

DCS Mi-24P Hind
Quick Start Manual

Mi-24P
HIND

TABLE OF CONTENTS

TABLE OF CONTENTS 2

HEALTH WARNING! 4

INSTALLATION AND LAUNCH 5

Game Problems5

Useful Links.....5

CONFIGURE YOUR GAME 6

Helicopter Controls9

 Cyclic..... 11

 Collective 12

Cockpit 15

 Pilot-Commander Cockpit..... 16

 Pilot-Commander Instrument Panel 17

STARTING THE MI-24P HELICOPTER 19

FLYING THE HELICOPTER 25

Takeoff 25

Turning 27

Hovering 28

Landing 28

Trimming 28

WEAPONS EMPLOYMENT 30

ASP-17VP Pilot-Commander Sight..... 32

- Fixed Reticle 34
- Floating Reticle..... 35

Pilot-Commander Weapons Control Panel 36

- Weapon Pylons and Missile Stations Numbering 38

Employing Unguided Weapons 39

Employing Guided Weapons..... 47

“PETROVICH” AI 61

Controls Structure..... 61

- Mi-24P AI Menu Controls 63
- Helper AI Commands Controls 63
- Player-as-Pilot-Operator Petrovich Commands 64
- Player-as-Pilot-Commander Petrovich Commands..... 68

Additional Features..... 72

HEALTH WARNING!

Please read before using this computer game or allowing your children to use it.

A very small proportion of people may experience a seizure or loss of consciousness when exposed to certain visual images, including flashing lights or that can occur in computer games. This may happen even with people who have no medical history of seizures, epilepsy, or "photosensitive epileptic seizures" while playing computer games.

These seizures have a variety of symptoms, including light-headedness, dizziness, disorientation, blurred vision, eye or face twitching, loss of consciousness or awareness.

Immediately stop playing and consult your doctor if you or your children experience any of the above symptoms.

The risk of seizures can be reduced if the following precautions are taken - this advice applies generally when playing computer games.

Do not play when you are drowsy or tired.

Play in a well-lit room.

Rest for at least 10 minutes per hour when playing.

INSTALLATION AND LAUNCH

You will need to be logged into Windows with Administrator rights to install DCS World and the DCS: Mi-24P module.

After purchasing DCS: Mi-24P Hind from our e-Shop, start DCS World. Select the Module Manager icon at the top of the Main Menu. Upon selection, your Hind will automatically install.

The Mi-24P Hind operates within the DCS World PC simulation. When you run DCS World, you in turn launch DCS: Mi-24P Hind. A map of the Caucasus region, the Su-25T Frogfoot attack aircraft, and TF-51 training aircraft are also included for free.

After clicking the DCS World icon on your desktop, the DCS World Main Menu screen opens. From the Main Menu, you can read DCS news, change your wallpaper by selecting the Mi-24P Hind icon at the bottom of the screen, or select any of the options along the right side of the screen. To get started quickly, you can select Instant Action and play any of the missions listed for the Mi-24P Hind.

GAME PROBLEMS

If you encounter a problem, particularly with controls, we suggest you back up and then delete the `Saved Games\DCS\Config` folder within your user directory, which is created by DCS on your operating system drive at first launch. Restart the game and this folder will be rebuilt automatically with default settings, including all the controller input profiles.

If problems persist, we suggest consulting our online technical support forums at <https://forums.eagle.ru/forum/156-dcs-mi-24p-hind>.

USEFUL LINKS

- DCS Homepage: <http://www.digitalcombatsimulator.com/>
- DCS: Mi-24P Hind forum: <https://forums.eagle.ru/forum/156-dcs-mi-24p-hind/>
- DCS Wiki: http://en.wiki.eagle.ru/wiki/Main_Page

CONFIGURE YOUR GAME

Before jumping into the Hind cockpit, we recommend configuring your game. To do so, select the Options button at the top of the Main Menu screen. You can read a detailed description of all Options in the DCS World Game Manual. For this Early Access Guide, we will just cover the basics.



Figure 1. DCS World Main Menu

Upon selecting the Options menu (⚙ icon), you will see seven tabs along the top of the panel. The first thing to do is select the cockpit language. Go to the "Special" tab, then scroll to and select the Mi-24P from the left-hand drop down menu. Then locate the "Customized Cockpit" drop down menu and select either "Avionics Language" and select either "Default" (Russian), or "English". If you select "English", all your cockpit dials, controls and labels will be in English.

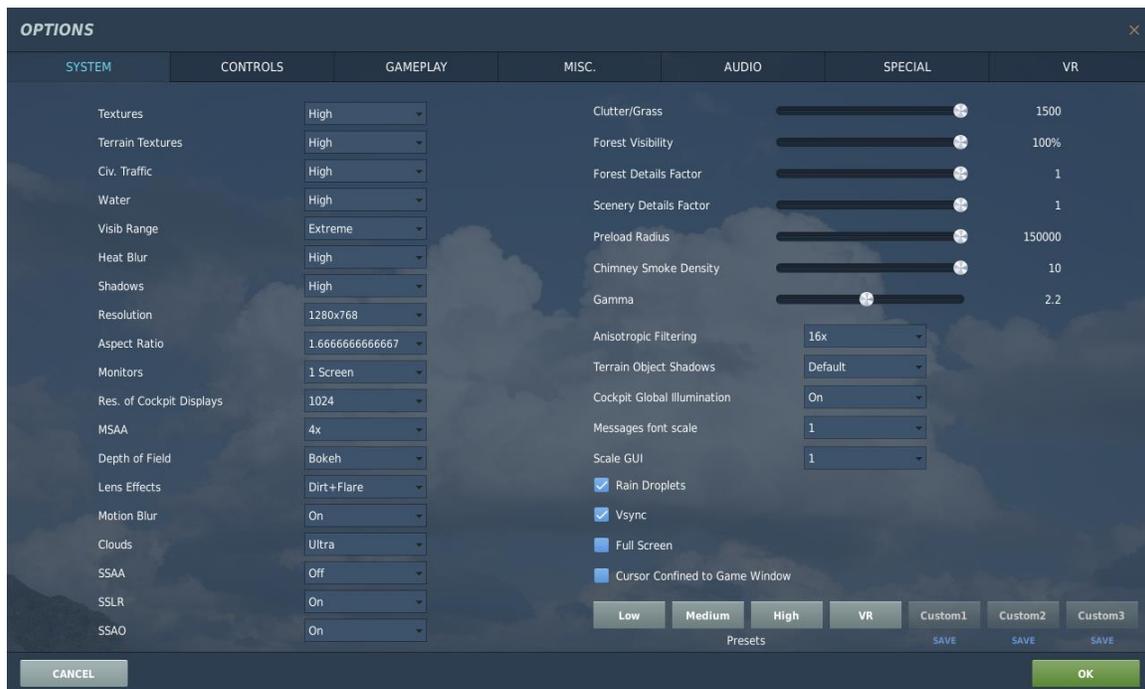


Figure 2. DCS World Options

SYSTEM. Configure your graphics options for ideal performance. There are PRESET options along the bottom of the panel, but you can further adjust your graphics settings to best suit your computer. If you have a lower-performance PC, we suggest selecting the Low preset and then increasing graphics options incrementally.

Items that most affect performance include Visible Range, Resolution, and MSAA. (Multisample Anti-Aliasing) If you wish to improve performance, you may want to adjust these System options.

CONTROLS. Set up your controls and functional bindings. Let's take a closer look at this tab:

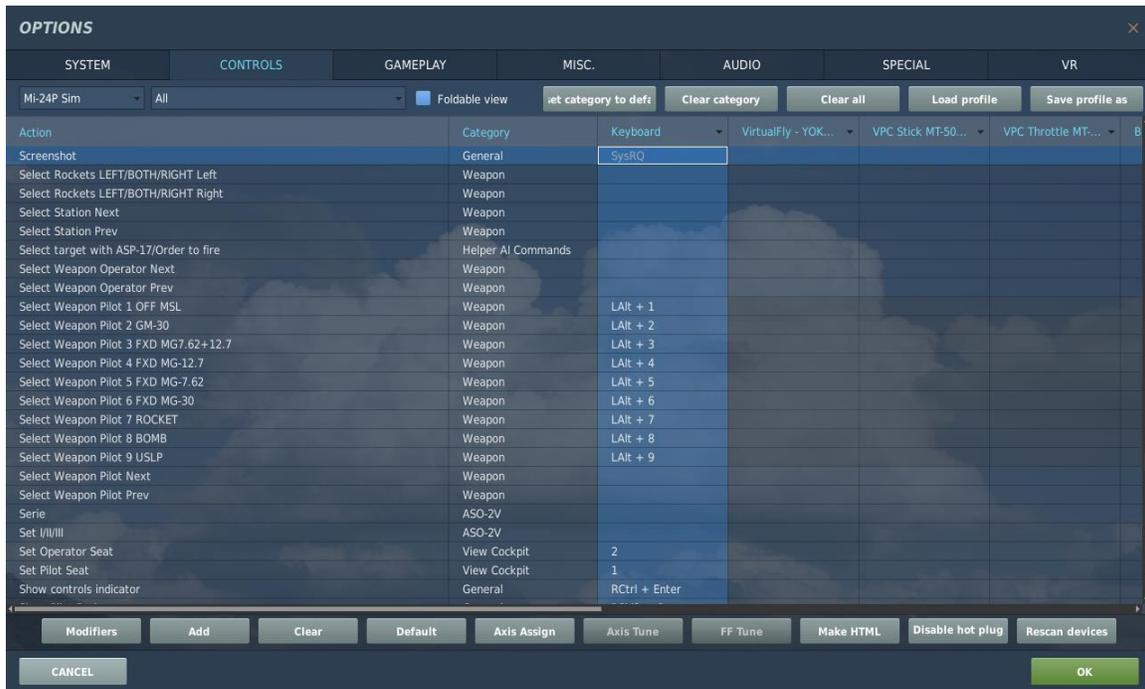


Figure 3. Mi-24P Controls Tab

First, select the Mi-24P using the Aircraft Selection drop-down in the top left-hand corner of your screen. Next, along the lower left side of the screen are all the ACTIONS associated with the selected commands. To the right are all the input devices that have been detected, including your keyboard, mouse, and any joysticks, throttles, or rudder pedals.

- **Aircraft Selection.** From this drop-down menu, select **Mi-24P Sim**.
- **Input Functions.** This displays various categories of commands, including axis devices, views, and cockpit functions. Each row controls a different function, and each column is an input device. To assign a function or command, e.g. 'select rockets', choose an input device, and double-click in the cell aligned with the desired function and input device. Once selected, press the button or move the axis of the device to assign it.
 - If setting a pitch axis for a joystick, first select Axis Commands from the Categories drop-down. Find the cell where your joystick and the Pitch axis intersect and double-click in the box. In the Add Assignment panel, move your joystick forward and back to assign the axis. Press OK when done.
 - If setting up HOTAS (Hands On Throttle And Stick) commands (e.g., to cycle the landing gear), first select the All category. Find the cell where your input device and the GEAR LEVER – UP/DOWN Action intersect, then double-click in the box. In the Add Assignment panel,

press the keyboard or controller button you wish to assign to the action. Press OK when done.

- **Axis Tune.** When assigning an axis (for example the X and Y axes for a joystick), you can use this panel to assign a deadzone, response curve, and other tuning. This can be very useful if you find the aircraft too sensitive to control. The most common and useful functions to adjust are Deadzone, Response Curve, Saturation Y, and Invert.

GAMEPLAY. This page primarily allows you to adjust the game to be as realistic or as casual as you'd like. Choose from many difficulty settings like labels, tooltips, unlimited fuel/weapons, etc. Turning the aircraft's Mirrors "Off" can help improve performance.

AUDIO. Use this page to adjust the audio levels of the game. You also have the option to turn on and off different audio effects.

MISC. These are additional settings to alter your game experience.

VR. The VR tab allows you to enable support for VR headsets. When using VR, be particularly aware of the Pixel Density setting, as it can have a dramatic effect on game performance.

HELICOPTER CONTROLS

Primary helicopter flight controls include the cyclic control stick, collective control lever, and anti-torque pedals. The cyclic is the equivalent of a joystick and is used to raise or lower the nose and roll the helicopter left and right for turns. The collective is a lever and handle positioned by the pilot's side that is moved up and down to control the amount of lift being generated by the main rotor, in order to gain or lose altitude (climb or descend). The pedals are used to turn (yaw) the nose left or right with minimal roll and can be used to rotate the helicopter when hovering in place.

When flying from the cockpit, you can toggle the Controls Indicator display by pressing **[RCtrl + Enter]** to see the positions of your flight controls. This can be very helpful when learning how to fly.

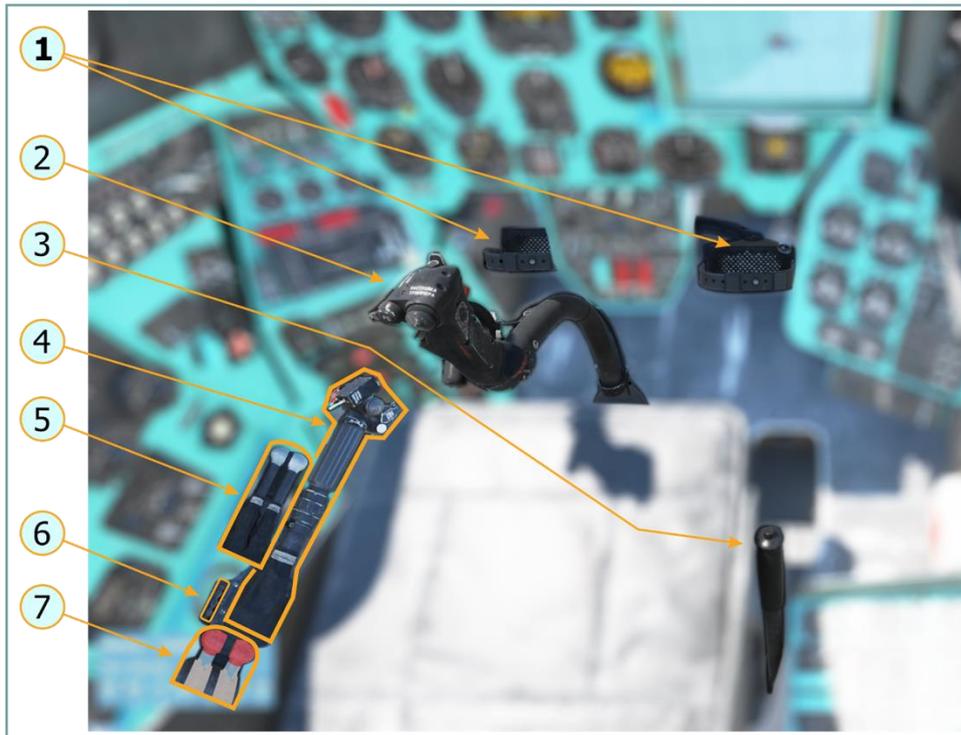


Figure 4. Primary Helicopter Controls

1. Anti-torque pedals
2. Cyclic
3. Rotor brake
4. Collective (with throttle on the handle)
5. Engine power levers
6. Friction adjustment (not modeled)
7. Fuel shutoff levers

