

THE MILVIZ HUEY UH-1



USER GUIDE

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The goal of this user guide is to familiarize the reader with the Milviz Huey UH-1C as it relates to [FSX](#) and [Prepar3D](#) flight simulators. The User Guide intentionally avoids excessive technical terminology and leaves that aspect to the professionals who released the *official* UH-1 manual, (included with this package). The UH-1C User Guide is meant for those relatively new to flight simulation in general, and/or have little experience with official aviation procedures.

MINIMUM REQUIRED SPECS:

THIS PRODUCT REQUIRES FSX AND/OR P3D FLIGHT SIM PLATFORMS. IT IS ALSO DESIGNED FOR NEWER SYSTEMS. MINIMUM REQUIREMENTS ARE A 2.6 CORE 2 DUO, 4 GIGS OF RAM, 512 MB VIDEO CARD AND 1.2GB OF FREE DISK SPACE. OPTIMAL REQUIREMENTS ARE AN I7 960 CPU, 8 GB RAM, 1 GB VIDEO CARD, (w/DX10-DX11), OR GREATER.



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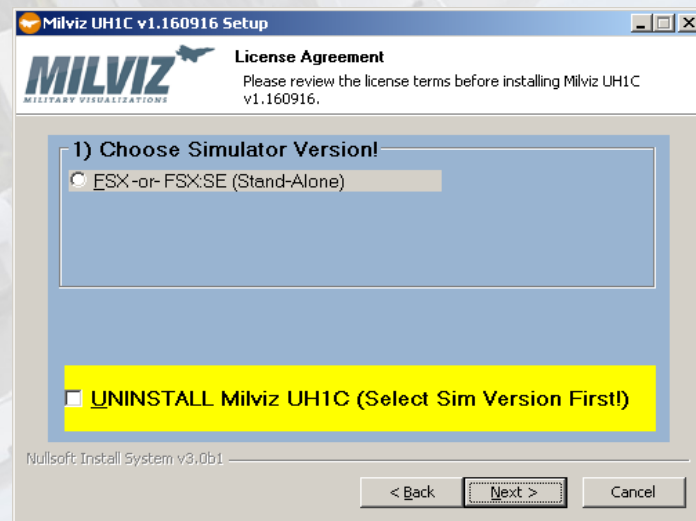
Installation

Installing the **Milviz Huey UH-1** is simple and no different than most other FS installations when it comes to 'pre-installation precautions'. These precautions include shutting down any programs that are open, and disabling any active antivirus software.

After you've downloaded the **Milviz Huey UH-1** to your desktop, unzip and open the folder to find the **Milviz UH-1** installer, and then:

1. **Right-click** the installer from the resulting drop-down list and select "*run as administrator*". (A panel, similar to the one in the example below will open).
2. **Select your simulator version and any options applicable to your needs.** (Note that the example in **figure 1** may reflect a slightly different configuration of options & selections, but essentially represents the installation selection panel for these choices.)

Figure 1



Repeat these steps if you want to install the **Milviz UH-1** in each additional flight-sim platform you have in your system.

3. **Finally**, remember to reactivate your antivirus and other security software that you disabled before you began the installation!



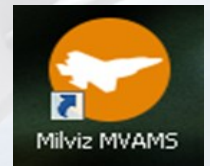
Installation (cont.)

Milviz Add-on Management System (MVAMS)

Please Note: A detailed, 7-page, instruction guide, (*MVAMS Guide*), is included in the **Milviz UH-1 Documents** folder, (along with all the other guides and manuals). However, you may find the **MVAMS** to be very intuitive and most of the selections self explanatory. Still, it wouldn't hurt to give it a quick look-over to have a better understanding of how it applies to other Milviz products.

After each installation process is completed, an orange panel will open, (**Figure A**). This is the “**MVAMS**” panel, (*Milviz Add-on Manager System*)[†]. Click on the corner indicated by the ‘sweeping arrow’ and you’ll be led through several panels and finally to the UH-1’s configuration options.

You can proceed to configure the **Huey UH-1** you’ve just installed using the **MVAMS** panel presented at this point, but it isn’t necessary. The panel will always be accessible at anytime after the installation by clicking on the desktop icon, (*figure 2*).

