

Agusta Bell AB-47G2 with floaters of Hellenic Air Force 359 Sqdr for FS2K2



GENERAL

The Agusta Bell AB-47G is one of the most popular helicopters in the history of rotary aviation. The Agusta Bell AB-47G helicopters entered in service of Hellenic Air Force in 1971. They used to operate as VIP transporters, as liasons, as agricultural field spraying devices, as trainers or even as ambulances. They were painted with bright red & white or light blue & white pattern. Some of them was equiped with flotters for easy landings on the sea surface. Today, some of them are resting at the Hellenic Air Force museum. This **AB-47G_HAF_v2** repaint version, equiped with floaters has been specifically created as an honor to the personel 359th Sqdr of Hellenic Air Force who used to fly these legends with an utility role (VIP airborne transportation, agricultural field spraying, aerial photo shooting etc.).

Many thanks to Jean Marie Mermaz for giving me the permission to repaint his wonderful Agusta Bell AB-47G2 original model. Thank you too, for downloading this helicopter repaint.

CREDITS

- Original GMAX model & primary panel design, by **Jean Marie Mermaz** jm_mmz@wanadoo.fr
- Hellenic Army Aviation repaint, panel modification, flight / instalation manual & screenshots by repainter **Nick Karatzides** Nick_Karatzides@hotmail.com OR Pathfinder@mail.gr.
- Aircraft infos & data by Bell and Hellenic Air Force museum.

INSTALLATION

- Create a folder into C:\Program Files\Microsoft Games\FS2002\Aircraft and name it **“Agusta Bell AB-47G with floaters Hellenic Air Force”**
- Open the “Agusta Bell effects” folder, then COPY & PASTE its contents into destination **C:\Program Files\Microsoft Games\FS2002\Effects**. Overwrite any existing FS2K2 “fx” files with the same name if it is needed so. This will **NOT** harm your FS2002 system for other aircrafts! If you do not want to overwrite the existing FS2K2 “fx” files, backup them first.
- Open the “Agusta Bell gauges” folder, then COPY & PASTE its contents into destination **C:\Program Files\Microsoft Games\FS2002\Gauges**. Overwrite any existing FS2K2 “gau” files with the same name if it is needed so. This will **NOT** harm your FS2002 system for other aircrafts! If you do not want to overwrite the existing FS2K2 “gau” files, backup them first.
- Finally, COPY & PASTE all the other folders & files into **C:\Program Files\Microsoft Games\FS2002\Aircraft\ Agusta Bell AB-47G with floaters Hellenic Air Force**.

Anyway, after a successfull installation, you are now OK to start your FS2K2 and go flying. To select this aircraft, you'll find it under the manufacturer's name of “Agusta Bell” into the “Select Aircraft” menu of FS2K2.

RELATED LINKS

http://www.army.gr/html/GR_Army/dieuthinseis/Das/index.html
<http://www.bell47helicopterassociation.org/>
<http://www.bell47asap.com/>
<http://www.luftfahrtmuseum.com/html/itf/be47.htm>
http://cellmath.med.utoronto.ca/B47/Bell_47.html
<http://www.eexi.gr/spa/hafmuseum/ekthemata.htm>

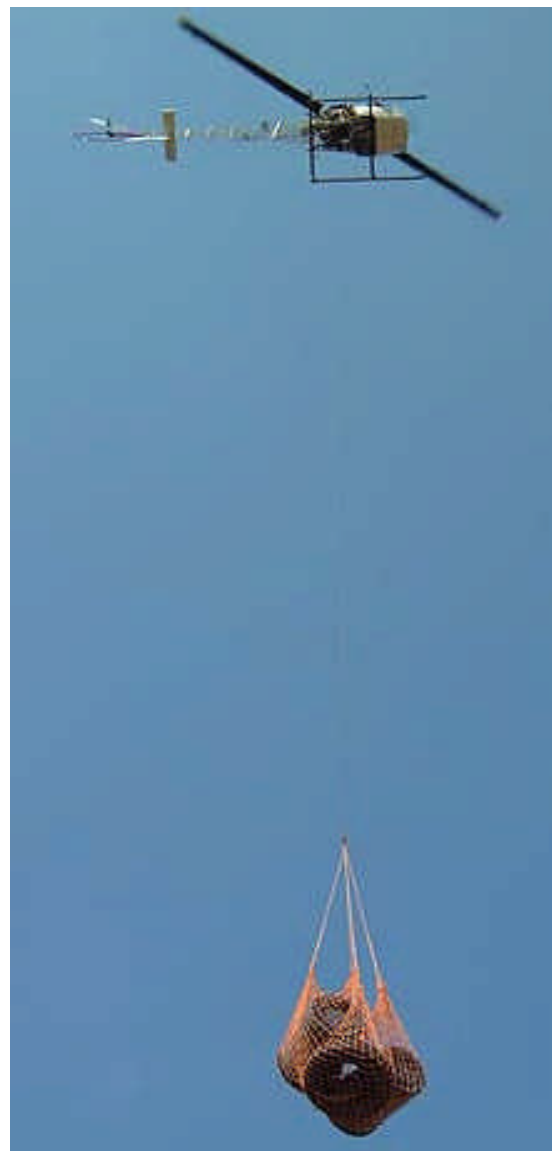


KNOWN BUGS

There are not any known “bug” issues with this model, so you can enjoy your flying with no problems.