Cyclic

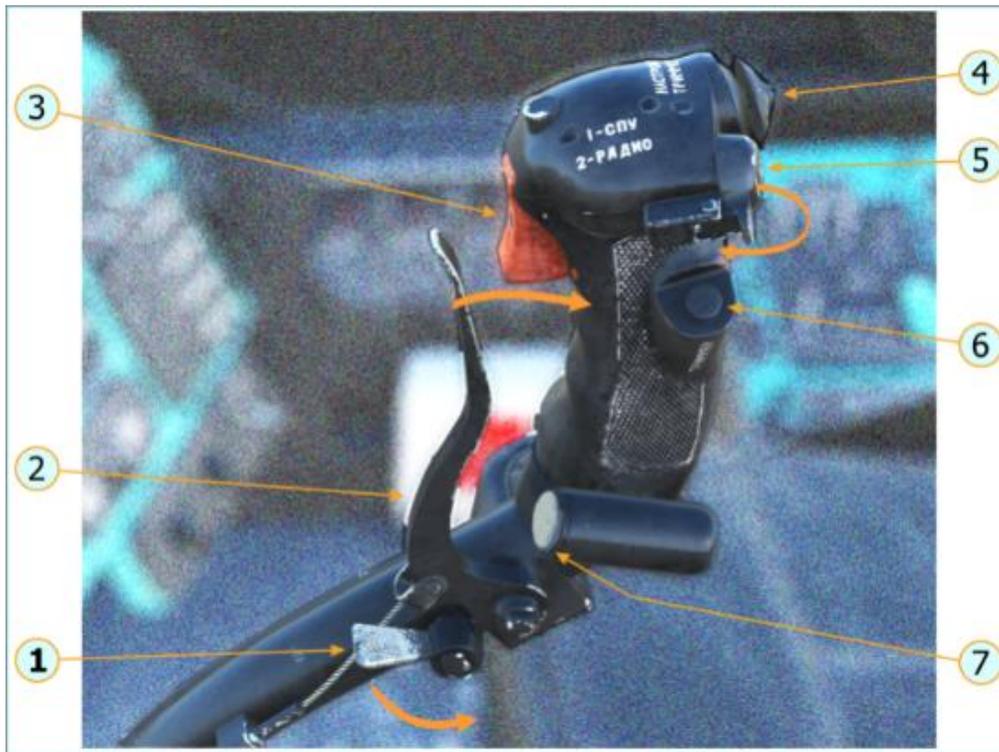


Figure 5. Cyclic Controls

1. Parking brake
2. Wheel brake lever
3. SPU radio trigger (first stage - intercom, second stage - radio)
4. Trimmer hat
5. Weapons release button
6. Trimmer button
7. AP disconnect button (not modeled in Early Access)

Collective



Figure 6. Collective Controls

1. Throttle friction (not modeled)
2. Throttle
3. Readjust free turbine RPM switch
4. Emergency Cargo Release button
5. Landing-Searchlight control switch
6. Tactical Cargo Release button
7. Collective friction clutch

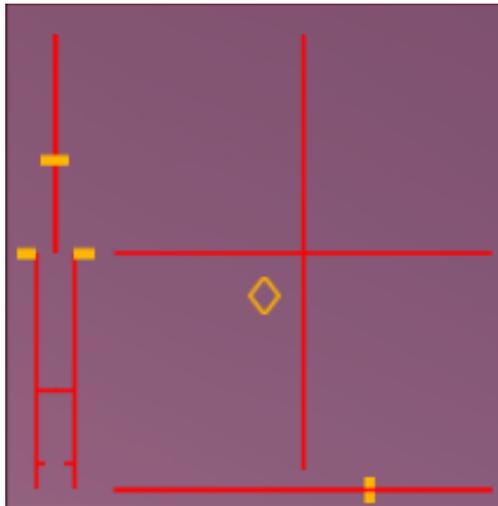


Figure 7. Controls Indicator

You can control the helicopter by either joystick or keyboard. However, a joystick with a rudder axis or separate rudder pedals are recommended. We have provided a sample control configuration for both joystick and keyboard below:



Figure 8. Recommended Joystick Controls

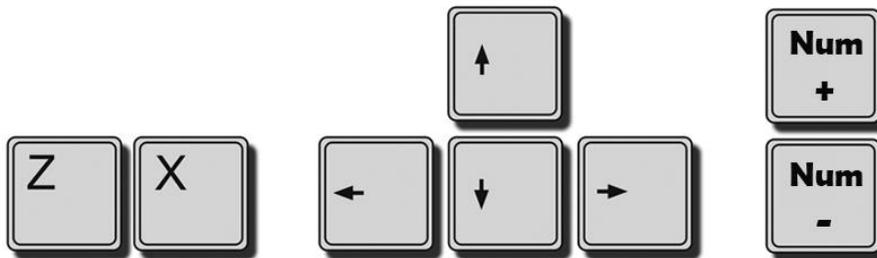


Figure 9. Primary Keyboard Controls

Helicopters are generally unstable and require constant and coordinated control input. A change in one of the controls will always require corresponding adjustments in the other controls. If you find the flight model too difficult or if you

lack sufficient flight control hardware to fly it effectively, you can enable the Control Helper mode in the **Options** → **Special** → **Mi-24P** menu. This will enable a kind of AI co-pilot that will attempt to stop you getting into too much trouble.

Pressing Climb **[Num+]** or Descend **[Num-]** on the keyboard will increase and decrease the amount of lift being generated by the main rotor, resulting in a gain or loss of altitude.

Pressing Nose Down **[↑]** on the keyboard or pushing the joystick forward will lower the helicopter's nose and begin forward acceleration. Pressing Nose Up **[↓]** on the keyboard or pulling the joystick back will raise the nose and slow the helicopter down, or make it fly backwards from a hover.

Pressing Roll Right **[→]** or Roll Left **[←]** on the keyboard or pushing the joystick to the sides will cause the helicopter to roll and begin a turn in the direction of roll. The greater the roll angle, the faster the rate of turn. To stop the turn and return to level flight, roll the helicopter in the opposite direction of the turn until the horizon is level again.

Pressing Nose Left **[Z]** or Nose Right **[X]** on the keyboard will cause the helicopter to turn its nose to the left or right (yaw) with minimal roll, like turning the steering wheel in a car. The amount of yaw available is limited and depends largely on airspeed. When flying fast, the oncoming airflow makes it difficult for the helicopter to yaw against it. Yaw control is primarily used to control the helicopter's direction in a hover and maintain straight and level flight when flying at higher speeds.

COCKPIT

The Mi-24P includes two cockpits in tandem: a Pilot-Commander seat in the aft cockpit and a Pilot-Operator seat in forward cockpit. You can change positions by pressing **[1]** or **[2]** on the keyboard (single player). The Pilot-Commander cockpit has better forward visibility for using unguided weapons, while the Pilot-Operator can use anti-tank guided missiles (ATGMs). Both cockpits have helicopter controls, although Pilot-Operator controls are usually stowed. The Pilot-Operator's cockpit also has fewer avionics controls.

Pilot-Commander Cockpit

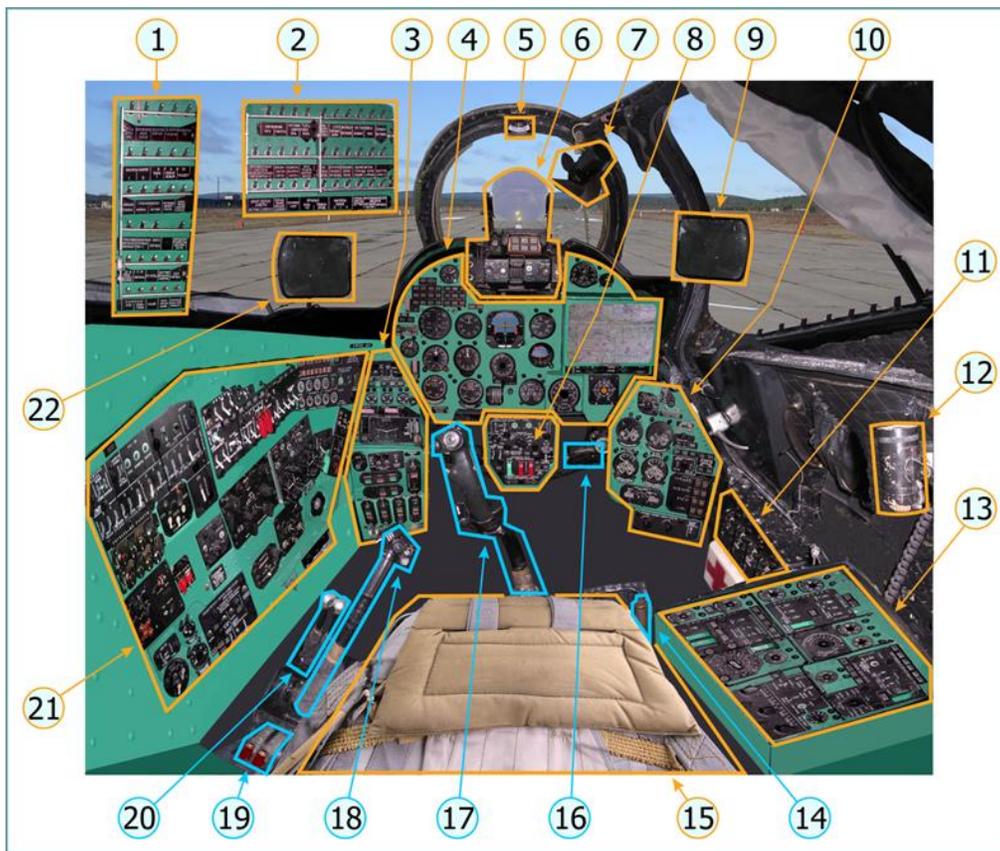


Figure 10. Pilot-Commander Cockpit

1. Left CB panel
2. Right CB panel
3. Left Forward panel
4. Instrument panel
5. KI-13 standby compass
6. ASP-17 sight
7. Cockpit cooler
8. Weapons panel
9. Mirror
10. Right Forward Panel
11. Rounds Counter panel

12. Cockpit light
13. Right side panel
14. Rotor brake lever
15. Pilot seat
16. Rudder
17. Control stick
18. Collective stick
19. Fuel cutoff levers
20. Individual throttle levers
21. Left side panel
22. Mirror

Pilot-Commander Instrument Panel

The left instrument panel includes the primary flight gauges, highlighted below:



Figure 11. Pilot-Commander Instrument Panel

1. UShV-1K Main rotor pitch gauge

2. Gyro annunciator panel
3. Assume Control switch
4. Hover and low-speed indicator (from DISS-15)
5. Annunciators panel
6. US-450 Airspeed gauge (0–450 kph)
7. ADP-4 G-meter
8. Chip Detect annunciator
9. PKP-72M Horizontal Situation Indicator (HSI)
10. ASP-17V Pilot-Commander aiming sight
11. VAR-30MK Vertical speed indicator (0–30 m/s)
12. AChS-1M Aircraft clock
13. S3M-5M Radar Warning Receiver (part of SPO-10 system)
14. UKT-2 Backup HSI
15. Moving map (from DISS-15)
16. UTPR-1K-1A Fuel gauges
17. Cruise speed and sideslip indicator (from DISS-15), DISS-15 memory mode indication
18. 2UT-6K Exhaust gas temperature gauge
19. Course setting
20. RMI-2 Heading indicator
21. UR-117V Engine power gauge
22. ITE-2T Engine RPM gauge (labeled “Engines”)
23. Emergency gear release handle
24. VD-10K Barometric altimeter
25. ITE-2T Main rotor RPM gauge (labeled “Main Rotor”)
26. UV-5 Radar altimeter gauge (also indicates failure of RV-5 radar altimeter)
27. Anti-torque pedals damper switch

STARTING THE MI-24P HELICOPTER

The automatic start-up procedure can be activated by pressing **[LWin + Home]**. Automatic shutdown can be activated by pressing **[LWin + End]**.

This is a Quick Start-Up procedure, not the full procedure performed during the first start of the day in real life. This procedure will get you in the air with all required systems running for a safe flight and presumes all daily checks have been previously completed. (The full procedure will be covered in a later edition of the manual.)

(Make sure any joystick devices being used are in a neutral position, that the collective is all the way down, and the pedals are centered).

Beginning in the (rear) Pilot's Cockpit:

1. Turn on all Circuit Breakers on the consoles to the left and right of the pilot's seat on the rear walls by clicking on them with your mouse. Use the levers to lift the frames and move all the switches together. (You can also use **[RCtrl + RShift + 1]** and **[RCtrl + RShift + 2]** on the keyboard.)
2. On the Electric Power panel (to the right of the pilot's seat), turn on both the Left and Right Onboard Batteries. Lift the Protective Cover on the "СЕТЬ НА АККУМ" (Battery Power) switch and turn it "On".
3. On the same panel, set the DC voltmeter rotary selector switch to the "АККУМ." (Battery) position.
4. To supply power through the Inverter, open the protective cover and set the "ПО-750А" (PO-750A) switch to the "ВКЛ" ("On") position. Check that the "ВКЛ. ПО-750А" (PO-750A "On") annunciator is illuminated (above the switch).

*Note: To move the camera viewpoint to the right, use **[RCtrl + RShift + Num6]**. The **[Num5]** key returns the camera to its default forward-looking position. You can hide cockpit elements (cyclic, collective, seat and door stay-arm) that can obscure some panels by pressing Backspace or clicking on the floor behind the Cyclic.*

5. Close the Cab Door by clicking on its handle (or with the **[LCtrl + C]** keys).

6. The aircraft cabin is sealed by opening the Pneumatic Sealing Valve on the left wall, lower center panel. (Click on the Pneumatic Sealing Valve wheel, then drag the cursor down and left, turning the wheel counterclockwise).
7. Release the Main Rotor by clicking on it and lowering the Rotor Brake Lever into its well located between the right side of the chair and the Electrics Panel.
8. On the left side, turn on the Fire Protection system by lifting the "ГЛАВН ВЫКЛЮЧ" (Fire Protection Power) and "ОГНЕТУШ" (Fire Extinguisher) switches.
9. Open the "РАСХОДНЫХ БАКОВ" Fuel Tank Valves, the "ПОЖАРНЫЕ КРАНЫ" Engine Fire Cut-off Valves, and the "РАЗДЕЛИТ." Separator Valve. Turn on the "НАСОСЫ РАСХОДНЫХ БАКОВ" Fuel Pumps.
10. If flying with filled External Fuel Tanks, turn on the "ПОДВЕСН. БАКИ" (External Fuel Tanks) switch.
11. The aircraft is now ready for the APU start. On the left wall, APU and Engine Start panel (lower part of rear panel), ensure the selector switch for the APU is set to the "ЗАПУСК" (Start) position (down).
12. Press the START button for 2-3 seconds. Start the stopwatch on the dashboard.
13. During the start process, check:
 - the EGT (exhaust gas temperature) increases, but does not rise above 880°C
 - DC power supply voltage does not fall below 18V;
 - the "АВТОМАТ ВКЛЮЧЕН" (Automatic Start On) annunciator light goes out within 30 seconds.
14. Reset the stopwatch.
15. After the APU goes into idle mode, verify:
 - The "ОБОРОТЫ АИ-9В НОРМАЛЬН." (AI-9V RPM Normal) annunciator illuminates, and the "ДАВЛЕН. МАСЛА НОРМАЛЬН." (Oil Pressure Normal) annunciator illuminates,
 - the temperature of the turbine gases does not exceed 720°C.

16. Now the aircraft is ready for engine start. Turn on the Anti-Collision Light (on the left wall panel). Start the engine on the leeward side (away from the wind) first. If the wind is coming from the right, start the left engine.
17. On the APU and Engine Start control panel, make sure that the Engine Start Mode switch is in the "ЗАПУСК " (Start) position (down), and the Engine Selector switch is set to the leeward engine (for this example, the left engine.)
18. Press and hold the "ЗАПУСК" (Start) button for 1–2 seconds.
19. Move the red Engine Stop Lever (left of the pilot's seat, under the CB panel) of the left engine to the down position (using the mouse or by pressing **[RCtrl + PgUp]**). Start the Stopwatch.
20. The engine automatically achieves idle RPM within 60 seconds. During the start process, check:
 - that the "АВТОМАТ. ВКЛЮЧЕН." (Automatic Start Enabled) & "СТАРТЕР РАБОТАЕТ" (Starter Running) lights illuminate
 - for a continuous increase in engine RPM, and main rotor rotation
 - that the engine oil pressure is no lower than 1 kg/cm² at a turbocharger speed of 45%
 - that the "СТАРТЕР РАБОТАЕТ" (Starter Running) annunciator goes out once the turbocharger speed is 60–65%
 - That the "АВТОМАТ. ВКЛЮЧЕН." (Automatic Start Enabled) annunciator remains illuminated for no more than 33 seconds.
21. During the startup process, do not move the individual engine throttle levers, the collective lever, the correction (throttle) twist grip or the "ЗАПУСК ДВИГАТ." (Engine Start Selector) switch to a different position.
22. After the left engine reaches idle speed, repeat the procedure for the right engine.
23. Set the Switch "ЗАПУСК ДВИГАТ." (Start Engine) selecting the RIGHT engine and press the "ЗАПУСК" (Start) button for 1-2 seconds.
24. Move the red Right Engine Stop lever down using the mouse or the **[RCtrl + PgDn]** keys.
25. During the startup process, check the annunciator lights, engine RPM increase, EGT increase, and the oil pressure.
26. Allow at least 60 seconds of idle power for the engines to warm up.

