOPTER THROTTLE AXIS”

Auto Governor

A helicopter governor controls the applied throttle command from the engine to the rotor. The primary reason to do this is to counter forces applied to the rotor during all phases of flight and to keep the rotor RPM within operational limits.

The governor within the Wasp / Scout series of helicopters engages after the principal startup phase when the throttle is opened to full. The system will then engage and self-manage the required torque output from the engine to stabilise the rotor RPM.
The only way to shut this system off once operational, is to shut down the aircraft. This is by design.

You can monitor the effect the governor is having on the power / torque output on the engine during flight operations via the Torque gauge on the MIP.

After the primary phase of start has been completed and as you swift and smoothly open the throttle to full the governor will take over. While the system stabilises and adjusts to local conditions you may notice the torque magnetic coupler read either the black and "clear" stage as well as the Zero Power stage.
This is normal behaviour during stabilisation. This coupler reflects the power being applied by the engine to the rotor. If the rotor speed is higher than optimum, the governor will reduce power output to lower RPM and if the rotor RPM is lower than required, it will increase power until the torque limit is reached.

Black and “Clear” Stage

Zero Power Stage

With the rotor governor in operation any movement on the engine throttle inputs will temporarily override the commanded position by the governor this will cause an overspeed of the rotor head. Release command of your input and the governor will resume control and normal flight can resume.

STABILITY AUGMENTATION SYSTEM (SAS)

This aircraft is equipped with a Stability Augmentation System (SAS) that allows the pilot to control the helicopter more easily using the control stick, thereby reducing operational load. To interact with the SAS, the pilot has two buttons available:

- **AUTOSTAB**: This function is used to engage the SAS and update the desired attitude of the aircraft while it is pressed. That is, when the pilot presses and holds this autopilot key, the aircraft will start analysing pitch, roll, and airspeed. When the key is released, the aircraft will maintain these conditions depending on the engaged mode. This key corresponds to the AP MASTER, which, using the default key assignments, is the 'Z' key on the keyboard.

  Important:

  1. When this key is pressed and held, the pilot will have full manual control until it is released.
  2. Set the aircraft to a stabilized state before releasing the AUTOSTAB key to avoid unexpected movements. That is, the pilot should release the key only when the aircraft has a stabilized pitch, roll, and airspeed. Otherwise, if the airspeed is not stable, releasing the key may cause the aircraft to behave unpredictably, such as increasing pitch to reduce or increase airspeed.

- **AUTOSTAB RELEASE**: This button, is used to completely disengage the SAS, returning full manual control to the pilot. This button is physically located on the back side of the control stick.

Flight modes:

Pitch hold:

Engaging the SAS below 40 knots the AP pitch hold mode will save and hold the current attitude values after the pilot releases the AUTO STAB button.

Engaging the SAS above 40 knots the AP pitch hold mode will save and hold the current airspeed value after the pilot releases the AUTO STAB button and will adjust the aircraft pitch to hold that airspeed value.

Roll hold:

Engaging the SAS with a bank angle greater than 5 degrees will activate the AP bank hold mode, which will save and hold the current bank angle value after the pilot releases the AUTO STAB button.

Engaging the SAS with wings level (less than 5 degrees bank) will activate the AP heading hold mode, which will save and hold the current heading value after the pilot releases the AUTO STAB button.

Note that if you are in AP heading hold mode, the HSI heading needle will be updated and the pilot can change the heading value using the heading knob selector, which will update the SAS to follow that heading.

All SAS modes engage a yaw damper that helps the systems to avoid unexpected movements around the vertical axis.