NOTES

- The repaint of Hellenic Air Force’s Agusta Bell AB-47G helicopter contained in this **AB-47G_HAF_v2.zip** package is a fully compatible file with FS2K2.
- This helicopter package for FS is not meant to be artistically brilliant, but to give a faithful as possible rendition of what it is like to fly this helicopter. It is also frame rate friendly.
- This Hellenic AF 359th Sqdrn’s helicopter Agusta Bell AB-47G2 repaint archive is a **STRICTLY FREeware ONLY! NO COMMERCIAL GAIN BY ANYONE COULD BE ACCEPTABLE BY ME.** This **AB-47G_HAF_v2** Agusta Bell AB-47G helicopter repaint package of Hellenic Air Force should **NOT UNDER ANY CIRCUMSTANCES** be uploaded or displayed on **ANY** payware FS sites or **ANY** of its associated subsidiaries. If it is, or available on any other website offering this archive in return for money, any appropriate legal action will be undertaken using all the appropriate International copyright laws.
- The repainter of this package is in no way liable for any damage it may cause from incorrect use (however unlikely that it may be).
- If you have **ANY** questions or comments, bug reports etc, please feel free to send to my e-mail Nick_Karatzides@hotmail.com **OR** Pathfinder@mail.gr.
- This Hellenic Air Force’s Agusta Bell AB-47G helicopter repaint (original GMAX model and panel by Jean Marie Mermaz) should **NOT** be uploaded to **ANY** InterNet site without the repaint-er’s written confirmation.



Finally, this **AB-47G_HAF_v2.zip** package should **NOT** under **ANY** circumstances be uploaded in FSPlanet.com, because this site is **NOT** freeware and the site moderator named Ferdy Serena, makes money and never ask any permission before uploading any file. Please report at me at once if you find this zip file in FSPlanet.com file library.

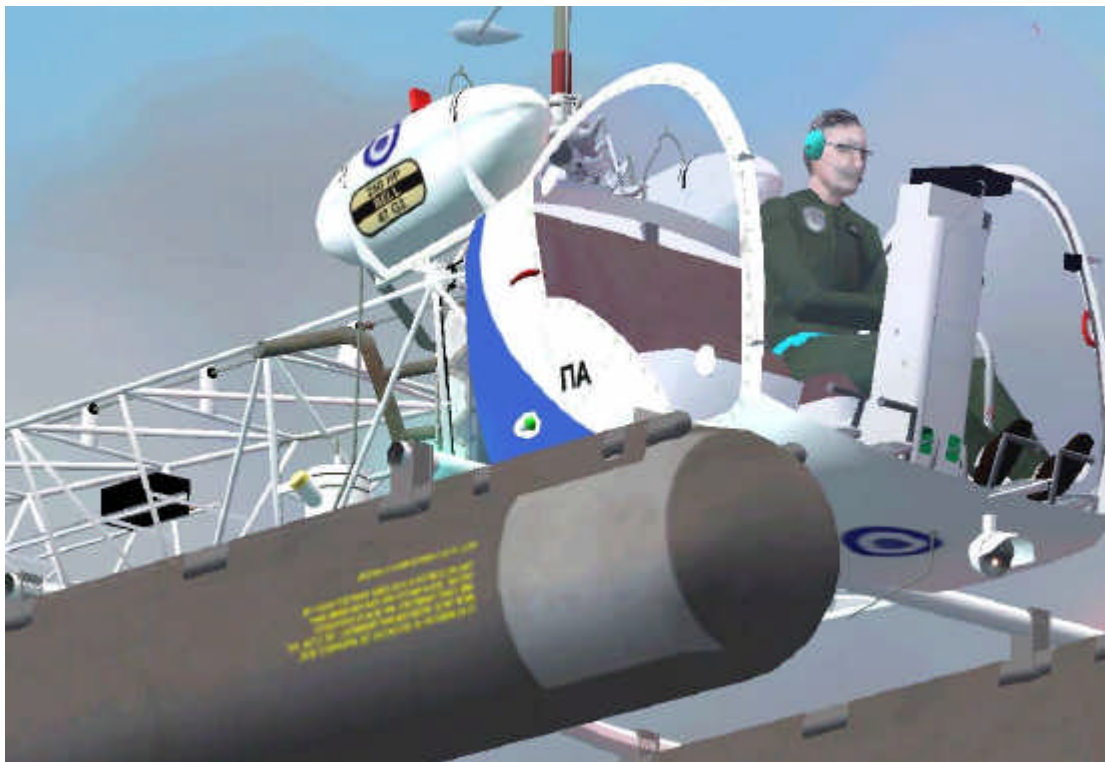
Agusta Bell AB-47G2 with floaters flight manual for use in FS2K2

GENERAL

This flight manual is made NOT to give you the knowledge to fly the real helicopter, but to be able to simulate a typical Agusta Bell AB-47G2 behavior in a FS2K2 enviroment. No matter this Agusta Bell AB-47G2 model for FS2K2 is made and test to fly and behave as close to a real light liason / transport helicopter (equiped with floaters) flight envelope (Microsoft says...!), you must NOT attempt to use these informations included in this FS2K2 flight manual to fly **ANY** helicopter in real situations!!!