27. Before turning the correction handle to the right (full throttle), turn on the Dust Protection (ПЗУ) switch (front left wall panel under a mint green protective cover).
28. Increase engine RPM only when the engine oil temperature is greater than +30°C and the main gearbox temperature is greater than -15°C.
29. Move the mouse cursor over the Correction Grip and hold down the right mouse button while rotating the mouse wheel forward to twist the grip clockwise (or use the **[PgUp]** key.)
30. When the Main Rotor RPM reaches 95±2%, turn "On" the Generators on the right-hand electric panel. When they are turned "On", the "ЛЕВ ГЕН ОТКЛ." (Left Generator Off) and "ПРАВ ГЕН ОТКЛ" (Right Generator Off) annunciators should extinguish, and the "ПАРАЛЛЕЛЬН РАБОТА ГЕНЕРАТ" (Parallel Operating Generators) annunciator should illuminate.
31. The PO-750A inverter can now be switched "Off", and its protective cover closed.
32. Set the operating mode of the 115V and 36V transformers to "ОСНОВНОЙ" (MAIN) by flicking their switches up.
33. On the DC Electrical panel, turn on the "Выпрямительные Устройства" Rectifiers.
34. On the Engine/APU Start Panel (lower left wall), stop the APU by pressing the "ОСТАНОВ. АИ-9В" (Stop AI-9V) button.
35. On the left wall panels, turn on the Directional system by setting the "КУРС. СИСТЕМА" (Course System) to the "ВКЛ." (On) position.
36. Turn on the Гировертикали (Gyros) switch on the same panel and row of switches.
37. Check the performance of the gyros by using the cyclic and observing the Roll and Pitch indicators.
38. 1–2 minutes after turning on the Gyros, press and hold down the "АРРЕТИРОВАТЬ" (Cage) buttons for each on the left side of the dashboard for a few seconds.
39. At the same time, the "ОТКАЗ ГИРОБЕР. 1" (GYRO 1 FAILURE) and "ОТКАЗ ГИРОБЕР. 2" (GYRO 2 FAILURE) annunciators should go out, the red flags on the Artificial Horizon and the Roll & Pitch Indicator should disappear, and the artificial horizon should show the orientation of the helicopter in pitch and roll in its current stationary position.

40. Set the "ПОДВИЖ УПОРЫ" (SPUU mechanical stop power) switch to the "ВКЛ" (On) position and make sure that the СПУУ-52 (SPUU-52) system is working properly: Press the "ОТКЛ" (SPUU OFF) button (the light will turn off), and check that the control indicator on the adjustable stops panel is to the left of the neutral position (the higher the altitude density the closer it will appear to the extreme left position). At high density altitudes, the control indicator moves to the right from the leftmost position. At low density altitudes, the index may remain at the leftmost position or close to it.
41. Next, enable the Autopilot channels. Click on the "ВКЛ" (On) buttons for the "КРЕН" (Roll), "ТАНГАЖ" (Pitch) and "НАПРАВЛЕНИЕ" (Direction/Yaw) channels. (If the buttons are blocked by the collective lever, you can press the Backspace key or click the front center of the pilot's seat to hide it. Press the Backspace key or click the seat again to unhide the collective.)
42. On the Radio panel on the left wall, power up the three radios by setting the following switches to "On": the SPU-8 Intercom (Nets 1 and 2), the R-863, the JADRO and the R-828.
43. Turn on the "РАДИО-ВЫСОТОМЕР" (Radio Altimeter), "ДИСС" (Autopilot System), "МИГАЛКА" (Blinker), "СИРЕНА-3М (ПИТАНИЕ)" (SPO-10 RWR) and "СПО" (Identify Friend/Foe system).
44. Three minutes after switching on the Course system, it will need to be calibrated.
45. Look at the Course System control panel. Make sure that the three-position operating mode switch is in the "МК" (MAG) position and press and hold down the "СОГЛАС" (Synchronize) button for a few seconds.

*Note: To move the viewpoint down, use **[RCtrl + RShift + Num2]**. The **[Num5]** key returns the camera to its default position.*
46. On the ARK-15 control panel, set the mode switch to the "КОМ" (COMPASS) position.
47. Under your left elbow, on the control panel for the АРК-У2 (ARK-U2 Radio Compass), set the power switch to the "ВКЛ." ("On") position.
48. Under your right elbow, on the Air Conditioning panel, turn on the cabin air supply by setting the three-position switch to the "КОНДИЦ." (Condition) position.
49. When you're ready to start taxiing:
 - disengage the parking brake using the **[LShift + W]** keys

- gently tilt the cyclic forward while increasing the pitch of the main rotor with the collective
 - once the aircraft is moving, bring the collective back down
 - to steer, use short presses of the **[Z]** and **[X]** keys to control the rudder pedals
 - keep taxi speed below 20 kph with inputs to the cyclic and the wheel brakes (**[W]** key).
50. To perform a hover check, bring the cyclic slightly back and to the right, and with a smooth movement of the collective, lift the helicopter from the ground to a height of 1–5 meters. Anticipate a left turn after pickup with right pedal input.
51. Cancel any roll or pitch moments with opposite cyclic input. You can trim out cyclic forces with short, frequent presses of the Trimmer button (**[T]** key).
52. While hovering, ensure that the main rotor RPM is not less than 93%. Then land make a landing by reducing the collective pitch of the Main Rotor until the helicopter is stable on the ground.
53. To perform a rolling take-off:
- Gradually increase collective until the helicopter feels light on its wheels
 - Commence the take-off run with forward cyclic
 - Once rolling at 20-30 kph, increase collective power while observing the EPR gauge, then pull back slightly on the cyclic. The helicopter will lift off
 - Apply further acceleration in a gradual climb so that the airspeed reaches 50 kph at an altitude of 10 meters
 - Once an airspeed of 70 kph is reached, at an altitude of at least 15 meters, raise the landing gear (**[G]** key)
54. After taking off, reduce engine power to cruise setting, and turn off the Dust Protection switches

The aircraft is now ready to fly. Enjoy!

FLYING THE HELICOPTER

TAKEOFF

Because the Mi-24 is equipped with a wheeled undercarriage, it can take off either vertically or with a rolling start (called a running takeoff). A running takeoff can be used to gain some initial airspeed when the helicopter is too heavy to lift off vertically. Performing takeoffs can be challenging at first, as they require coordinated, continuous, and smooth control of the cyclic, pedals, and collective.

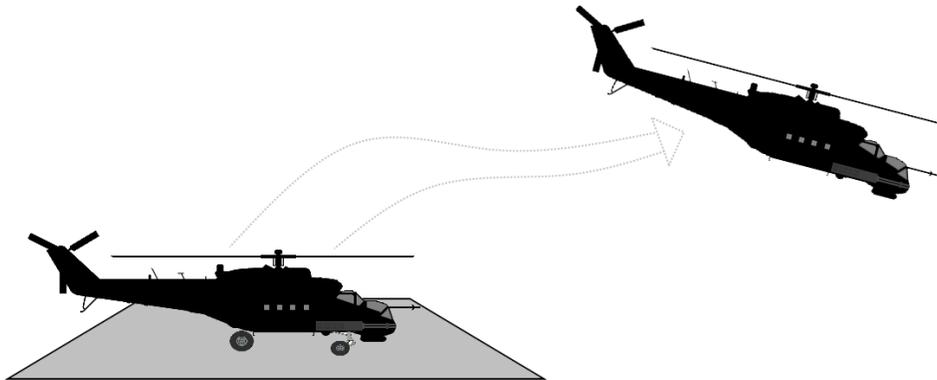


Figure 12. Vertical Takeoff

To begin a vertical takeoff, release the parking brake by pressing **[W]**. The helicopter's nose may begin to move slightly as the wheels are freed. Use very slight pedal and cyclic corrections to keep the nose straight and steady.

Begin to raise the collective very slowly **[Num+]**. The cyclic will generally need to be pulled slightly back and to the right (about 10–20% in each direction) to maintain a stable attitude. The right pedal will also need to be pressed in about 10–20% of the way to prevent the helicopter from yawing to the left as the collective is raised. Continue to raise the collective *slowly* and use careful stick and pedal control to maintain the position of the nose and minimize any skidding along the ground. When correctly performed, the helicopter will slowly lift off the ground and settle into a stable, low altitude hover with minimum changes in position and direction. A slight right bank angle will be necessary to maintain the hover and prevent any movement to the left.

When the helicopter is a few feet off the ground, lower the nose slightly by releasing some back pressure on the cyclic stick. The helicopter will now begin accelerating forward. Retract the landing gear. To prevent any loss of altitude as the nose lowers, slightly increase collective power as you move the cyclic forward.

Here is an example of the approximate positions of the flight controls during a vertical takeoff, hover, and vertical landing:

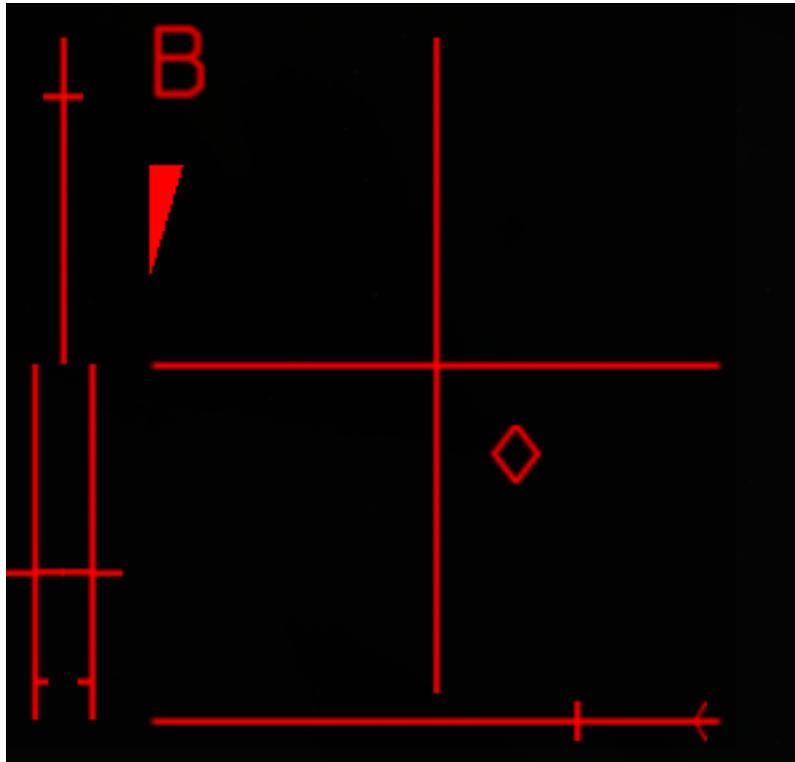


Figure 13. Control Positions During Hover

To accelerate forward, keep the helicopter's nose pointing slightly down. To slow down, raise the nose (pull the stick back) and put it slightly above the horizon. If you keep the helicopter's nose raised after it stops moving forward, it will begin to fly backwards. Use the collective **[Num+]** / **[Num-]** to increase/decrease the amount of lift being generated by the main rotor and control altitude as the nose is raised or lowered. Use the rudder pedals **[Z]** / **[X]** to maintain your heading.

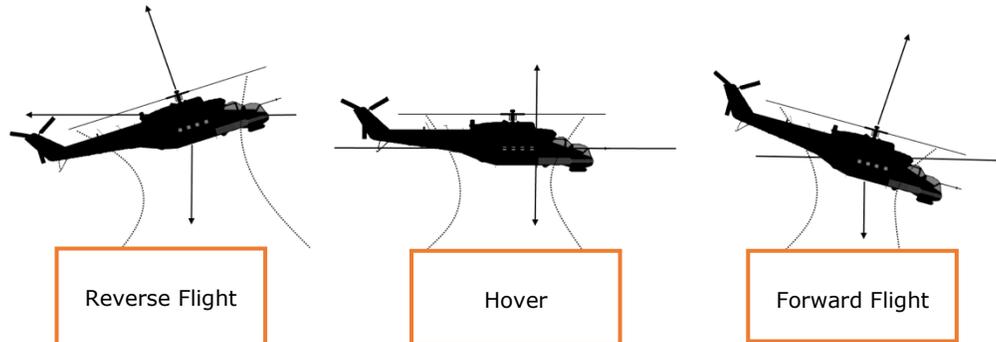


Figure 14. Flight Attitudes

As your airspeed builds, the nose will tend to rise. Anticipate this and compensate for it by pushing the cyclic forward. As you transition from a hover into forward flight above 50 kph, the cyclic will move from a back-and-right position to an approximate forward-and-center position. Similarly, as airspeed builds the amount of pedal input required will be reduced. At faster airspeeds, e.g. above 150 kph, the helicopter will tend to roll right, so increasing left cyclic pressure will also be needed to maintain level flight.

TURNING

If the helicopter is in forward flight, turn by rolling in the direction of the turn by using ([←] / [→] arrows on the keyboard or left/right cyclic). Turn rate can be increased with some additional pedal input into the turn and by pulling slightly back on the cyclic.

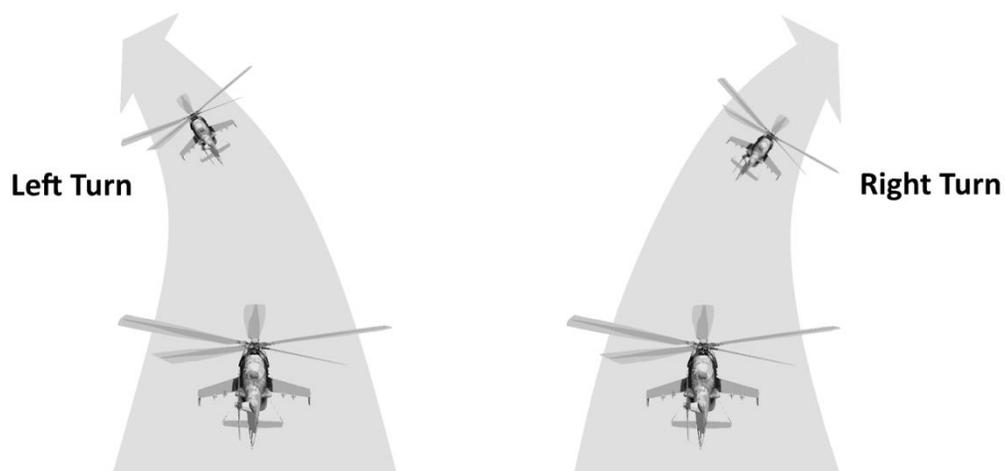


Figure 15. Turning Flight

In a hover or at very low airspeeds, the helicopter can be turned using the pedals **[Z]** / **[X]** to rotate the nose horizontally.

HOVERING

One of the essential skills of helicopter control is hovering. Like takeoff, hovering requires careful, smooth, and coordinated control input.