Westland Wasp & Scout Specifications

Cruise Speed: 70 KTAS
Max Altitude: 12,200 FT
Range: 263NM

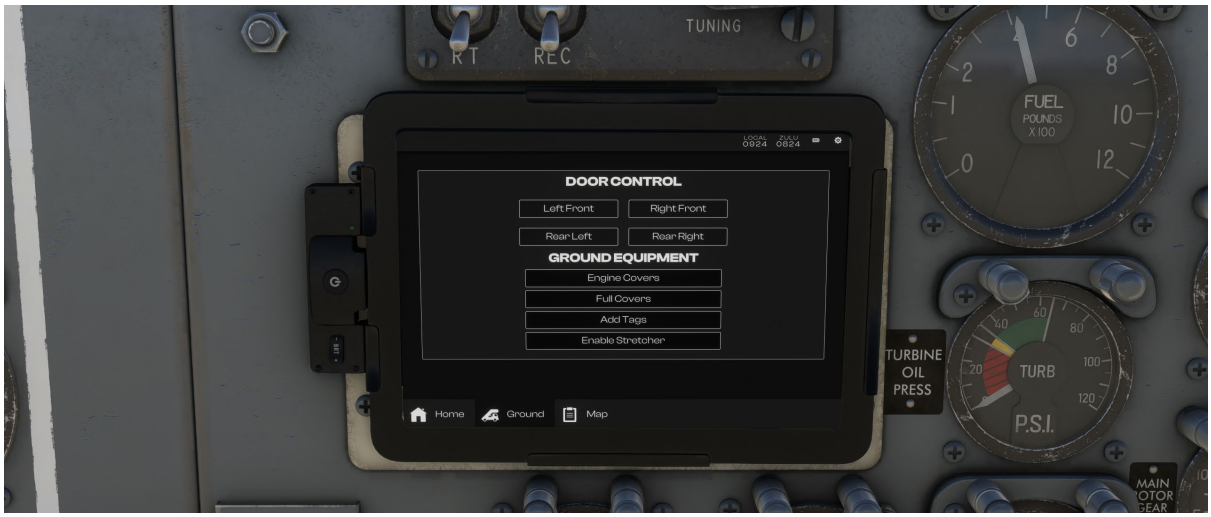
Electronic Flight Bag (EFB)

Within the middle of the main instrument panel is an EFB which allows for some key functions of the aircraft to be accessed.
The home page has the ability to search for an airfield's METAR and a Checklist page.
There is a moving VFR Map, which will show your route if set within the World Map.
The ground page has options for hiding each individual door and removing the engine blanks, full engine cover and flags. For Scout you have the option of a stretcher and on Wasp, the floats can also be removed, and wheel chocks placed.

The EFB is shown and hidden by clicking the bolt to the left of the ADF panel.

Home Page (incorporating METAR search)

Ground Page Wasp (including chocks and floats)



Ground Page Scout (including stretcher)


G-WASP


G-WASP


G-SCOUT


G-SCOUT


DANGER
G-SCOUT


RT
REC
EGUV
UU
EGSC
EGTS
EGSU
EGMA
EGRD
EGQN
EGSN
EGV
Home
Ground
Map
FUEL
POUNDS
X 100
TURBINE
OIL
PRESS
TURB
P.S.I.
MAIN
OTOR

Map Page

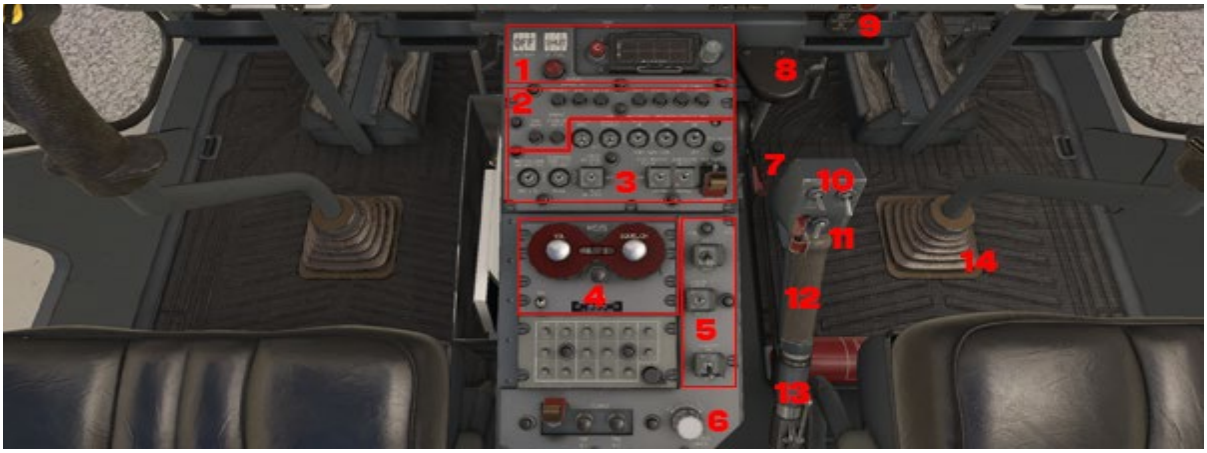
Cockpit Layout

Pilot's Main Instrument Panel

1. ADF Panel	13. Turbine Oil Pressure
2. ADF Direction Indicator	14. Jet Pipe Temperature
3. Over Torque Zero Power Indicator	15. Pilot Panel Lights
4. Rotor RPM	16. Arial Position Indicator
5. Collective Pitch Indicator	17. Clock
6. Slip Ball and Main Warning Lights	18. Compressor Oil Pressure
7. EFB Show/Hide	19. Main Rotor Gear Box / Engine Gear Box & Engine Oil Tank Indicators
8. Fuel Indicator	20. Compressor RPM
9. Torque Percent	21. Standby Attitude Indicator (SAI)
10. Air Speed Indicator (ASI)	22. Horizontal Situation Indicator (HSI)
11. Attitude Direction Indicator (ADI)	23. Altimeter
12. Vertical Speed Indicator (VSI)	24. Starter Indication Light