WARNING

The author has NO responsibility if FS2K2 tactics explained in the present flight manual will be considered as real aviation tutorials and be the reason of an aviation accident, leathal injury or death. These information are for Microsoft Flight Simulator use ONLY

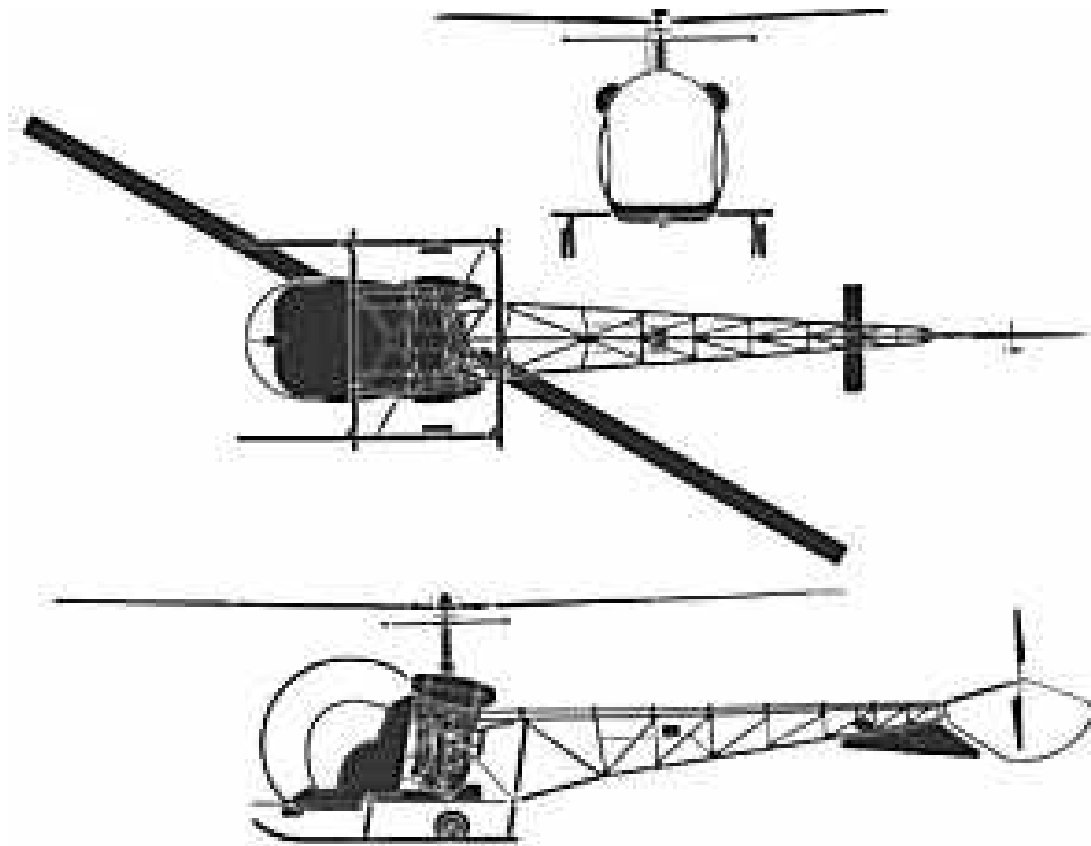


FLIGHT STAGES

The stages you can follow in a FS2K2 flight and will be explained to you, are the following:

- Applying power,
- Hovering before take off,
- Take off procedures,
- Climbing,
- Cruising,
- Descending,
- Landing on hard surfaces,
- Landing on water,
- Engine shutdown,
- Helicopter limitations.

HELICOPTER DATA & SPECIFICATIONS



Agusta Bell AB-47G specifications

Role:	Utility multy purpose military helicopter
Manufacturer:	Agusta under license from the Bell USA
Engine:	1 x Lycoming VO-435-F1A, flat 6 pistoned
Power:	250 Hp
Propeller:	2 blade constant speed diameter 11.32 m
Main rotor disc area:	100.8 sq m
Fuselage length:	30 ft 5 in / 9.63 m
Overall length:	43 ft 6 in / 13.30 m
Height:	9 ft 3 in / 2.83 m
Width:	9 ft 5 in / 2.88 m
Weight:	1892 lbs / 858 kg empty 2954 lbs / 1340 kg maximum gross TOW
Fuel weight:	91 US gal / 619 lbs / 281 kg maximum cargo
Maximum indicated airspeed:	130 KIAS / 241 km/h
Approach airspeed:	65 KIAS / 120 km/h
Average cruise true airspeed:	110 KIAS / 204 km/h
Maximum range:	274 nm / 507 km
Endurance:	2.6 hrs aprox
Maximum climb ratio:	2850 ft/min / 14.5 m/sec
Service ceiling:	19000 ft / 5791 m
Hover ceiling:	12700 ft / 3871 m
Armament:	None
Crew:	1 pilot + 2 passengers (max weight 565 lbs)
G limits:	+2.2 Gs possitive / -0.8 Gs negative

COCKPIT PANEL & CONSOLES

This [AB-47G_HAF_v2.zip](#) package you've downloaded from the InterNet, also contains a panel which had been modified by photos and diagrams of the real one. Some of the FS2K2 virtual pilot's actions on this panel, effects on this Agusta Bell AB-47G helicopter model in FS2K2, just like as real pilot's actions on the real aviation. The panel consists by three (3) screens. To activate / de-activate each one of the follo-wing screens you must press **Shift + 2** or **Shift + 3** or **Shift + 4**. Additionally you can use one of the following buttons on the panel to activate / de-activate some of these screens.