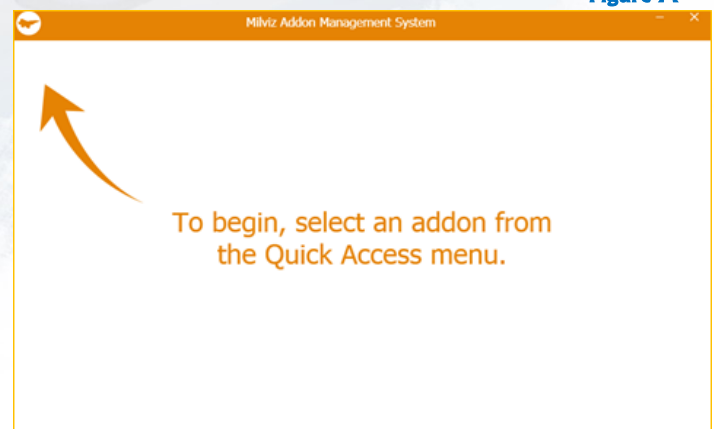
Figure 2

In fact, it may be a better idea to do it later because some of the options regarding Joystick button assignments require that your flight sim control system be connected to your computer first.

The following is an excerpt from the first page of the **MVAMS Guide**. On that page, the Milviz Huey UH-1 is used as an example of what the MVAMS offers. The guide then switches to using the **Milviz F100D** as the example for the remaining 6 pages:

The ‘*sweeping arrow*’ on the first panel to open immediately after the installation completes, (**Figure A**), points to your next click point.

As mentioned earlier, you don’t have to configure your aircraft at that moment and can close it if you wish.

Figure A

[†] Not all Milviz products you may have installed will appear in the MVAMS panel. Some of those products will not appear because they'd have no need for the MVAMS system. Other Milviz aircraft may not appear because they were released previous to the creation of the MVAMS. In either case, those products that didn't show up have their own alternative management systems.

MVAMS (cont.)

The next panel to open will be much like the one in [Figure B](#). You may see different aircraft icons than are shown here and there may be more or less of them. The panel will contain whatever Milviz aircraft you have installed.

After you click the icon of the aircraft you wish to configure, you'll be presented with a panel of available options only applicable for that individual model.

Therefore, if for example the Milviz Huey UH-1 is selected, the panel will look like the one in [Figure C](#).

However, if say the Milviz F100D is selected, the panel that opens may appear very different due to the additional instrumentation and options to select from.

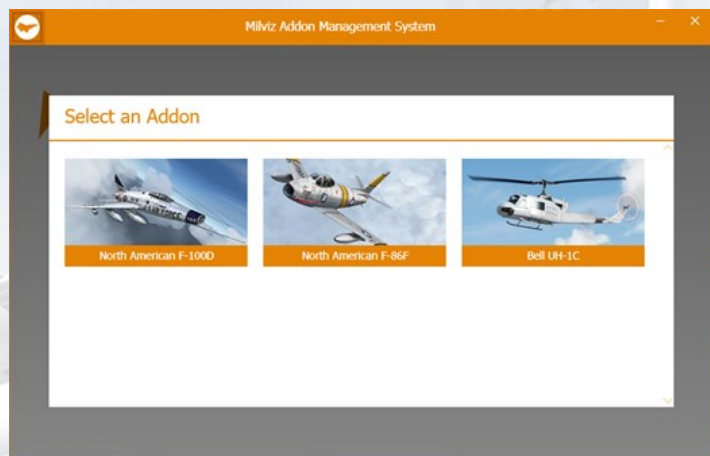


Figure B

In [Figure C](#), the panel shown is a result of selecting the **Milviz Huey UH-1**. In this case it offers 4 different categories to configure. For the **Huey**, you can assign a button on your control stick to operate the **Force Trim** button located on the cyclic. *You must first have your Joystick or HOTAS system plugged in and active in order to see it as an available option in this panel.*

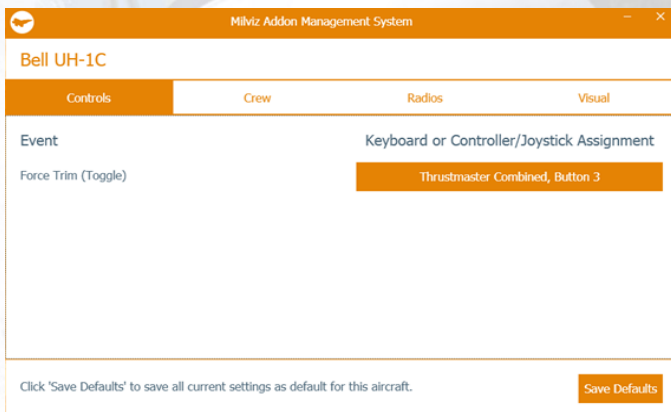


Figure C

Of course, you may alternatively assign the **F T** button to be activated by a key on your Keyboard or mouse just as easily.