Copilot's Main Instrument Panel

1. Warning Indicator	5. Vertical Speed Indicator (VSI)
2. Slip Ball	6. Horizontal Situation Indicator (HSI)
3. Air Speed Indicator (ASI)	7. Altimeter
4. Attitude Direction Indicator (ADI)	8. Copilot Panel Lights



Center Console

1. Warning Panel	8. Carb Heater
2. Fuse Bank	9. Cabin Vent
3. Main Switch Panel	10. Landing Light Control Switches
4. COM1 Radio Panel	11. Manual Power Switch and Guard
5. Low Pressure Fuel Switch / Ignition Switch / Starter Switch	12. Throttle
6. Panel Lights	13. Collective
7. High Pressure Fuel Lever	14. Show/Hide Cyclic

Center Console Upper Panel

1. Battery Indicator	10. Standby Invertor Fuse
2. LP Fuel Indicator	11. FO Windscreen Wiper Switch
3. Warning Lights Reset Button	12. CPT Windscreen Wiper Switch
4. Warning Lights Panel	13. Pitot & Engine Anti-Ice Switch
5. Waring Lights Test Button	14. Anti-Collision & Nav Lights Switch
6. Starting Fuse	15. Downward Light Switch
7. AFT Fuel Pump Fuse	16. Battery Switch
8. FWD Fuel Pump Fuse	17. Generator Switch
9. Primary Invertor Fuse	18. Bus Bar Switch and Guard

Radio and Transponder Functions

The aircraft has conventional radio units that are linked into the in-sim Air Traffic Control (ATC). When using the in-sim ATC menu, selecting the frequencies will automatically adjust the radio panel frequencies.
You can, however, still tune these manually to match the required ATC frequencies.

COM1

1. MHZ Tuning Dial	3. KHZ Tuning Dial
2. Volume Dial	4. Power Switch

COM 2

To show/hide the COM2 panel, click the bolt on the far-left hand side of the main instrument panel.

1. Mode
2. Squelch
3. On/Volume

4. Store
5. Switch Button
6. Frequency Select

1. MDE - Press the Mode button to switch between COM1 and COM2.	4. STO - Pressing this will change the frequency select between Kilohertz and Megahertz.
2. INOP.	5. SCN - Pressing this will switch between primary and standby selected frequencies.
3. On/Volume/Off - Turn the knob to the right to switch on the unit, increase the volume and switch off the unit. A message will appear for a short time saying Radio Off.	6. Frequency Selector – rotating this up will increase the frequency and rotating down will decrease the frequency.

Transponder

The transponder is located at the rear of the center console.

1. IDENT Button	4. Mode Selector
2. Digit 1 Selector	5. Digit 3 Selector
3. Digit 2 Selector	6. Digit 4 Selector

Both the radio and transponder are fully tied into the in-sim ATC functionality.
Either manual tuning on the units themselves or auto-tuning from the ATC panel or in-sim AI Radio Communications (ATC) works.

Simplified Procedures

Preliminary Cockpit Preparation	
Seat Belts	ON
Flight Controls	CHECK
Throttle	CLOSE
Landing Light	OFF
Engine Anti-Ice	OFF
Hydraulics	POWER
High Pressure Fuel Lever	ON
Low Pressure Fuel Switch	OPEN
Circuit Breakers	ALL IN
Bus Bars	SPLIT
Altimeter	SET
Instruments	CHECK

Engine Start	
Battery	GROUND
Central Warning Panel lights	CHECK
Central Warning Panel lights	PRESS TO TEST
Ignition Switch	TEST
Ignition Switch	OFF
Fuel	CHECK
Collective	DOWN
Rotors	CLEAR
Starter	ON
Main Rotor	CHECK TURNING BY 25% N1
Oil Pressure	INCREASING

Ignition Switch	NORMAL
Starter	DISENGAGED BY 58% N1
Throttle	OPEN
Engine Instruments	CHECK
Generator	ON
Battery	FLIGHT