Button A



Button B



- The **Main panel** contains the front part of the cockpit with most of the flight instruments,
- The **Collective** (FS default) switch ON / OFF by pressing **Shift + 2** or by pressing the button **A**
- The **GPS** (FS default) switch ON / OFF by pressing **Shift + 3** or by pressing the button **B**
- The **Wind indicating string** showing the wind direction, switch ON / OFF by pressing **Shift + 4**.

PANEL INDEX

Please read very carefully the following index in order to understand the panel's functions.



- | | |
|--------------------------------------|---|
| 01) Magnetic compass | 14) Battery & avionics switches |
| 02) Landing lights switch | 15) Fuel warning indicating lamp |
| 03) Governor switch | 16) Master BAT & light switches |
| 04) Throttle ring on collective | 17) Engine RPM indicator |
| 05) GPS control switches | 18) Airspeed indicator |
| 06) GPS main screen | 19) Manifold pressure indicator |
| 07) Vertical speed indicator | 20) Altimeter indicator |
| 08) Wind direction string | 21) Engine oil & fuel temperature indicator |
| 09) Communication frequency switches | 22) Engine cylinders temperature indicator |
| 10) Navigation frequency switches | 23) Fuel tank content indicator |
| 11) Air temperature indicator | 24) Ampere meter indicator |
| 12) Side slip indicator | 25) Main lights switches |
| 13) Fuel tank selector | 26) Utility panel activating buttons |

APPLYING POWER

First of all you must set the **Throttle ring on collective (4)** on the collective from **CLSD** position to to the **OPEN** position (if it is already closed) by clicking with your mouse's left button as required, as shown at the right screenshot. To set your helicopter's engine throttle to **MIN**, simply press **F1** button on your keyboard or press **F4** button for **MAX**.

CAUTION

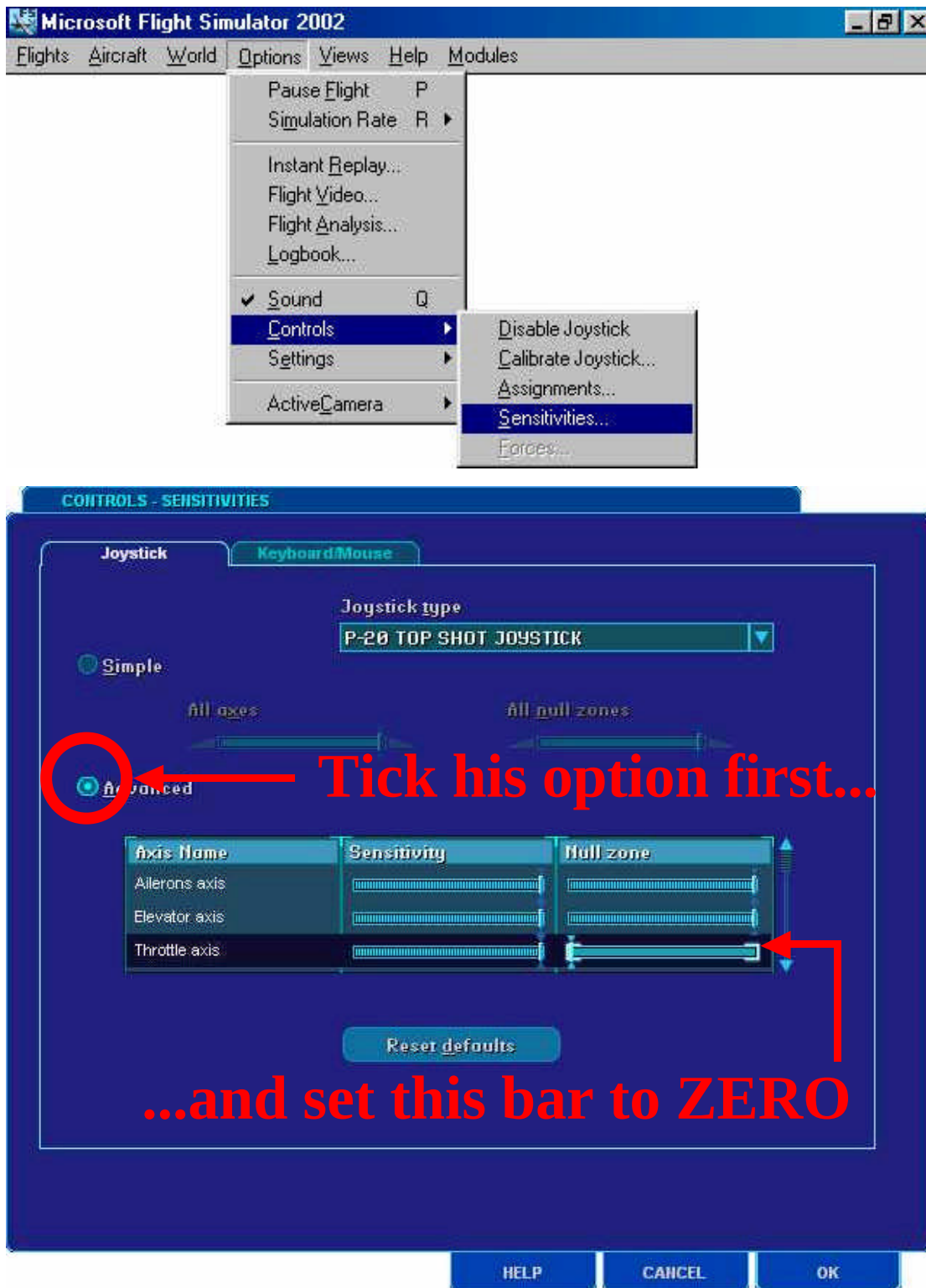
If you use a control stick or a flight yoke equipped with a throttle lever you **must** press the **F1** button on your keyboard to set your throttle to **MIN** which means **0%** of total thrust power (just keep engine rotating) and the **F4** button if you want to set your throttle to **MAX** position which means **100%** of total thrust. This is a known "bug" situation which could result many thrust problems during helicopter flight. For example:

- If you just set your throttle lever at the "BACK" position you will **unfortunately** set your thrust power at 25% of total thrust, which means 25% more thrust power! This would be a problem while trying to descend.
- By the same way if you set your throttle lever at the "AFT" (front) position you will only set your thrust power at 75% of total thrust, which means 25% less thrust power which will be a problem while trying to gain altitude. **This is a known FS2K2 bug, so use F1 and F4 buttons as required!**



To overlay this problem you can do the following: On your FS main menu (top of the screen) click on **Options / Controls / Sensitivities** and set your bars as the following screenshot shows! You **MUST** have your throttle's axis **Null zone** bar setted to ZERO (full left)! This means that you can have thrust variety from **0%** to **100%** and not the wrong 25% to 75% !!!





HOVERING BEFORE TAKE OFF

At this moment, the engine is “alive” and the throttle is set to **MIN** position. Apply power **too gently** and wait the engine to reply. Do NOT attempt violent throttle move if you do not want to suddenly become airborne and damage your helicopter!

Approaching **38%** of total thrust (watch **24** units on **Manifold pressure indicator (19)**) when fully fuel loaded or about **35%** (watch **22** units on **Manifold pressure indicator (19)**) when the minimum fuel capacity is installed is the right time to make the helicopter hover. The pilot who increases the power gently, hovers nice & easy and **always has control of the helicopter**. It is important that use of control stick be held to a minimum and all controls be utilized to maintain directional control and balance.

TAKE OFF PROCEDURES

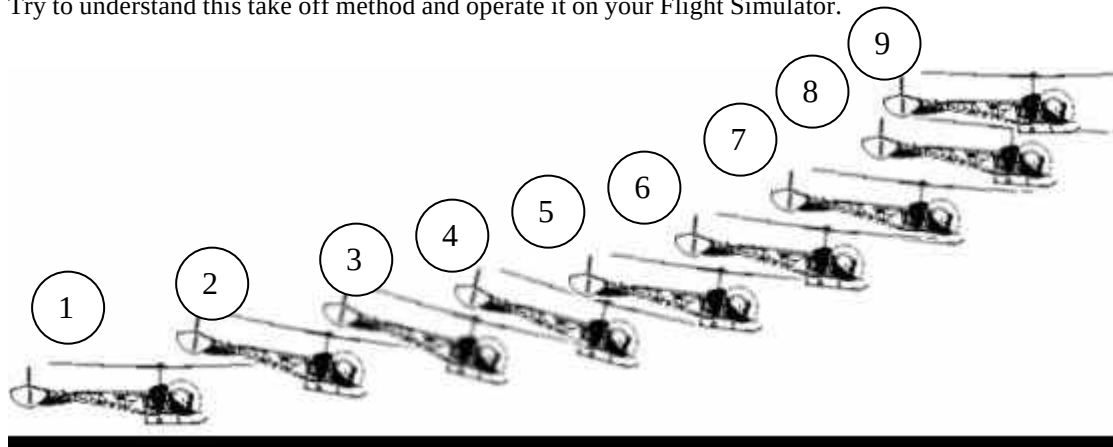
To complete a successful take off is not an easy job. You'll need much "training" which means that you are gonna crash your heli in FS too many times before start acting like a heli pilot!!! Helicopter flying has nothing to do with aircraft's principles of flight. As much you crash your helicopter in your FS, the more stable flight you'll be able to complete in the future.

Set the collective lever as required and let the engine to reply. Approaching **38%** of total thrust (watch **24** units on **Manifold pressure indicator (19)**) when fully fuel loaded or about **35%** (watch **22** units on **Manifold pressure indicator (19)**) when the minimum fuel capacity is installed, is the right time to feel the helicopter "raising" up to take off attitude. Try to hover the helicopter in a straight ahead position, at very low altitude before proceeding further.