The **MVAMS** makes configuring any selected aircraft easy and fast. As already mentioned, an included 7-page guide in the Huey's Documents folder will demonstrate how intuitive it truly is!

◇ See page's 10 & 11 for a detailed explanation of the Force Trim system and how to apply it in flight.

MILVIZ UH-1 FEATURES:

Some key features that make the Milviz Huey UH-1 the most realistic of all simulator Huey's available:

- Package includes The UH-1C and UH-1H models with military & civilian liveries
- Extremely accurate Flight dynamics (real-world differences between the 1C & 1H) pushed to the limit of the flight-sim's capabilities
- Handling and flight dynamics change in response to changes in the aircraft's gross weight and balance
- Capable of **Auto-rotation** and accurate **VRS** effect
- UH-1C is fully TacPack Ready including rockets & miniguns as well as NVG[◇]
- High Quality Sound set (recorded from a real Huey!)
- Authentic, working systems & startup procedure[†]
- Working Force Trim (assignable to any J-stick button)
- Configurable with the MVAMS (Milviz Add-on Management System)
- Paint Kit, Official manual, User and MVAMS guides included
- (Watch for additional military and GA liveries & systems in future patches!)

Check out the *Milviz UH-1 Huey Basic Operations* YouTube video:

[Milviz UH1 Huey Basic Operations](#)

[◇] TacPack is a 3rd party add-on and it's operation is beyond the scope of this User Guide. Please refer to VRS TacPac for application and uses. Please see <https://www.vrsimulations.com/tacpack.htm>

[†] Not all systems have been simulated and those which have been simulated are done so using the limitations of the Microsoft Flight Simulator X & P3D platforms.



GENERAL SPECIFICATIONS

The UH-1C & UH-1H had a number of physical differences with one of the most significant being the power plant. The UH-1C's T53-L11 was upgraded to the T53-L13 for the UH-1H. However, the increased 300 SHP in the UH-1H, accommodated the larger fuselage and rotors but the change in speed was minor.

UH-1C / **UH-1H**

Main Rotor Span: 44/48 ft.

Length: 54/58 ft. (rotors turning)

Fuselage Length: 42/43 ft.

Height: 13/14 ft.

Max Speed: 120/125 kts

Max Gross Weight: 8500/9500 lb.

UH-1C (model 204) **Engine:** Lycoming T53-L-11 turbine engine, 1100 shp / 821 kw

UH-1H (model 205) **Engine:** Lycoming T53-L-13 turbine engine, 1400 shp / 1,000 kw

Flight Duration: 3 hrs.

Crew (Vietnam): Pilot, Copilot, Crew Chief and Door Gunner

Startup Procedure:

1. Switch **OFF** the **Low RPM Alarm**, (just to the left of the **Fuel Pump** switch with red safety cover). This step is recommended first because the Low RPM Alarm will sound as soon as the battery is switched on. Later, when the startup sequence is completed, the Low RPM Alarm switch will automatically reset.
2. Switch **ON Battery** (overhead console), followed by exterior lights.
3. Switch **ON Fuel Pump** (covered by red safety cover on center console).
4. Switch **ON Force Trim** and **Hydraulics** systems, (center console).
5. Ensure the Collective is in full down position and then place your cursor on the **Throttle Grip**. Roll your mouse wheel to rotate the grip counter clockwise. The Throttle Grip will stop when it reaches the idle position (if it isn't there already).
6. **Press** (left-click) and **HOLD** the red **Starter** button located on the right side of the collective box.

As the engine begins to spool up, watch the **N1 Gauge**, ([pg. 12/#20](#)). Release the starter button when the **N1** gauge indicator **exceeds 40%**. The engine RPM indicator ([pg. 12/#1](#)) will gradually stabilize and settle to its normal idle position, (about 40).

8. Once the RPM settles, switch **Inverter** toggle selection to **ON/Main** (overhead console / [pg. 13/#6](#)).
9. Switch **ON IFF** (center console).
10. Slowly rotate the **Throttle Grip** clockwise to full power using the mouse wheel.

Indicators on the RPM/N2 gauge will move up into green range. At this point, the Low RPM caution light should go out. The **Low RPM Audio switch will automatically reset**.

11. Click on the **Caution test/reset** switch ([pg. 14/#4](#)) to reset the Master Caution light and ensure all caution lights on the annunciator panel are out.