To enter a hover from forward flight, you will first need to reduce your airspeed without losing altitude. To do so, simultaneously raise the nose about 20° by pulling the cyclic back and *decreasing* collective power to prevent altitude gain. Keep a careful eye on the vertical velocity and airspeed indicators. As your speed drops below 50 kph, be ready to *increase* collective and lower the nose to attain a near hovering position at a low airspeed. Note: as your airspeed drops below 50 kph, timely increase of the collective is critical to avoid entering a vortex ring state (VRS), where the main rotor is exposed to its own downwash. This will cause the helicopter to descend.

Keep in mind that increasing and decreasing collective power will always require corresponding adjustments in the cyclic and rudder controls to maintain stable flight. In general, *increasing* collective will tend to pull the nose *left*, requiring additional *right* pedal input to compensate. Conversely, *decreasing* collective will tend to pull the nose to the *right*, requiring increased *left* pedal input to compensate.

LANDING

To perform a landing, begin a stable descent toward the landing point. Keep your airspeed around 120 kph and rate of descent under control by using the collective and cyclic controls. Try to enter a hover a few feet over the landing point and then carefully reduce the collective to lower the helicopter to the ground.

A running landing is also possible and is easier to perform. In a running landing, the helicopter lands with some forward speed and rolls forward on the wheels until stopped with back stick pressure or the wheel brakes **[W]**.

TRIMMING

The helicopter is rarely flown with either the cyclic or pedals in the neutral position. In the real Mi-24P, the pilot can press a trim button on the cyclic to hold the controls in their current position, creating a new center point for the cyclic and

pedals. However, because most PC controllers don't have a corresponding trim capability, a special trim function is available in the simulation.

To trim the controls in their current position, press and release the Trimmer button **[T]**, then immediately return the stick and pedals to their neutral positions. You can reset trim at any time by pressing **[LCtrl + T]**.

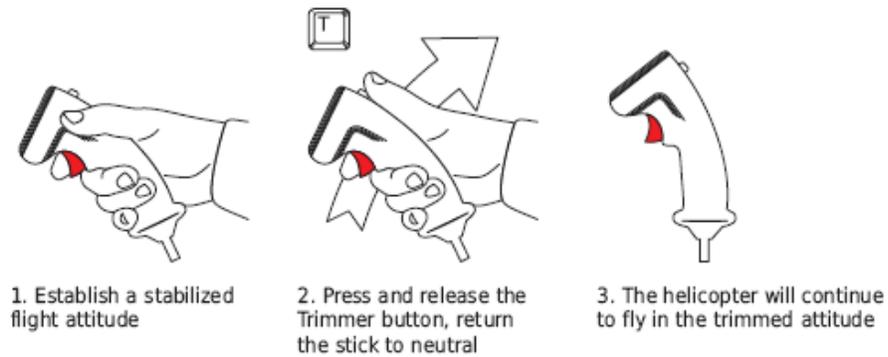


Figure 16. Trimming Procedure

WEAPONS EMPLOYMENT

The Mi-24P is equipped with six external hardpoints (of which only four support ATGMs) that can be loaded with the following weapon systems:

- Б-8В20А (B-8V20A) rocket pods with twenty S-8 80mm unguided rockets per pod
- УБ-32 (UB-32) rocket pods with thirty-two S-5KO 57mm unguided rockets per pod
- Б-13Л1 (BL-13L1) rocket pods with five S-13OF 122mm unguided rockets per pod
- C-24Б (S-24B) 240mm unguided rocket
- ГШ-2-30К (9-A-623) fixed (forward-firing) 30mm twin-barrel cannon
- ГУВ-8700 (GUV-8700) gun pod, which includes two variants:
 - 9-A-800: single 30mm automatic grenade launcher
 - 9-A-624/622: one 12.7mm and two 7.62mm four-barrel gatling guns combined in a single pod
- high-explosive and cluster bombs (with 100-, 250-, or 500-kg warheads)
- КМГУ-2 (KMGU-2) cluster munitions dispenser
- 9M114 *Shturm* and 9M120 *Ataka* guided missiles (available after early access)
- R-60M infrared guided missiles (available after early access)

If you are creating a mission in the mission editor, you can load weapons on the helicopter using the "PAYLOAD" menu:



Here are the possible loadout configurations:

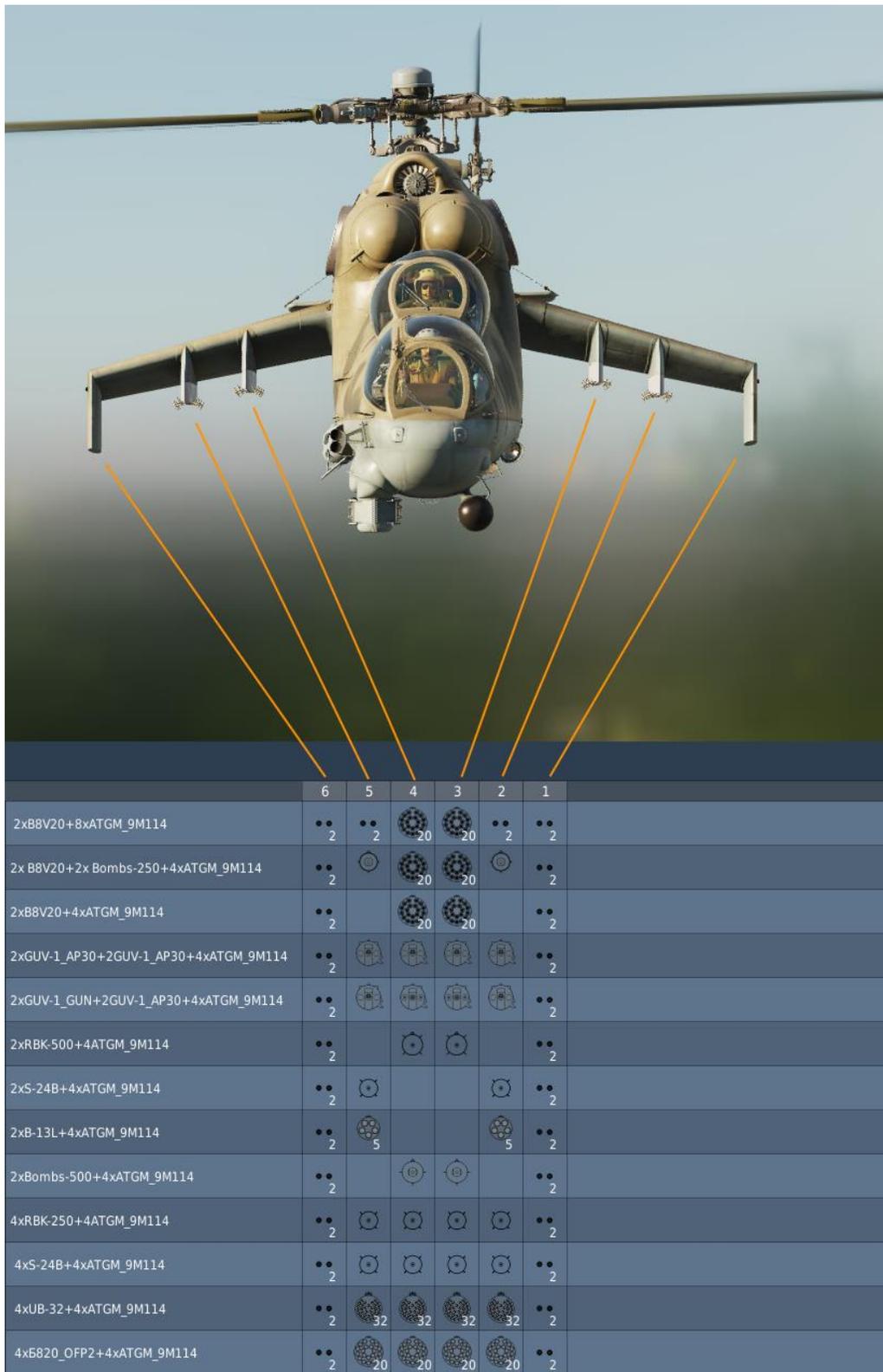


Figure 17. Loadout Configurations

Hover with a mouse cursor over each weapon icon to see a tooltip with more information about this weapon.

ASP-17VP PILOT-COMMANDER SIGHT

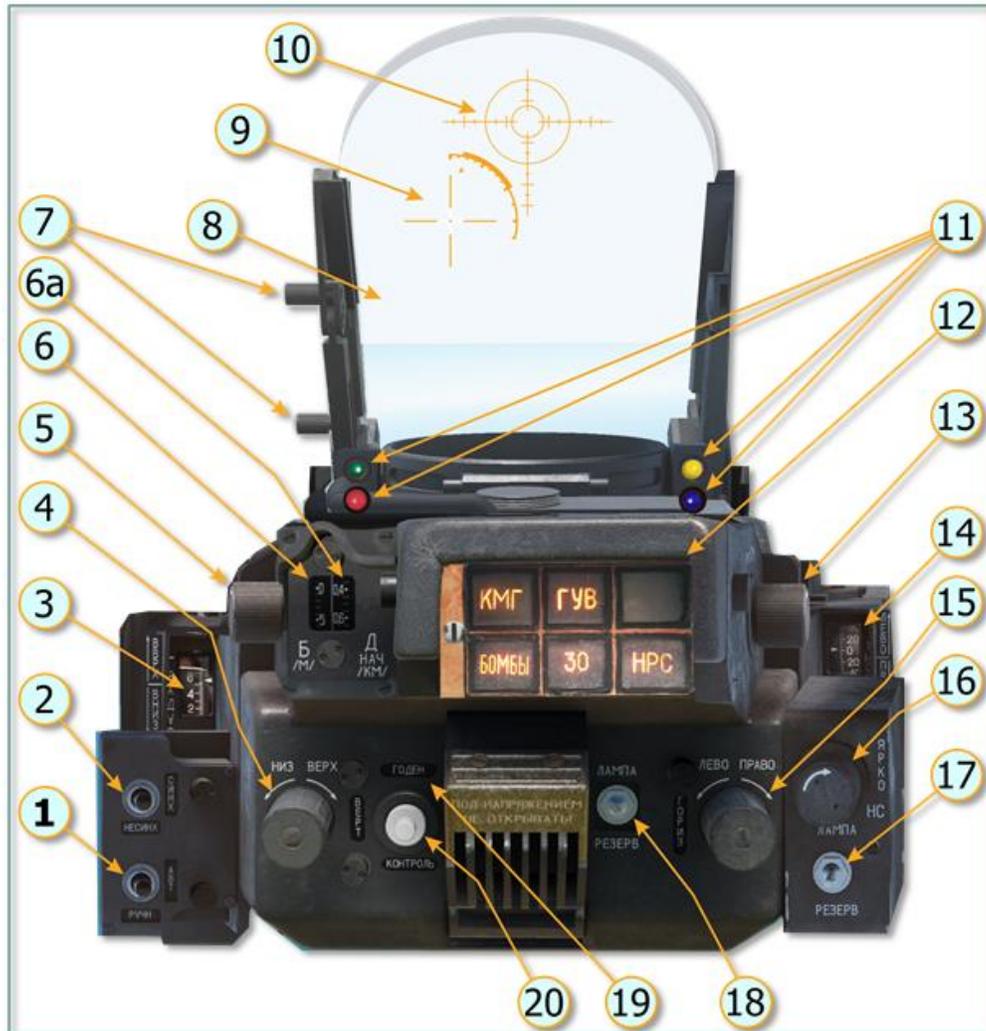


Figure 18. ASP-17V Pilot-Commander Sight

1. AUTO-MANUAL switch. Switches between automatic firing solution calculation and manual mode.
2. SYNC-ASYNС switch. If ASYNС mode is on, then in AUTO mode, wind and sideslip calculations are performed by the fire control computer (suitable for stationary targets). SYNC mode provides the pilot with automatic speed correction. Hold the aiming reticle on a moving target for 2–3 seconds, and the fire control computer will automatically adjust for target velocity.

3. Sight degrees scale for aiming reticle.
4. Floating reticle depression setting
5. Target base size setting. Set the target size for automatic distance calculation.
6. Target base size scale
7. Sight adjustment handles
8. Reflector glass
9. Floating aiming reticle
10. Fixed aiming reticle (net)
11. Indicator lights
 - Red: Not operational in the Mi-24P
 - Green: Automatic ranging on
 - Yellow: Within optimal weapons range
12. Weapon selection indicators (left to right, top to bottom):
 - "КМГ" (USLP): КМГУ-2 (KMGU-2) cluster munitions dispenser
 - "ГУВ" (FXD MG): ГУВ-8700 (GUV-8700) gun pod or AP-30 automatic grenade launcher pod
 - Unused
 - "БОМБЫ" (BOMBS): Fragmentary and cluster bombs
 - "30": ГШ-2-30К (9-A-623) fixed 30mm twin-barrel cannon
 - "HPC" (RKT): Unguided rocket pods or S-24B rockets
13. Floating reticle brightness control
14. Floating reticle horizontal adjustment indication
15. Floating reticle horizontal adjustment
16. Fixed reticle brightness control
17. Fixed reticle backup lamp switch. Toggles between the primary and standby lamp for the fixed reticle.
18. Floating reticle backup lamp switch. Toggles between the primary and standby lamp for the floating reticle.
19. "Operational" lamp. Illuminates during built-in test.

20. Aiming sight BIT button. Performs built-in test.

Fixed Reticle

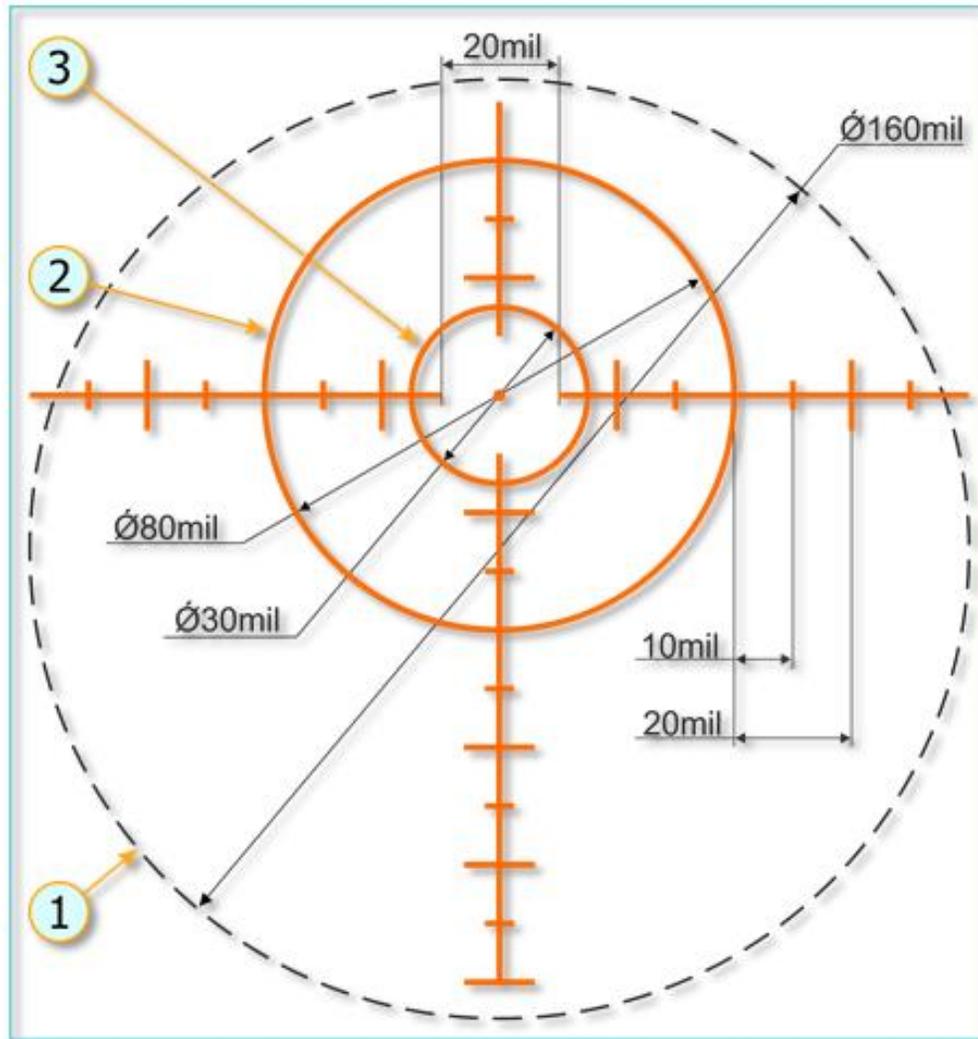


Figure 19. Fixed Reticle

1. Aiming sight field of view
2. Outer ring
3. Inner ring

The fixed reticle is 8° wide.