After that, lower the nose **SMOOTHLY** down to start gaining velocity. Maintain this attitude and allow the helicopter to fly off the ground, which will normally will happen by increasing the power on throttle. Set the aircraft's nose up, as low as it is necessary to establish and maintain a positive climb rate and an increasing forward heading velocity. The best angle to succeed that is between **-5** and **-10** degrees. When your airspeed reaches high enough, pitch the nose as high as needed to maintain the desirable flight. You can control your vertical speed by both pitching and setting the throttle as it is needed as well. At the following screenshot there are two different methods to help you take off.

- **First take off method**

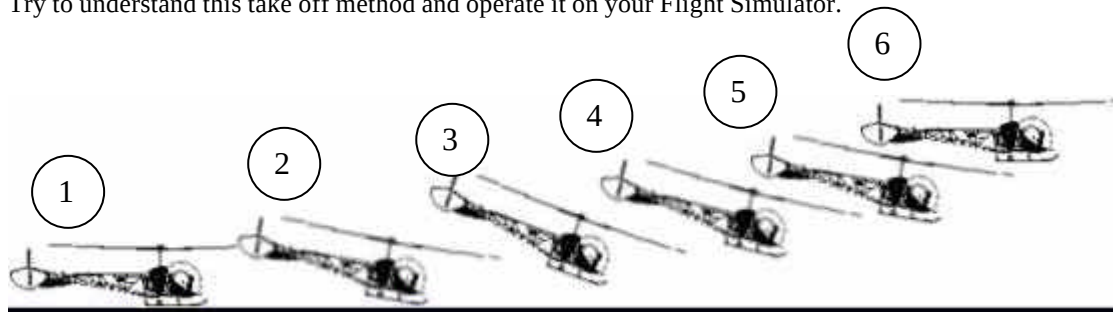
Try to understand this take off method and operate it on your Flight Simulator.



- (1) Hover at normal hovering altitude.
- (2), (3) & (4) Ease cyclic forward increase collective pitch to prevent settling.
- (5), (6) & (7) As airspeed approaches normal climb speed, raise nose to climbing attitude.
- (8) & (9) Continue climb at normal climb speed.

- **Second take off method**

Try to understand this take off method and operate it on your Flight Simulator.



- (1) & (2) Adjust power less than hovering power. Cyclic slightly forward of hovering position for gradual acceleration.
- (3), At transition lift, ease cyclic back slightly to become airborne.
- (4), Maintain altitude at 10 feet or less to build to climb airspeed.
- (5) & (6) Adjust to climb altitude.



CLIMBING

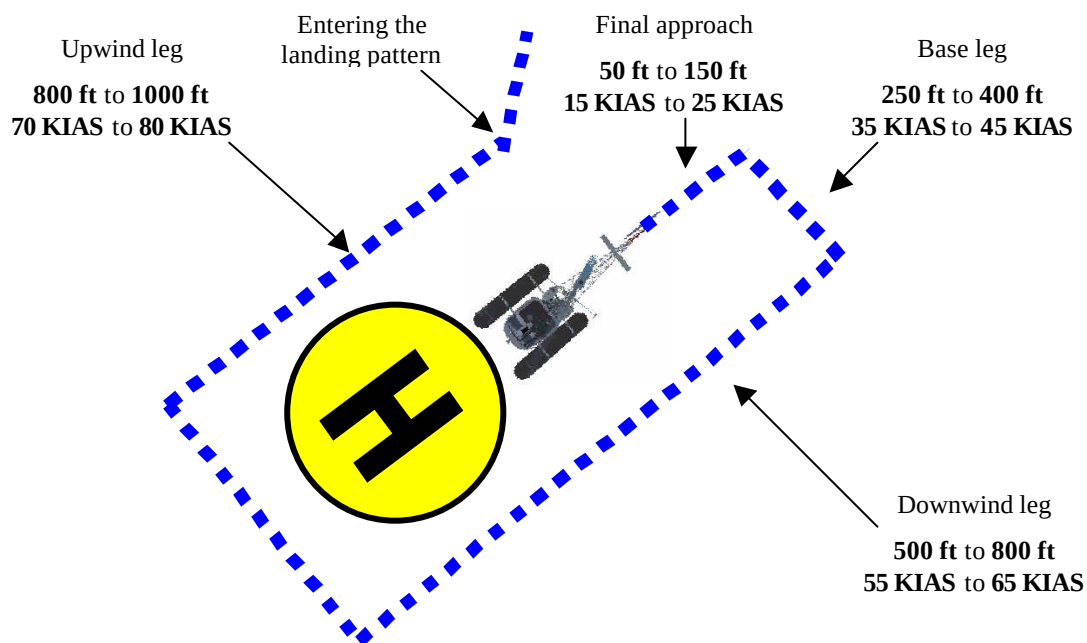
When a fully fuel loaded helicopter is used, power settings above **50 %** of total engine's thrust (**26 units** on **Manifold pressure indicator (19)**), will provide a minimum climb rate of **500 ft/min** when speed is between **65 KIAS** to **75 KIAS**. If condition require a maximum thrust climb, maintain a climb indication untill approaching the recomend climb airspeed and then adjust pitch to maintain climb schedule. The best recomend climb rate (**2100 ft / min**) is succeded when maintain a **-5 degree** climb and **80 KIAS** to **85 KIAS** speed with power between **95 %** and **100 %** of total engine's thrust (**44 units** on **Manifold pressure indicator (19)**).