Engine Warm Up	
Hydraulic System	CHECK
Anti-Ice	CHECK
Throttle Idle	COMPRESSOR RPM CHECK
Throttle	FULLY OPEN

Pre-Take-Off	
Fuel	CHECK
Temperatures and Pressures	GREEN
Instruments	SET AND ALIGNED
Central Warning Panel lights	CHECK OUT
Exterior Lights	SET
Interior Lights	SET
Radio	SET
Doors	CLOSED (IF SHOWN)
Throttle	FULLY OPEN

Takeoff	
Collective	INCREASE

Temperatures and Pressures	GREEN
Rotor RPM	GREEN ARC
Cyclic	AS REQUIRED
Rotation	AS REQUIRED
Initial Climb	60 KIAS

Cruise	
Fuel	CHECK
Central Warning Panel lights	CHECK OUT
Temperatures and Pressures	GREEN
Heading Indicator	ALIGNED
Altimeter	SET
Anti-Ice	AS REQUIRED

Approach	
Approach Speed	50 KIAS
Descent Rate	500 FT/MIN

Landing	
Flare	At 50 FT
Collective	INCREASE

Engine Shutdown	
Generator	OFF
Ignition Switch	OFF
Collective	DOWN
Throttle	CLOSE
Low Pressure Fuel Switch	SHUT
High Pressure Fuel Lever	OFF
Rotor RPM	CHECK
Battery	GROUND

Parking	
Rotor Brake	ON
Instruments	CHECK
Hydraulics	OFF
Engine Anti-Ice	OFF
Throttle	CLOSE
Landing Light	OFF
Battery	OFF

Preliminary Cockpit Preparation

Seat Belts ..... ON
Flight Controls ..... CHECK
Throttle ..... CLOSE
Landing Light ..... OFF
Engine Anti-Ice ..... OFF
Hydraulics ..... POWER
High Pressure Fuel Lever ..... ON
Low Pressure Fuel Switch ..... OPEN
Circuit Breakers ..... ALL IN
Bus Bars ..... SPLIT
Altimeter ..... SET
Instruments ..... CHECK

Engine Start

Battery ..... GROUND
Central Warning Panel lights ..... CHECK
Central Warning Panel lights ..... PRESS TO TEST
Ignition Switch ..... TEST
Ignition Switch ..... OFF
Fuel ..... CHECK
Collective ..... DOWN
Rotors ..... CLEAR
Starter ..... ON
Main Rotor ..... CHECK TURNING BY 25% N1
Oil Pressure ..... NCREASING
Ignition Switch ..... NORMAL
Starter ..... DISENGAGED BY 58% N1
Throttle ..... OPEN
Engine Instruments ..... CHECK
Generator ..... ON
Battery ..... FLIGHT

Engine Warm Up

Hydraulic System ..... CHECK
Anti-Ice ..... CHECK
Throttle Idle ..... N1 CHECK
Throttle ..... FULLY OPEN

Pre-Take-Off

Fuel ..... CHECK
Temperatures and Pressures ..... GREEN
Instruments ..... SET AND ALIGNED
Central Warning Panel Lights ..... CHECK OUT
Exterior Lights ..... SET
Interior Lights ..... SET
Radio ..... SET
Doors ..... CLOSED (IF SHOWN)
Throttle ..... FULLY OPEN

Take Off

Collective ..... INCREASE
Temperatures and Pressures ..... GREEN
Rotor RPM ..... GREEN ARC
Cyclic ..... AS REQD
Rotation ..... AS REQD
Initial Climb ..... 60 KIAS

Cruise

Fuel ..... CHECK
Central Warning Panel Lights ..... CHECK OUT
Temperatures and Pressures ..... GREEN
Heading Indicator ..... ALIGNED
Altimeter ..... SET
Anti-Ice ..... AS REQD

Approach

Approach Speed ..... 50 KIAS
Descent Ratel ..... 500 FT/MIN

Landing

Flare ..... AT 50FT
Collective ..... INCREASE

Engine Shut Down

Generator ..... OFF
Ignition Switch ..... OFF
Collective ..... DOWN
Throttle ..... CLOSE
Low Pressure Fuel Switch ..... SHUT
High Pressure Fuel Lever ..... OFF
Rotor RPM ..... CHECK
Battery ..... GROUND

Parking

Rotor Brake ..... ON
Instruments ..... CHECK
Hydraulics ..... OFF
Engine Anti-Ice ..... OFF
Throttle ..... CLOSE
Landing Light ..... OFF
External Lights ..... OFF
Internal Lights ..... OFF
Battery ..... OFF