-Your Huey UH-1H is now ready to fly-

Shutdown:

1. Rotate **Throttle** to idle position, (fully to the right). Switch off the Low RPM Alarm when it sounds an alert. (the RPM/N2 gauge should read about 40)
2. Press **Idle stop** button on the collective box (figure D/button G).
3. Turn off **Fuel Pump**, **Force Trim**, and **Hydraulics**.
4. Switch off **Inverter** and **Battery**.



Figure D

- A. Spot Light STOW On/Off
- B. Landing Light On/Off
- C. RPM GOV INC/DEC ("HEEP")
- D. Searchlight Control Hat
- E. Landing Light EXT/RET
- F. Starter Ignition Switch
- G. Engine Idle STOP REL button
- H. Throttle Friction ADJ Ring
- I. Throttle Control

UH-1 Cockpit Layout

Instrument panel



- | | | |
|---------------------------------|---------------------------------------|---------------------------------|
| ① Dual Tach RPM/N2 indicator | ⑪ Fuel pressure indicator | ⑳ Eng Inlet Filter Clog warning |
| ② Airspeed | ⑫ Fuel quantity indicator | ㉑ MASTER CAUTION light |
| ③ Attitude Indicator | ⑬ Engine oil pressure indicator | ㉒ Low RPM |
| ④ Altimeter | ⑭ Engine oil temperature indicator | ㉓ Fire DET Test switch |
| ⑤ Radio altimeter | ⑮ Transmission oil pressure indicator | ㉔ FIRE Caution Light |
| ⑥ NAV / ADF indicator | ⑯ Transmission oil temp indicator | ㉕ Fuel Gage Test |
| ⑦ Vertical Velocity Indicator | ⑰ Torque indicator | ㉖ IFF Code Hold Light |
| ⑧ Delta HDG rate/turn COORD IND | ⑱ Main generator load meter | ㉗ IFF Code Hold Switch |
| ⑨ LCLSR/Course/Glideslope IND | ㉒ DC voltmeter | ㉘ DME Indicator |
| ⑩ Clock | ㉓ Gas producer tach indicator (N1) | ㉙ Marker Beacon Light |
| | ㉔ Standby generator load meter | ㉚ Compass Slaving switch |
| | ㉕ AC voltmeter | ㉛ Marker Beacon Sensing switch |
| | ㉖ Exhaust gas temperature indicator | ㉜ Marker Beacon Volume ADJ |
| | | ㉝ Cargo Release Armed light |

UH-1 Cockpit Layout

Overhead Console



- | | |
|---|-------------------------------------|
| 1. Dome light select & Pitot tube heater switch | 5. Bleed Air and Cabin Temp control |
| 2. Interior lights/Gauges/Consoles | 6. AC Electrical Panel |
| 3. Exterior Lighting (visible) | 7. DC Electrical Panel |
| 4. Wipers and Cargo selection panel | 8. NVG POS LTS Selector (invisible) |

RE: #8 (NVG POS LTS Selector)

NVG Position Lights control panel has five intensity positions; OFF, 1, 2, 3, 4, and BRT (BRIGHT). These lights are invisible to the unaided eye and must be checked/viewed with AN/PVS-5 AN/AVS-6 or AN/PVS-7 Night Vision Goggles. (a TacPack feature)

The 'visible' Exterior position lights must all be turned OFF when an NVG POS LTS selection is made. The NVG POS LTS selector should always be in the OFF position when not being used.

UH-1 Cockpit Layout

Center Console (fwd.)



- | | | |
|----------------------------------|-----------------|------------------------------------|
| 1. Chip Detect & Hoist Cable Cut | } (Misc. Panel) | 5. IFF Panel |
| 2. Force Trim & Hydraulics | | 6. Low RPM Audio On/Off |
| 3. Hot Air Control | | 7. Engine Panel (fuel pump switch) |
| 4. Cautions Panel | | 8. Armament Panel |

UH-1 Cockpit Layout

Center Console (rear)



9. Signal Distribution control Panel

10. ADF 1&2 Panels (ARN-83)

11. NAV 1/NAV 2 COMM Panels (ARN-82)

12. VHF 1/VHF 2 Com Panels

How to apply Force Trim

The Milviz Huey UH-1's Force Trim is accurately replicated. However, the “Force Trim” system by design, isn't as advanced as say, the AFCS found in some of the later model, *heavy*, helicopters such as the CH 53. Force Trim is intended to give pilots the ability to relax a bit when on some of the longer flights they encounter. However, generally speaking, they engage the system in most every flight, long or short.