CRUISING

Normal cruising can be easily performed between **60%** and **85%** of total power (check **29** units to **38** units on **Manifold pressure indicator (19)**), depends from the fuel quantity. The engine's thrust and corresponding fuel consumption for various altitudes can be determined by using the official Agusta's power computer or cruising charts. These cruising charts (used in real aviation) provide the helicopter's cruising performance, which includes time, distance and fuel required to fly as well as estimated cruise-climb altitude & service ceiling for a various of drag indices. These charts could easily used in FS2K2 conditions too!. To perform the best cruise behavior you should maintain your flying within the aircraft's limitations.

DESCENDING

Power settings between **5%** and **15%** of total engine's thrust (check for **19** to **20** units on **Manifold pressure indicator (19)**), using a **0 degree** pitch when a fully fuel loaded helicopter is used, will provide descend rates about **-1100 ft/min**. By setting on throttle the same **5%** and **15%** of total engine's thrust (check for **19** to **20** units on **Manifold pressure indicator (19)**), using a **0 degree** pitch when a minimum fuel capacity is installed, a **-300 ft/min** descend will be provided.



LANDING ON HARD SURFACES

Completing a succesfull and safe landing is a very hard thing to do if you are still a rookie heli pilot. You'll need much "training" which means that you'll crash your heli in FS too many times before your first safe landing. Helicopter landing methods has nothing to do with aircraft's way. As much you crash your helicopter in your FS while trying to land, the more stable, safe and completed landings you'll be able to operate in the future. So, don't be disapointed each time you crash on the ground.

Normal helicopter landing procedures should be used to land your Agusta Bell AB-47G in FS2K2 enviroment too. After you'll be established at the main heading line towards the desirable runway or spot, maintain a descend glide path. Keep your airspeed between **45 KIAS** and **55 KIAS** while attempting to "enter" at the landing procedure. To increase or descrease the helicopter's airspeed, set your helicopter's nose (piching) as required. Do not over-react by pulling the stick back too much, because control stick "kicks" may effect control loosing. You can increase / descrease the helicopter's sink rate by seting the throttle and collective at the "right place" so you can "drag" your helicopter velocity on the Y axis.



To complete a safe landing attemp you'll have to touch the ground with **as low sink rate as possible** and with **as low airspeed as possible**. Maximum landing sink rate for a loaded helicopter is **800 ft/min** (red line on the VSI gauge as shown at the right screenshot) for normal landings and **600 ft/min** for crosswind landings. The maximum landing speed is **10 KIAS**. Try to touch the ground with **0 KIAS** (zero) so you will not damage the landing floaters. At the following page there are two different screenshots showing landing methods to help you understand how to land your helicopter. Personally, I prefer the second method.

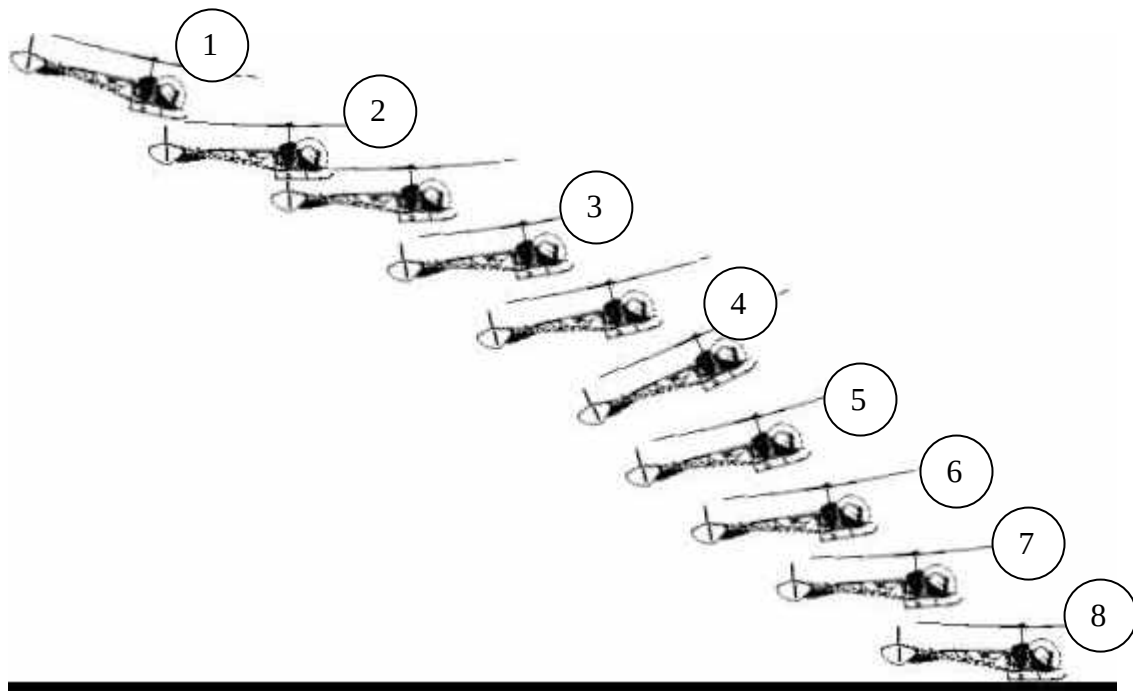
WARNING

You will **NEVER – NEVER – NEVER** make a safe landing if you try to touchdown when your sinkrate is more than **-800 ft/min** or your airspeed is above **10 KIAS**.