Floating Reticle

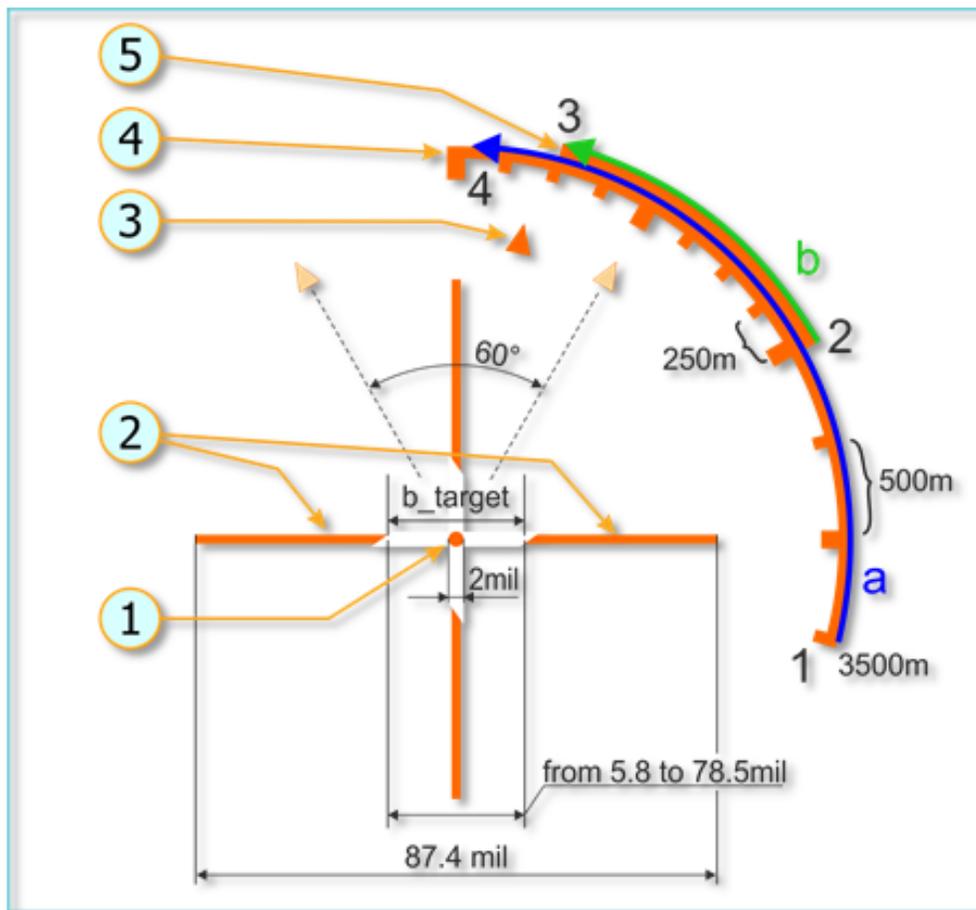


Figure 20. Floating Reticle

1. Center point
2. Target base lines
3. Sideslip indicator
4. Distance to target arc
5. Effective weapons range arc

Distance to target is displayed as an arc spanning from point 1 to point 4 in the above image, shrinking as distance decreases. Effective weapons range is shown as an arc from point 2 to point 3 in the above image.

The floating reticle can only provide valid firing solutions in AUTO mode for the following weapons:

- ГУБ-8700 (GUV-8700) gun pods with 12.7mm and 7.62mm machine guns.
- S-5KO and S-8 unguided rockets
- ГШ-2-30K (9-A-623) fixed main 30mm twin-barrel cannon

PILOT-COMMANDER WEAPONS CONTROL PANEL

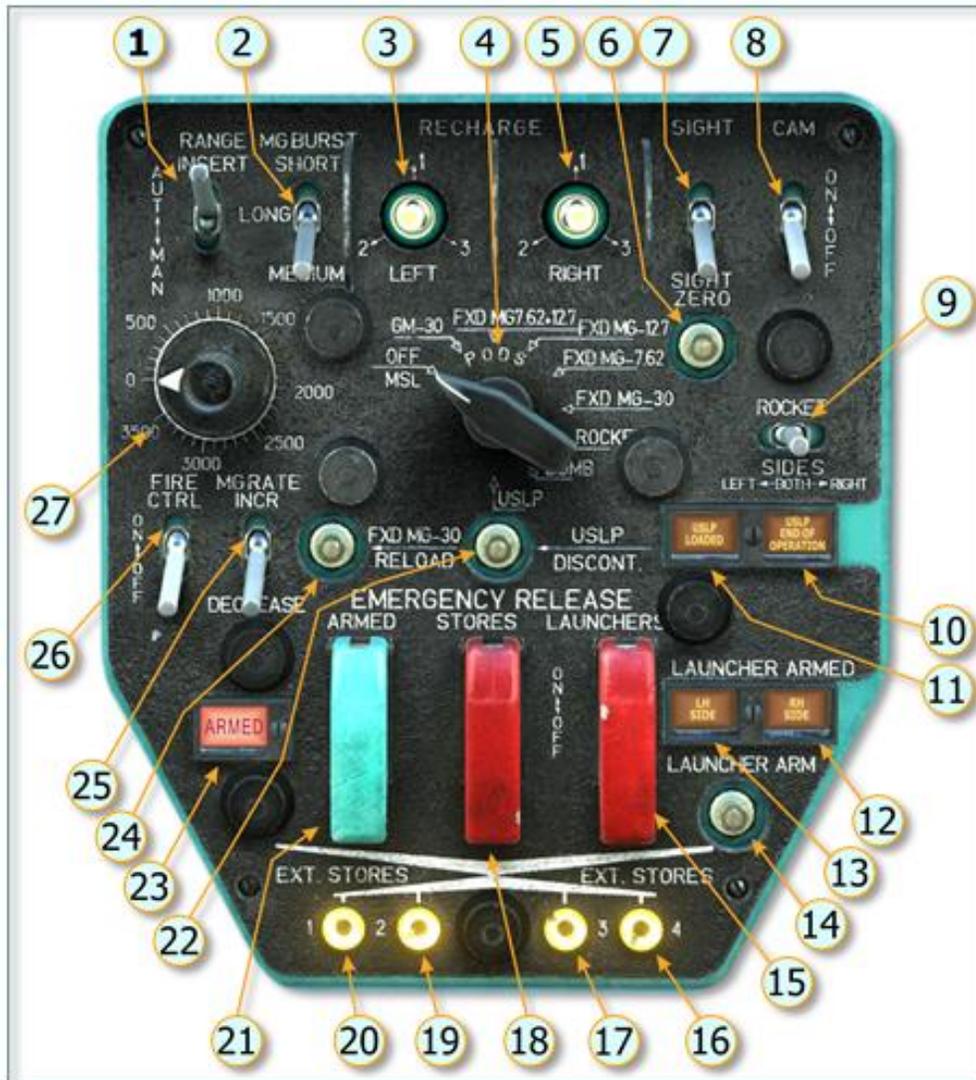


Figure 21. Pilot-Commander Weapons Control Panel

1. Weapon ranging switch AUTO/MANUAL
2. Burst length switch SHORT/LONG/MEDIUM

3. Four-position Left GUV pod reload switch. Used to fix an ammo feed malfunction (not modeled).
4. Weapons selector switch. Positions are, from left to right:
 - OFF/MSL. Slaves the floating reticle of the Pilot-Commander sight to the Pilot-Operator's "ПН" (PN) periscope sight. Used for observation and ATGM guidance. No weapons are active in this mode. (ATGM launch is controlled from the forward cockpit.)
 - GM-30. ГУВ-8700 (GUV-8700) AP-30 automatic grenade launcher pod.
 - FXD MG 7.62+12.7. Fires both the 12.7mm and 7.62mm guns on the ГУВ-8700 (GUV-8700) gun pod.
 - FXD MG 12.7. Fires the 12.7mm gun on the ГУВ-8700 (GUV-8700) gun pod.
 - FXD MG 7.62. Fires the 7.62mm gun on the ГУВ-8700 (GUV-8700) gun pod.
 - FXD MG-30. ГШ-2-30К (9-A-623) fixed 30mm twin barrel cannon.
 - ROCKET. Unguided rockets.
 - BOMB. Bombs.
 - USLP. КМГУ-2 (KMGU-2) cluster munitions dispenser.
5. Four-position Left GUV pod reload switch. Used to fix an ammo feed malfunction (not modeled).
6. Sight Zero button. When held, floating reticle is caged to fixed reticle.
7. ASP-17 power switch. Powers ON/OFF the ASP-17VP sight.
8. ASP-17 power switch. Powers ON/OFF the ASP-17VP camera. (N/I)
9. Rocket Sides switch. Selects which rocket pods are activated for firing (LEFT/BOTH/RIGHT).
10. KMGU Empty indication. Illuminated when the KMGU cluster dispenser is depleted.
11. KMGU Available indication. Illuminated when the weapons selector is in the USLP position and the KMGU container is has unspent munitions.
12. Left Side launcher armed indication. Left-side rocket pod is armed.
13. Right Side launcher armed indication. Right-side rocket pod is armed.
14. Launcher Arm button. Activates the rocket pod arming mechanism.
15. ATGM emergency release button. Jettisons ATGM pods.

16. Weapon rack 4 status light. On if station 4 is loaded.
17. Weapon rack 3 status light. On if station 3 is loaded.
18. Emergency stores release switch. Jettisons racks 1 through 4.
19. Weapon rack 2 status light. On if station 2 is loaded.
20. Weapon rack 1 status light. On if station 1 is loaded.
21. Jettison arm switch. When on, bombs are armed when jettisoned.
22. USLP Discontinue button. Discontinues cluster munitions dispensing.
23. Emergency Jettison Armed indication. Illuminated when bombs will be jettisoned armed.
24. Main Cannon Reload button. Used after an ammo feed failure to the main gun (not modeled).
25. Cannon Firing Rate switch. Toggles between FAST (2000–2600 rpm) and SLOW (300–400 rpm).
26. Fire Control switch. This completes the weapons readiness checks.
27. Manual Range knob. Sets target range when sight is in manual mode.

Weapon Pylons and Missile Stations Numbering

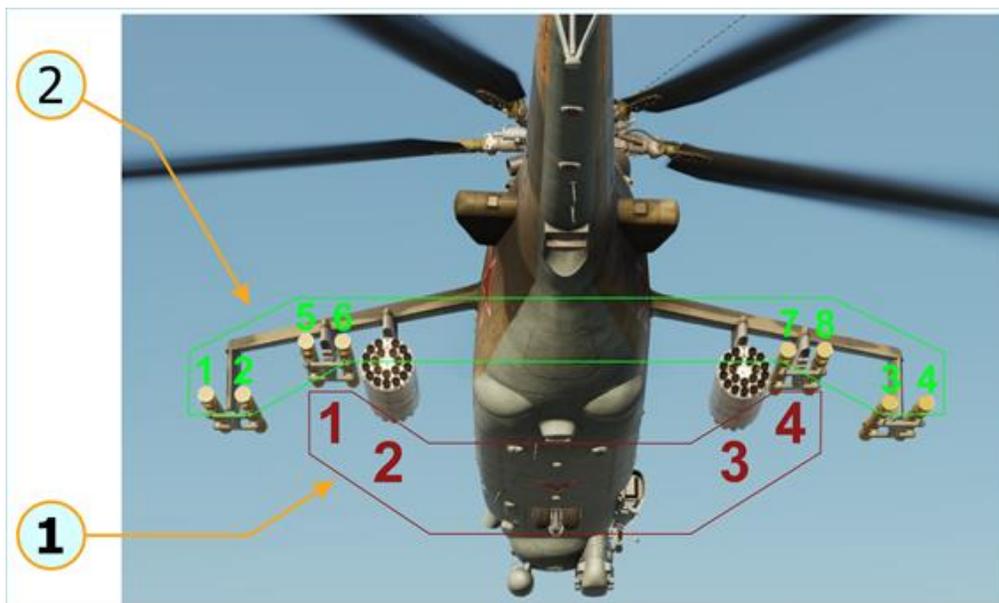


Figure 22. Weapons Pylons and Missile Stations Numbering

1. Weapon racks numbering
2. Guided missiles stations numbering

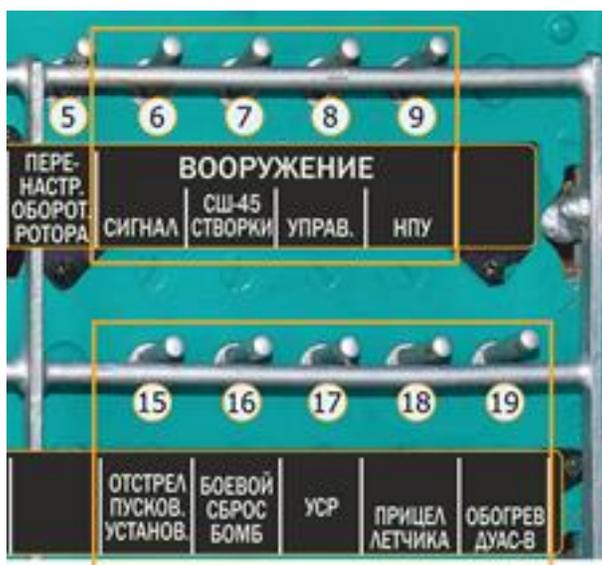
EMPLOYING UNGUIDED WEAPONS

When preparing the helicopter for weapon employment, you can turn on Active Pause mode by pressing **[RWin + RShift + Pause]** to freeze in mid-air and allow yourself time to configure the systems.

Warning: Enemy AI does not freeze during Active Pause!

Turn on all weapons circuit breakers on the right and left wall panels behind the pilot's shoulders. This is usually done on startup by moving a single lever for all circuit breakers.