You can bet that you'll have a bad day, (or night), if you're counting on F T to hold a particular preference in altitude and course. There is no feedback to the Huey's other systems that would tell it to pitch up/down left or right when something like the wind direction and/or speed, (among many other variables), changes in any way.

Michael Baker, (one of several experienced consultants on other Milviz projects such as the **Milviz 407**), has logged many hours in various helicopters. His experience with Force Trim comes from models like the **204**, (UH-1C), and **205**, (UH-1H). In the following excerpts, (taken from the UG of the Milviz 407), he explains the Force Trim in a very easy to understand way:

“There is no trim adjustment or forced trim on the anti-torque system ... unlike the stick in a fixed wing airplane, the Cyclic, (in helicopters like the Bell 204, 205, & 407), have no dynamic feedback. Bell's version of trim is “Forced Trim” and it does its job by magnetic force along the push-pull tubes of the Cyclic controls. Once centered, (pilot chosen), any force applied feels like pushing against a spring. (The force), becomes stronger the further the stick is moved from the pre-determined center.”



How to apply Force Trim (cont.)

He went on to explain a typical scenario in using the **Force Trim** button:

*“...most **pilots don’t ‘press and move’**, (the Cyclic), to a new location, (they’re), generally already holding the stick in the position they want the new ‘center’ to be. So one **just momentarily presses the button to re-set the center...**” – MG Baker*

So it’s really that simple; if the helicopter’s nose begins to drop a little and your indicator is registering a decent, (and assuming you wanted to maintain level flight), just gently pull back on the Cyclic until the helicopter is back where you want it, and **then press and release the Force Trim button**. This reestablishes the new “center” of the Cyclic’s position.

You’ll notice that the Cyclic in the sim’s cockpit will stay wherever it was when you pressed & released the **F T** button, but your HOTAS stick, (either spring loaded or mag-feedback), will of course, return to the center of its base. By switching the Force Trim’s toggle, (located at the front of the center console), off and back on, the sim’s Cyclic control resets to its initial center.



Auto-rotation

Very few flight-sim helicopters are capable of auto-rotation and even fewer can simulate a **Vortex Ring State**, (page 18).

Milviz has created their Huey UH-1 with the ability for you to experience the dread of an engine failure or the sudden helplessness of a loss of control in a helicopter.

With the Milviz Huey, you can actually practice the real-world life saving skills and maneuvers that pilots must learn to counter these two emergencies, and you can do it safely, at home, on your simulator!

How to practice this maneuver

1. Establish a minimum altitude of 1500 feet AGL
 2. Pick the biggest longest open area you can reach, (*like Kansas*), at a 4 to 1 decent rate.
 3. Turn throttle back to idle and switch off the Low RPM alarm when it goes off.
- An experienced pilot may even cut the engine in this practice but it seems an unnecessary risk. If you 'feel lucky' you can do that too, but always leave all other power & hydraulics on-
4. Pitch the nose down and establish an airspeed of 70-80 knots and a descent rate of 600-800FPM.
 5. Hold your established rate as you descend towards your 'target' LZ.
 6. At about 100FT AGL, begin to flare with the cyclic and slow down to 40-50 knots. Cut back your descent rate and hold 100-200FPM. **DO NOT go below 40 knots!**
 7. At 15ft AGL carefully use collective to level off and making a running landing at 40 knots airspeed.
 8. Smoothly (not abruptly) lower collective once you have touched down.

Vortex Ring State

How to recover from a *VRS*

You can enter **Vortex Ring State** if your aircraft is traveling less than 20 knots airspeed and descending at a rate of 900 FPM or faster and all at an altitude above 25 feet AGL. In a way, it's a lot like a fixed-wing aircraft stall. In addition, the recovery maneuver for a VRS is much the same, as well.

Once you enter the VRS you'll notice a sudden and increasing descent rate. Adding collective will not counteract it. **The only escape is to use cyclic to pitch down and gain airspeed to 20 knots or faster.**

You won't be able to do anything about the descent rate until you get the airspeed back. Once you are out of VRS you'll recover, not instantly but you will be able to control the rate of descent fairly quickly with collective again.

If you don't get yourself out of VRS somewhere between 5 and 10 seconds after it starts, the situation will probably become unrecoverable.

Recovery can be practiced at altitude by entering the criteria (as mentioned earlier):

<20 knots and -900 FPM.

Everyone should practice the recovery - the urge when you see that drop is to add collective. **It doesn't help and burns precious seconds while you try.**



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