Right panel **[RCtrl + RShift + 2]**:



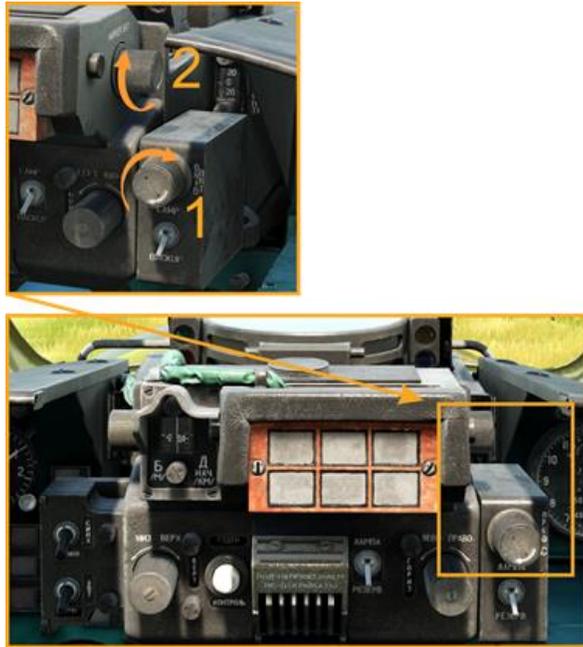
Turn on the aiming sight ASP-17VP (ASP-17 Power On):



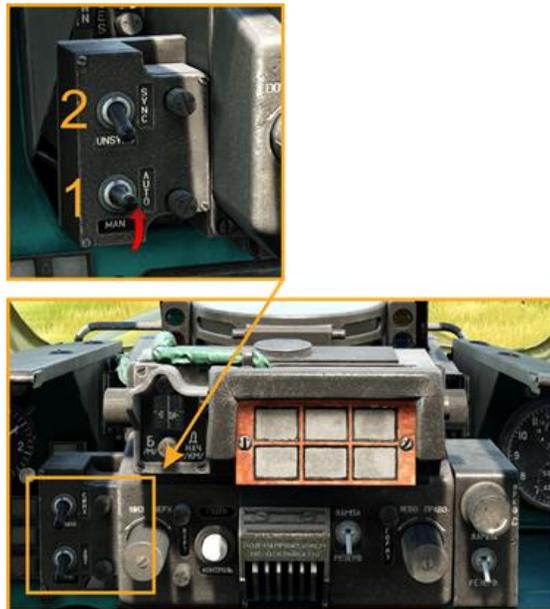
Adjust aiming sight as desired:



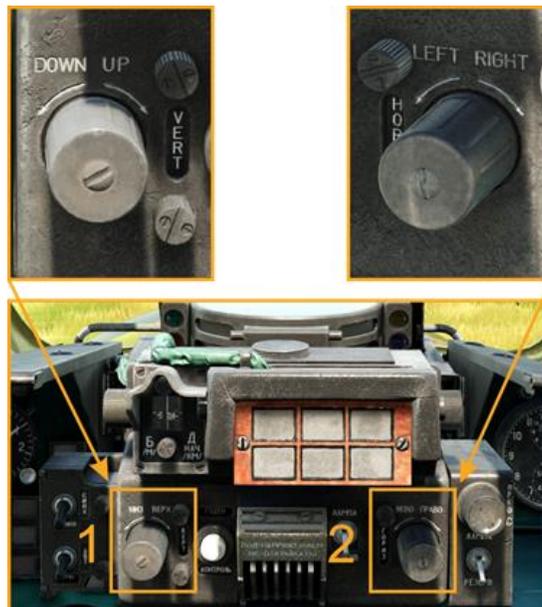
Adjust aiming sight fixed and floating reticle brightness:



Choose aiming sight mode (described above):



Adjust floating reticle if in manual mode (as per weapons tables):

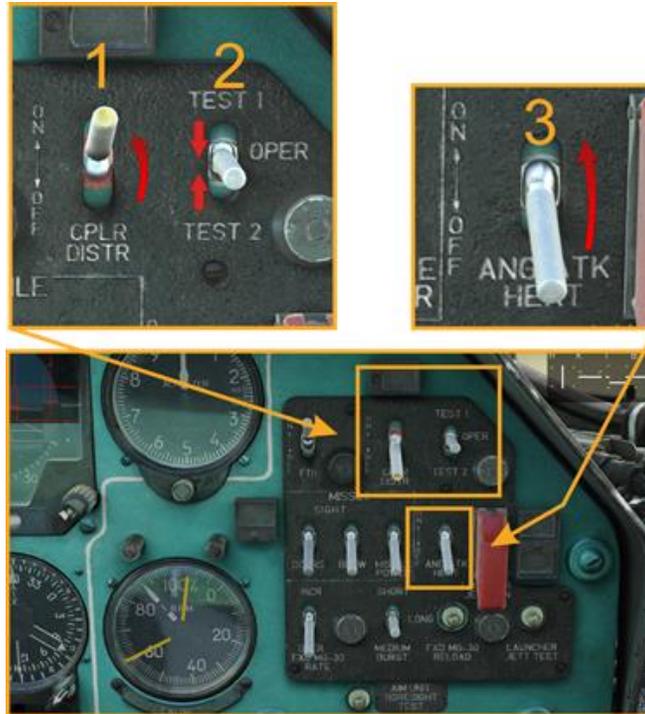


Switch ON the Main Weapon Safety switch at the Pilot-Operator seat (Forward cockpit) or use the "Prepare Weapons Systems" **[LCtrl + W]** command to ask Petrovich AI to turn on all weapons related switches in the forward cockpit:



In the Pilot-Operator cockpit, on the front right panel, activate the USR-24 power switch (1), and check that the test switch (2) is in OPER position. Turn on pitot heat (3) if outside temperature is at or below 5 °C.

You can also use the "Prepare Weapons Systems" command **[LCtrl + W]** to ask Petrovich AI to turn on all the weapons-related switches in the forward cockpit.



In the Pilot-Commander cockpit, on the Weapons control panel:



Turn on Aux Stores Lights switch (to enable arm and pylon lights):



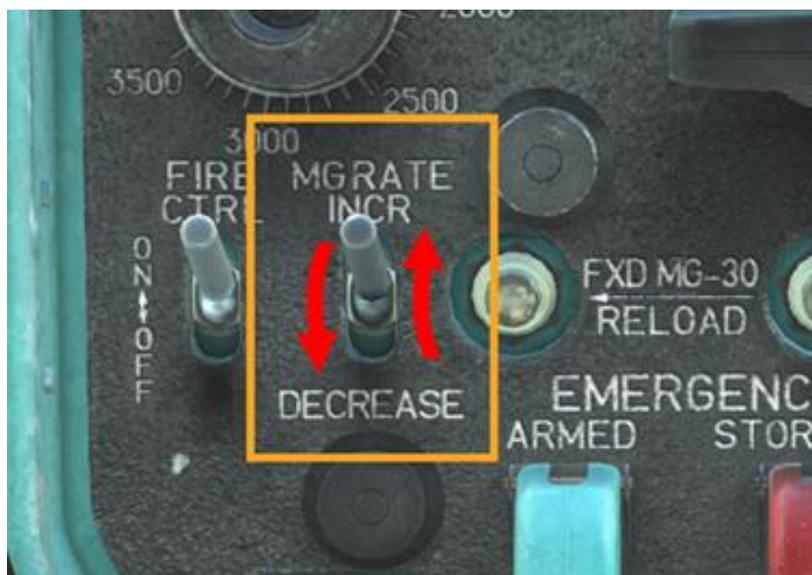
Move the Weapons Selector switch to the desired weapon position (in the example below, the fixed MG30 cannon):



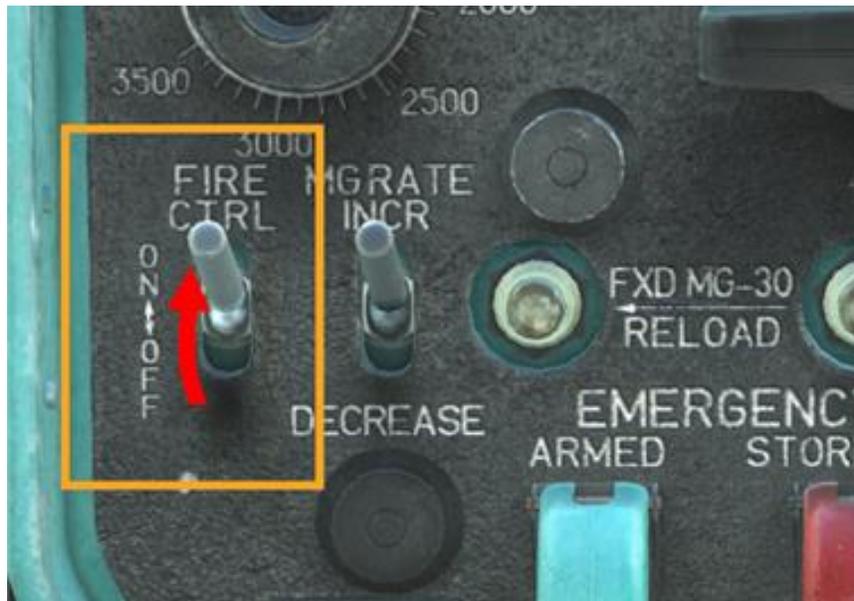
Set the MG Burst switch to the desired position (SHORT/LONG/MEDIUM):



If using the MG30 main cannon, select a desired firing rate:



Turn on the Fire Control switch:



Verify the correct weapon indication light illuminates (in this example, "30", which corresponds to the MG30):



Use Weapon Release button on cyclic to fire the weapon:



EMPLOYING GUIDED WEAPONS

Verify the helicopter is ready with an operating electrical system, and all circuit breakers are on.

Turn on the Aux Stores Lights switch:



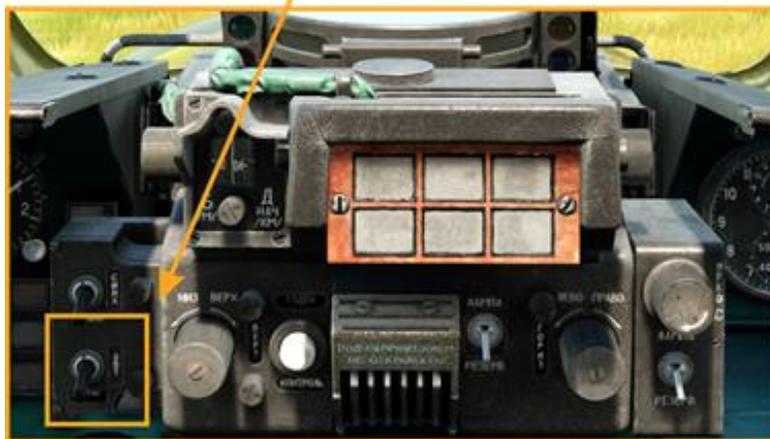
Turn on the ASP-17VP sight (ASP-17 Power On):



Set the Weapons Selector switch to the OFF/MSL position:



Set the ASP-17 sight mode to AUTO:



Switch ON the Main Weapon Safety switch in the Pilot-Operator seat (forward cockpit) or use the "Prepare weapons systems" command **[LCtrl + W]** to ask Petrovich AI to turn on all weapons-related switches in the forward cockpit:



In the forward cockpit, verify that the ATGM sight control panel OPER/CHECK switch is set to OPER:



On the right-hand instrument panel of the Pilot-Operator cockpit, turn on the Missile Power switch:



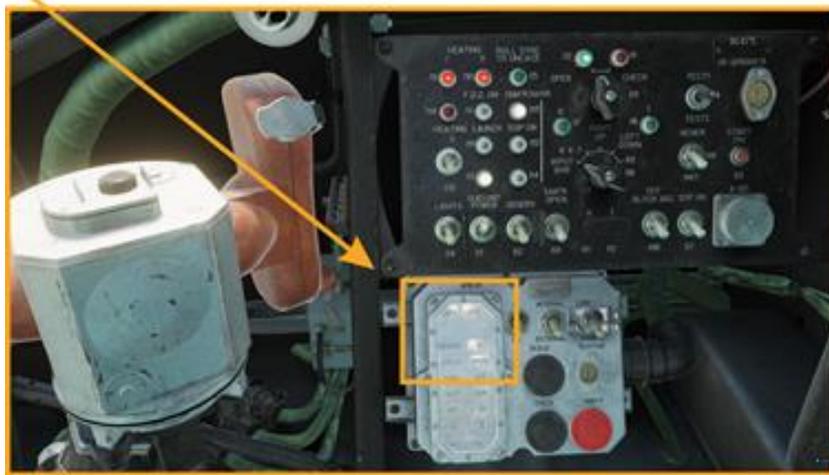
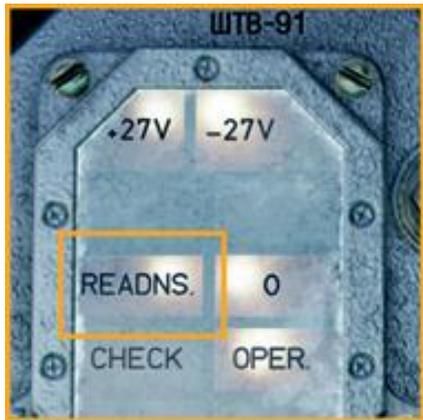
On the operator panel, turn on Power switch (1). The first two indicator lights will illuminate (2):



Turn on ATGM sight power (1) and guidance unit panel. The Л3 "L3" light should illuminate:



In 3–4 minutes, the READNS. indicator will illuminate, indicating guidance unit readiness:



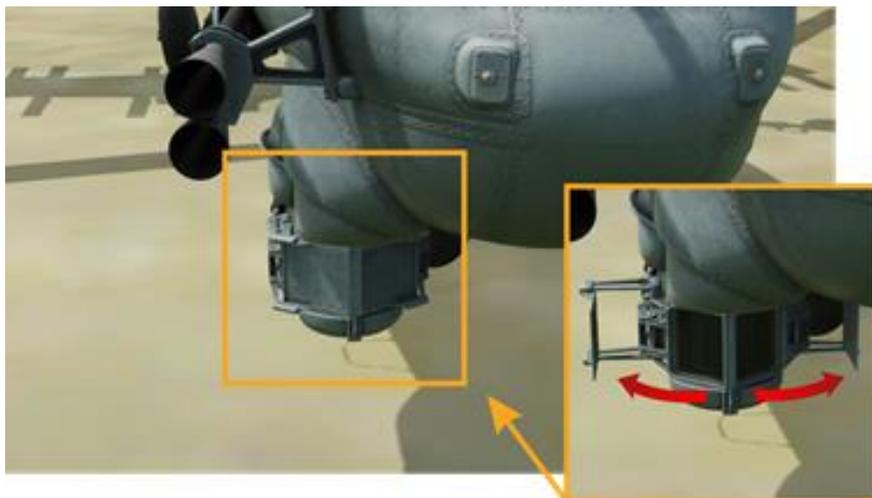
The READY indicator light will illuminate on the operator panel:



Turn on the OBSERV targeting gyros switch on the guidance unit panel. The Л3 "L3" light will start blinking, and the L4 light will illuminate in 10–15 seconds, indicating that the ATGM sight now can be moved:



When the OBSERV targeting gyros switch is turned on, the ATGM sight doors will open:



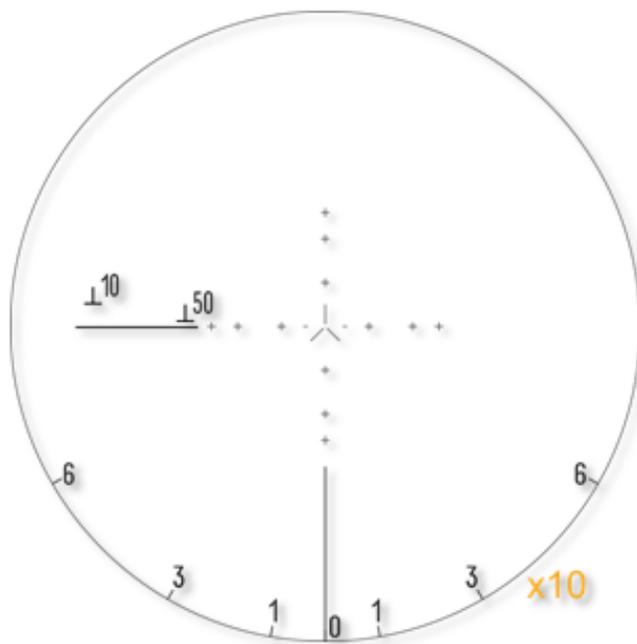
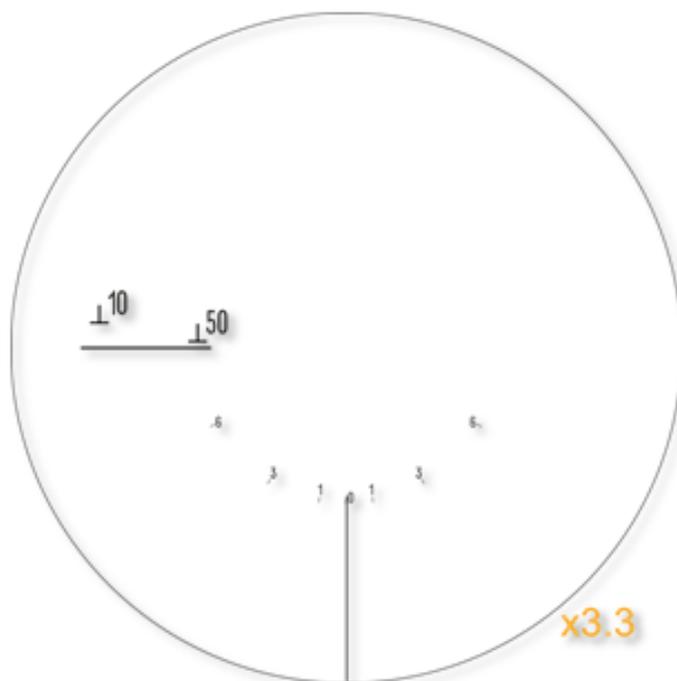
Select a missile station on the operator panel (1). If a missile has been loaded on the selected station, the MSL ON LNCHR light will illuminate green (2):



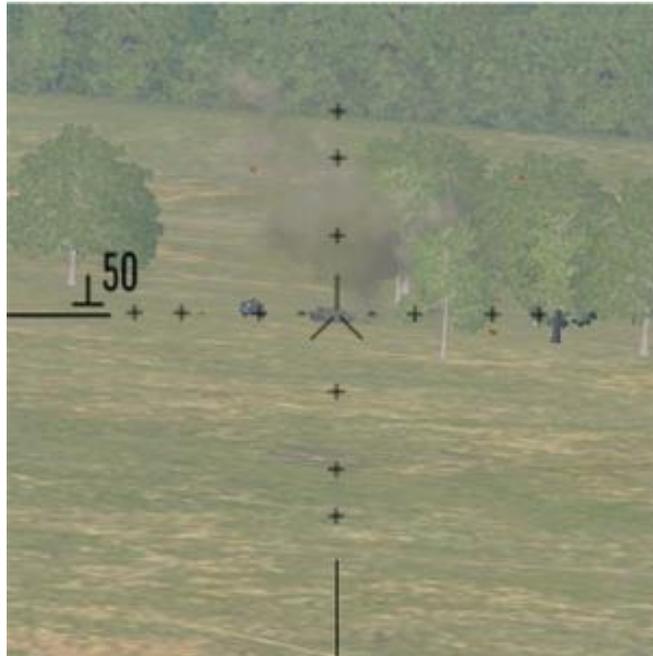
Look through ATGM/Guidance Unit sight (LALT+A by default):



The sight can be zoomed to aid in searching. Press **[LCtrl + X]** by default to toggle between 3.3× and 10× zoom:



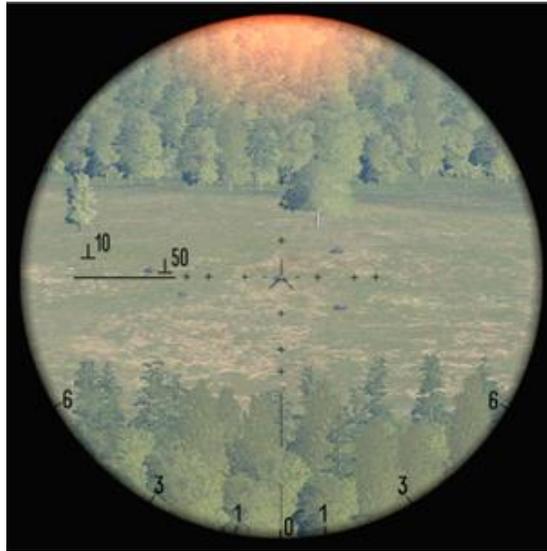
After the target is located, the operator should stabilize the reticle on the target:



The Pilot-Commander then maneuvers the helicopter to align the floating reticle with the inner ring of the fixed reticle:



Once launch parameters are met, an illuminated red light within the aiming sight and a continuous beep will sound through the headphones of both crew members, indicating launch authorization to the operator: A red light in the aiming sight signals that launch parameters are met.



On the operator panel, a red LAUNCH APPRVL" light will illuminate:



The operator then launches the ATGM by pressing the Launch button **[RCtrl + Space]**:



The missile will launch following a 0.9-second delay. The operator then guides the missile using the sight until impact.



Following missile employment, press the Radiation Reset button on the guidance unit **[LAlt + R]** to reset the guidance command radio for the next missile.



Select the next missile on the operator panel (1). The MSL ON LNCHR light (2) should illuminate. Repeat the firing procedure.



Turn off the OBSERV targeting gyros switch prior to any maneuvering (bank or pitch greater than 25°), to prevent a malfunction of the guidance unit gyros.

“PETROVICH” AI

The Mi-24P is crewed by two pilots: a Pilot-Commander and a Pilot-Operator. The DCS: Mi-24P module supports multicrew capability, where two players can occupy either of the two seats in a multiplayer session. Co-op (co-operative play) To accommodate a single player experience, we have created Petrovich, a virtual copilot that allows single player pilots to control mission-critical items in the unoccupied cockpit that the player is not occupying. Petrovich was designed to mimic the real-life procedures used by Mi-24P crew members. It enables single players to coordinate and control AI actions.

Petrovich can be controlled by a four-way hat on your HOTAS, or using joystick buttons. For Early Access there will be no voiceovers, but these will be added in future updates. The Early Access version of Petrovich will continue to be refined, and have new features added.

CONTROLS STRUCTURE

The Petrovich control bindings are divided into two areas: Under the **Mi-24P Sim** module, the **Helper AI Commands** category contains bindings that show the control menu, as well as “quick action” bindings for giving Petrovich basic orders (e.g., “lock target and fire”).

Under the **Mi-24P AI Menu** module, you can set controls to navigate the Petrovich AI Menu. You will likely want to bind these controls to a four-way hat on your joystick. The controls you bind to the AI Menu can be dual-bound to commands under the Mi-24P Sim module — for example, the four-way hat on your joystick can be bound to trim controls under Mi-24P Sim, and to the Petrovich AI Menu under Mi-24P AI Menu. Now your four-way hat will function normally as a trim control, but can also be used to select commands in the AI Menu.

DCS: Mi-24P

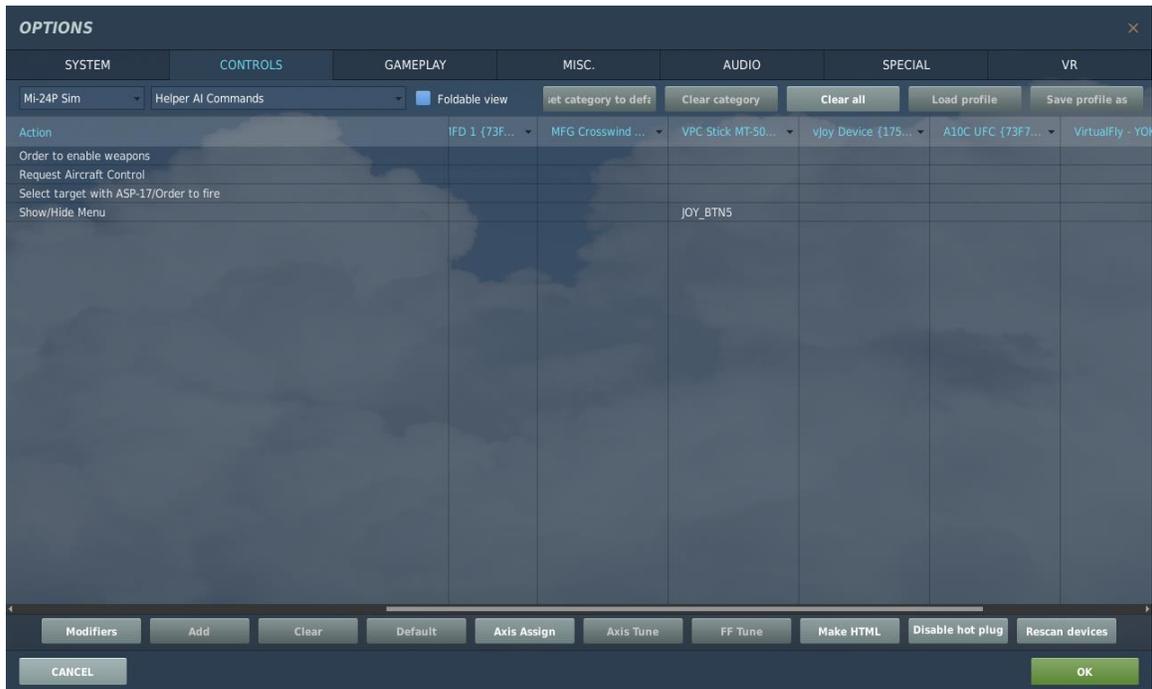


Figure 23. Petrovich AI Controls Under **Mi-24P Sim**

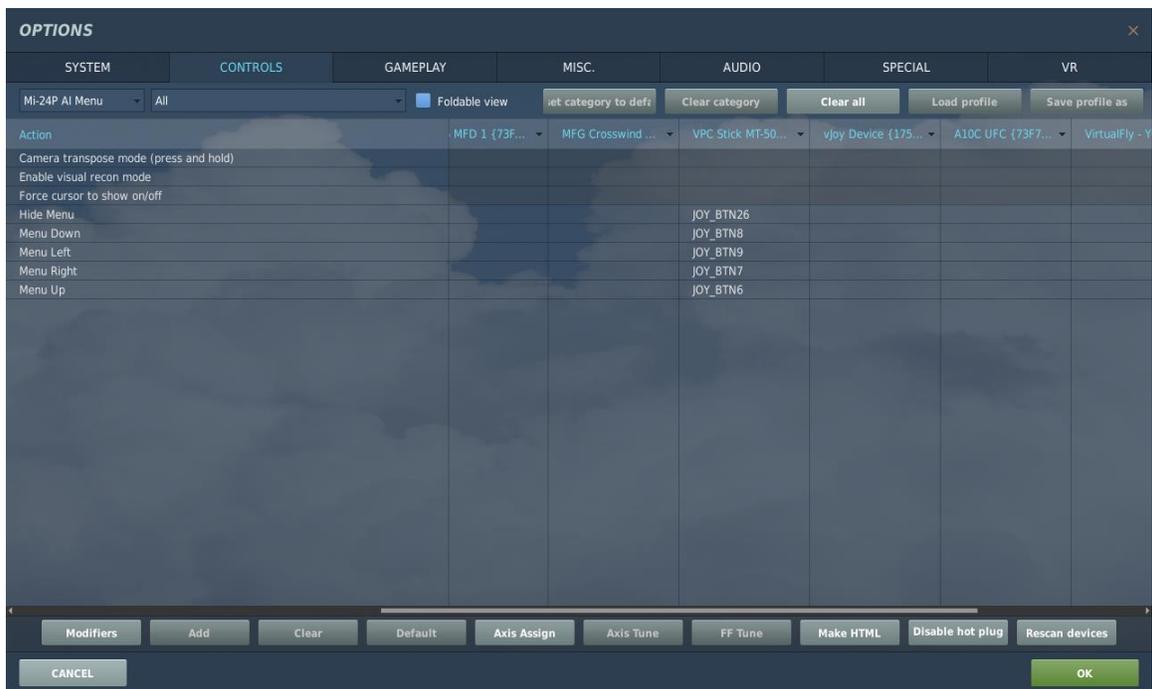


Figure 24. Petrovich AI Controls Under **Mi-24P AI Menu**

To control Petrovich, you will need to bind the **Menu Up/Down/Left/Right** commands, the **Hide Menu** command (under Mi-24P AI Menu), and the **Show/Hide Menu** command (under Mi-24P Sim).

The AI Menu uses both short- and long-presses of the menu commands to perform different functions. A short press is held down for fewer than 0.5 seconds, and a long press is held down for more than 0.5 seconds.

Note that some commands have built-in delays, to simulate the time it takes to communicate the commands over the intercom.

The AI Menu operates in different modes. You can use the directional buttons to cycle between these modes.

Mi-24P AI Menu Controls

Hide Menu. Hides the on-screen Petrovich menu. We recommend mapping this to the same button as **Show/Hide Menu** under **Mi-24P Sim**.

Menu Down. Performs the function associated with the Down action (see later sections).

Menu Left. Performs the function associated with the Left action (see later sections).

Menu Right. Performs the function associated with the Right action (see later sections).

Menu Up. Performs the function associated with the Up action (see later sections).

Helper AI Commands Controls

Prepare weapons systems. Quick Command that orders Petrovich to set Pilot-Operator cockpit switches for weapons employment. This command should be used when you are in the Pilot-Commander position. Note that it takes around three minutes for the ATGM systems to warm up. Petrovich will report system readiness.

Request Aircraft Control. This command is used in multi-crew play to request control of the helicopter from the other player. For example, if the Pilot-Operator is flying the helicopter, the Pilot-Commander presses this button to request control, and the Pilot-Operator accepts the handoff. The Pilot-Operator's flight controls will now be parked, and the Pilot-Commander's flight controls will become active. (The flight controls are the cyclic and collective controls, and the rudder pedals.)

In single-player sessions, this command gives flight control to Petrovich, or returns it to the player.

Select target with ASP-17/Order to fire. This button has two functions. If Petrovich has not been assigned a target, pressing this button will command Petrovich to scan the space designated by the ASP-17 Pilot-Commander sight for targets. Once Petrovich has found a target, pressing this button again will give Petrovich clearance to fire ATGMs.

Show/Hide Menu. Shows the Petrovich AI menu. We recommend mapping this command to the same joystick button as **Hide Menu** under **Mi-24P AI Menu**.

Player-as-Pilot-Operator Petrovich Commands

When you are in the forward (Pilot-Operator) cockpit, pressing the Show/Hide Menu button will display a horizontal situation indicator that can be used to give commands to Petrovich (acting as Pilot-Commander).

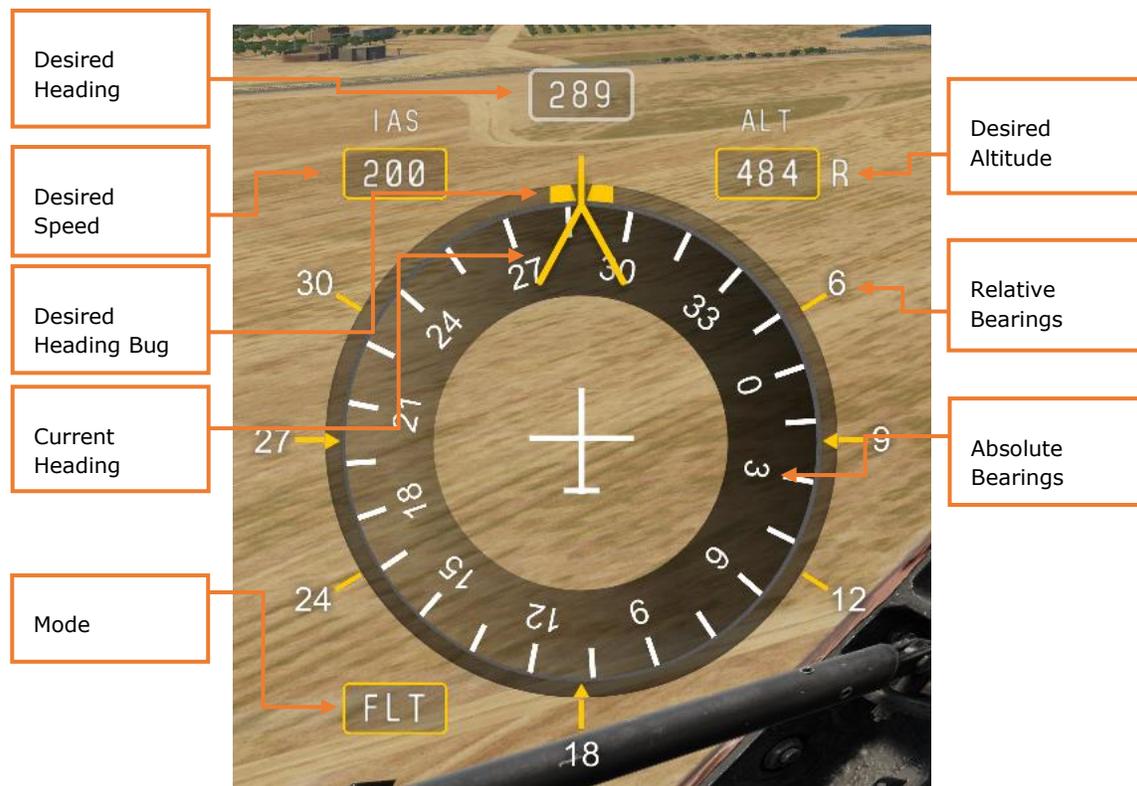


Figure 25. Pilot-Operator Petrovich AI Menu

The Mode window displays the current AI command mode. The current mode changes the function of the Up/Down/Left/Right buttons, as described below. The color of the box also indicates the current mode.

When the helicopter is moving, only FLT (Flight) and CBTM (Combat Maneuvering) modes are available. When hovering, HVR (Hover) and HVRT (Hover Translate)

modes are available. FLT mode changes to HVR automatically when entering a hover, and vice versa when exiting a hover.

The Desired Heading, Speed, and Altitude windows show the commanded parameter given to Petrovich. Petrovich will strive to attain these parameters. They can be changed using the menu buttons as described below.

The AI Menu commands have the following functions when used with this menu:

MODE	COMMAND	ACTION
FLT (FLIGHT)	Left Long	Moves desired heading bug left. After the button is released, commands Petrovich to turn the helicopter to the new heading.
	Left Short	Changes the AI Menu mode to CBTM (Combat).
	Right Long	Moves desired heading bug right. After the button is released, commands Petrovich to turn the helicopter to the new heading.
	Right Short	Activates head-tracking steering. A reticle will be displayed in the center of the screen. You can then look in the direction you wish Petrovich to fly, then press Right Short again.
	Up Long	Increases the desired altitude in the ALT window. After the button is released, Petrovich will increase the helicopter's altitude.
	Up Short	Increases the desired speed in the IAS window. After a short delay, Petrovich will accelerate the helicopter to the new speed.
	Down Long	Decreases the desired altitude in the ALT window. After the button is released, Petrovich will decrease the helicopter's altitude.
	Down Short	Decreases the desired speed in the IAS window. After a short delay, Petrovich will accelerate the

MODE	COMMAND	ACTION
		helicopter to the new speed. HVR (Hover) mode is activated if speed decreases below 50 kph.
HVR (HOVER)	Left Long	Same function as FLT mode.
	Left Short	Changes the AI Menu mode to HVRT (Hover Translate).
	Right Long	Same function as FLT mode.
	Right Short	Same function as FLT mode.
	Up Long	Same function as FLT mode.
	Up Short	Same function as FLT mode. AI Menu mode changes to FLT when speed increases above 50 kph.
	Down Long	Same function as FLT mode.
	Down Short	Same function as FLT mode.
HVRT (HOVER TRANSLATE)	Left Long	Petrovich translates the helicopter leftwards while the button is held.
	Left Short	Changes AI menu mode to CBTM (Combat).
	Right Long	Petrovich translates the helicopter rightwards while the button is held.
	Right Short	Same function as FLT mode.
	Up Long	Petrovich translates the helicopter forwards while the button is held.

MODE	COMMAND	ACTION
	Up Short	Same function as FLT mode. AI Menu mode changes to FLT when speed increases above 50 kph.
	Down Long	Commands Petrovich to make a 180° combat evasion turn. Intended to be used following an attack run. Turn off the targeting gyros switch for a faster turn.
	Down Short	No function.
CBTM (COMBAT MANEUVERS)	Left Long	No function.
	Left Short	Changes AI Menu mode to FLT (Flight) or HVR (Hover) depending on airspeed.
	Right Long	No function.
	Right Short	No function.
	Up Long	<p>Commands Petrovich to begin ATGM attack run. Petrovich will maneuver the helicopter to achieve launch approval from the ATGM guidance system. Petrovich will hold these parameters until maximum airspeed is reached, at which point it will return to horizontal flight.</p> <p>We recommended setting up your attack runs from realistic starting points. Attack runs ordered from excessive altitudes will result in Petrovich aborting the attack due to airspeed limitations, i.e. before the missile can reach its target.</p>
	Up Short	Commands Petrovich to turn the helicopter to the current targeting periscope bearing. This is useful for beginning attack runs.

MODE	COMMAND	ACTION
	Down Long	Commands Petrovich to perform a 180° combat evasion turn. Intended to be used following an attack run. Turn off the targeting gyros switch for a faster turn.
	Down Short	No function.

Player-as-Pilot-Commander Petrovich Commands

When you are in the rear (Pilot-Commander) cockpit, pressing the Show/Hide Menu button will display a designation tool that can be used to identify and track targets, and give commands to Petrovich (acting as Pilot-Operator).

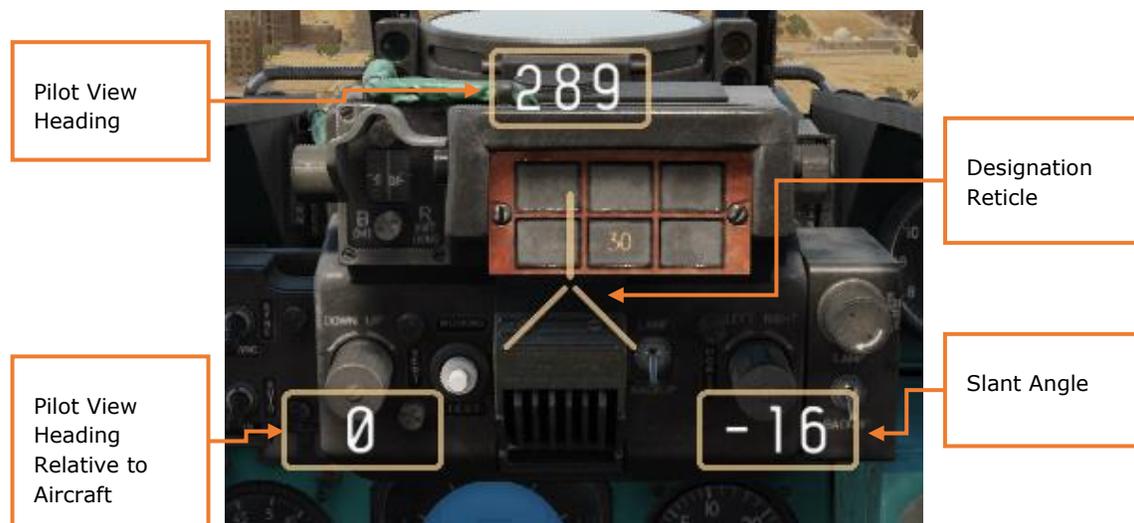


Figure 26. Pilot-Commander Petrovich AI Menu

The on-screen menu changes color depending on the active rules of engagement (ROE) and available weapons for Petrovich:

- **Red**: Weapons hold; ATGM is warming up
- **Yellow**: Weapons free; ATGM is warming up
- **Beige**: Weapons hold; ATGM is ready
- **Green**: Weapons free; ATGM is ready

The AI Menu commands have the following functions when used with this menu:

MODE	COMMAND	ACTION
TARGET DESIGNATION	Left Long	No function.
	Left Short	No function.
	Right Long	No function.
	Right Short	No function.
	Up Long	<p>If weapons are not enabled, commands Petrovich to set all cockpit switches for weapons employment. Note that ATGM systems take 3–4 minutes to warm up.</p> <p>Once weapons are enabled, Up Long sets Petrovich's rules of engagement (ROE). Up Long targets between Weapons Hold (initial state) and Weapons Free.</p>
	Up Short	<p>Commands Petrovich to enable the targeting gyros and use the targeting periscope to search along the designation line of sight for targets. If Petrovich has already located a target, Up Short commands Petrovich to repeat its search. If the designation line of sight is changed, Up Short commands Petrovich to scan the new search area. If more than one target is found, a list of targets will be displayed.</p>
	Down Long	No function.
	Down Short	Undesignates Petrovich's target and commands Petrovich to retract the targeting periscope and turn off the targeting gyros.
TARGET LIST	Left Long	No function.
	Left Short	No function.

MODE	COMMAND	ACTION
	Right Long	No function.
	Right Short	Designates the selected target.
	Up Long	No function.
	Up Short	Moves target list selection up.
	Down Long	No function.
	Down Short	Moves target list selection down.

You can move your head to place the designation reticle on to a target, then press Menu Up Short to designate it. The designation command orders Petrovich to activate the targeting gyros and scan the reticle line of sight. (The gyros take 5–7 seconds to spin up.) The targeting periscope has a $\pm 60^\circ$ horizontal gimbal capability; if the target is outside of those limits, the helicopter must be turned to face the target.

Petrovich will scan the designation area for targets. If a single target is found, Petrovich will track it and report its type (range permitting). If multiple targets are found, you will be shown a list of possible targets, and you can use the Menu commands to select a target to track. (See the table above.) The target list will be sorted in threat order (air defense targets at the top).



Figure 27. AI Menu Target List

Note: If the target list is displayed, but you do not wish to track any of the listed targets, simply choose a target at random, then press Menu Up Short to command Petrovich to scan a new target area.

Once a target is designated, Petrovich will observe it using the targeting periscope. If Petrovich fails to locate any targets, it will maintain the current periscope bearing and continue to scan for targets in the designated area.

To employ ATGMs against a tracked target, you must fly the helicopter to align the ASP-17 sight as described in Employing Guided Weapons, above. Once launch parameters are met, Petrovich will act according to the current ROE:

- If ROE is green (Weapons Free), Petrovich will launch and guide an ATGM as soon as launch parameters are met.
- If ROE is beige (Weapons Hold), Petrovich will wait for your consent to launch an ATGM. Consent is given with the **Select target with ASP-17/Order to fire** command binding.

(You can also command Petrovich to fire by pressing the Weapons Release button on your cyclic when the Weapons Selector switch is in the OFF/MSL position. This does not mimic the real-life function of the Weapons Release button and is included only to save you from having to bind an additional HOTAS command.)

Once the ATGM either hits the target or self-destructs, Petrovich will press the Radiation Reset button and switch to the next missile station for the next launch.

After the target is destroyed, Petrovich will stop tracking it with the targeting periscope.

If you wish, you can also designate targets for Petrovich using the ASP-17. (This is useful for players who do not have head-tracking hardware.) Place the target within the ASP-17 fixed reticle and press the **Select target with ASP-17/Order to fire** command binding.

ADDITIONAL FEATURES

Petrovich has some other features that are always available:

- When you are in the Pilot-Observer seat, and the OBSERV targeting gyros switch on the Guidance Unit panel is on, Petrovich will limit the amount of helicopter maneuvering to protect the targeting periscope gyros.
- When you are in the Pilot-Commander seat, Petrovich will turn off the targeting gyros if you make large cyclic inputs. We still recommend explicitly commanding Petrovich to switch off the targeting gyros using Menu Down Short prior to performing aggressive maneuvers.
- During a cold start, Petrovich will close its cockpit canopy when you close yours.
- When you are in the Pilot-Commander seat, Petrovich will move the ASO-2V countermeasures cassette selector to the next position once a cassette is expended. (In later updates, this will be expanded to give Petrovich more sophisticated control of the Countermeasures panel.)

Some other important notes about Petrovich:

- Petrovich will not taxi or take off for this Early Access release. When you are in the Pilot-Operator seat, you can order Petrovich to land by reducing the Desired Altitude to zero, but once weight is on the wheels, Petrovich will automatically return helicopter control to you.
- Petrovich currently communicates via on-screen text messages only. Petrovich will inform you when reaching desired parameters, when weapons are ready, and when it can't perform a requested order. Voiceovers and reactions will be added in a later update.
- When you are in the Pilot-Operator seat, and you use the targeting periscope, the AI Menu mode will switch to CBTM (Combat Maneuvering) automatically, and Petrovich will fly the Mi-24P smooth and level to assist the player in holding the reticle on the target.
- When you are in the Pilot-Commander seat, and no target is designated, Petrovich will return the Missile Station selector to the initial position to inhibit the launch approval alert sound. Once a new target is designated, Petrovich will select the next loaded missile station.

- Petrovich is not immortal. If you die, Petrovich cannot assume your position.
- You can adjust the flight controls handover behavior by going to the **Options** → **Special** → **Mi-24P** panel, and toggling the checkbox labeled PETROVICH AI AUTO HANDOVER (checked by default). When checked, Petrovich will take over the flight controls whenever you switch from the Commander to the Operator position. It will attempt to maintain your current flight parameters. When unchecked, you continue to have the flight controls from the Operator position.

If the **Request Aircraft Control** command is used to park or un-park the cyclic, it will also activate or deactivate Petrovich handover behavior, respectively.

Multiplayer mission creators have additional control over Petrovich's behavior in their missions. Each Mi-24P has additional options under the Additional Properties ("...") tab (1).

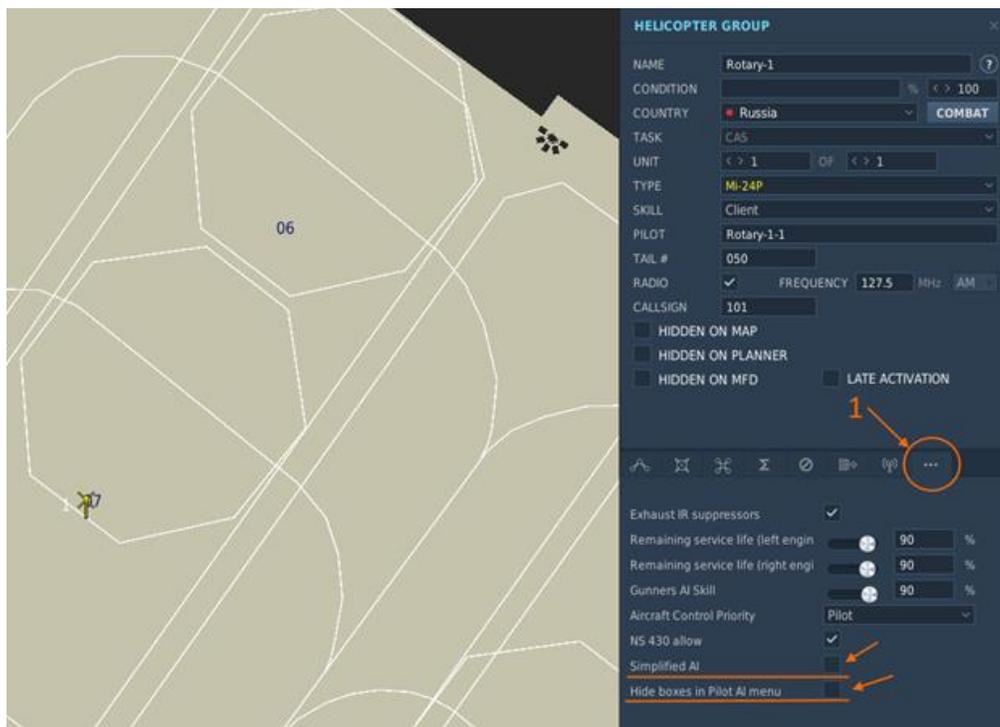


Figure 28. Mi-24P Multiplayer AI Options

Simplified AI. Disables all Petrovich menu functions when checked. The only commands that Petrovich will respond to are **Order to enable weapons** and **Select target with ASP-17/Order to fire**. Petrovich will not scan for targets and will not use the targeting periscope, but it will set cockpit switches for ATGM launch and cycle between missile stations automatically. As Pilot-Commander, you can still order the launch of ATGMs, but Petrovich will not provide guidance. (You

will need to assume the Pilot-Operator role or guide the missile by maneuvering the aircraft to keep the ASP-17V on the target. This capability is present in the real Mi-24P as well.)

Hide boxes in Pilot AI menu. On the Pilot-Commander AI menu, hides the windows for slant angle, heading, and azimuth. Only the targeting reticle is shown.

Good hunting!

The Eagle Dynamics SA team

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