- **First landing method**

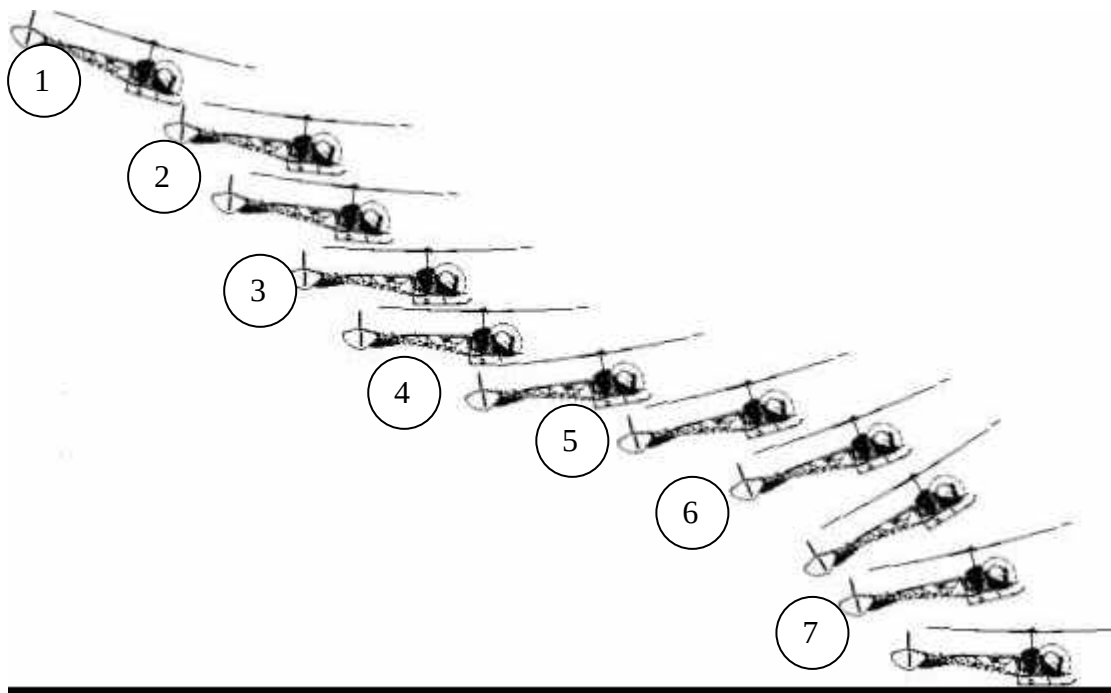
Try to understand this landing method and operate it on your Flight Simulator.



- (1) Cruising airspeed, safe altitude.
- (2) Decrease collective slight back cyclic.
- (3), & (4) Continue down collective and back cyclic to decrease groundspeed.
- (5), & (6) Forward cyclic up collective.
- (7), & (8) Settle to a normal hover and touchdown.

- **First landing method**

Try to understand this landing method and operate it on your Flight Simulator.



- (1), & (2) Bottom collective, close throttle to split kneedles.
- (3), & (4) Maintain autorotation airspeed.
- (5), Flare to slow to desired groundspeed
- (6), & (7) Forward cyclic to level skids, increase collective to slow descent and cushion landing.



LANDING ON WATER

Landing on water procedure is very similar to the “landing on hard surfaces” procedure. To complete a safe water landing attempt you’ll have to touch the water surface with **as low sink rate as possible** and with **as low airspeed as possible**. Maximum landing sink rate for a loaded helicopter is **800 ft/min** (red line on the VSI gauge as shown at the right screenshot) for normal landings and **600 ft/min** for crosswind landings. The maximum landing speed is **10 KIAS**. Try to touch the water with **0 KIAS** (zero) so you will not damage the landing floaters. **Waving water while landing can also be noticed.**



ENGINE SHUT DOWN

After landing to the desired spot on the ground, follow the “Engine shut down” procedure. Retract the **Throttle ring on collective (4)** on the collective from **OPEN** back to **CLSD** position by clicking your mouse’s left button on it as required, as it is shown at the right screenshot.

After that, click your mouse’s left button on the **Fuel shut switch (15)** to **UP / OFF**. Now you’ve just “close” the engine’s fuel valve and normally, all the engine’s indications on the panel are “dying” and the rotor is rotating slower and slower. After you hear the engine completely shuts down you must switch the **Master BAT & light swithes (14)** to **OFF** position.



HELICOPTER LIMITATIONS

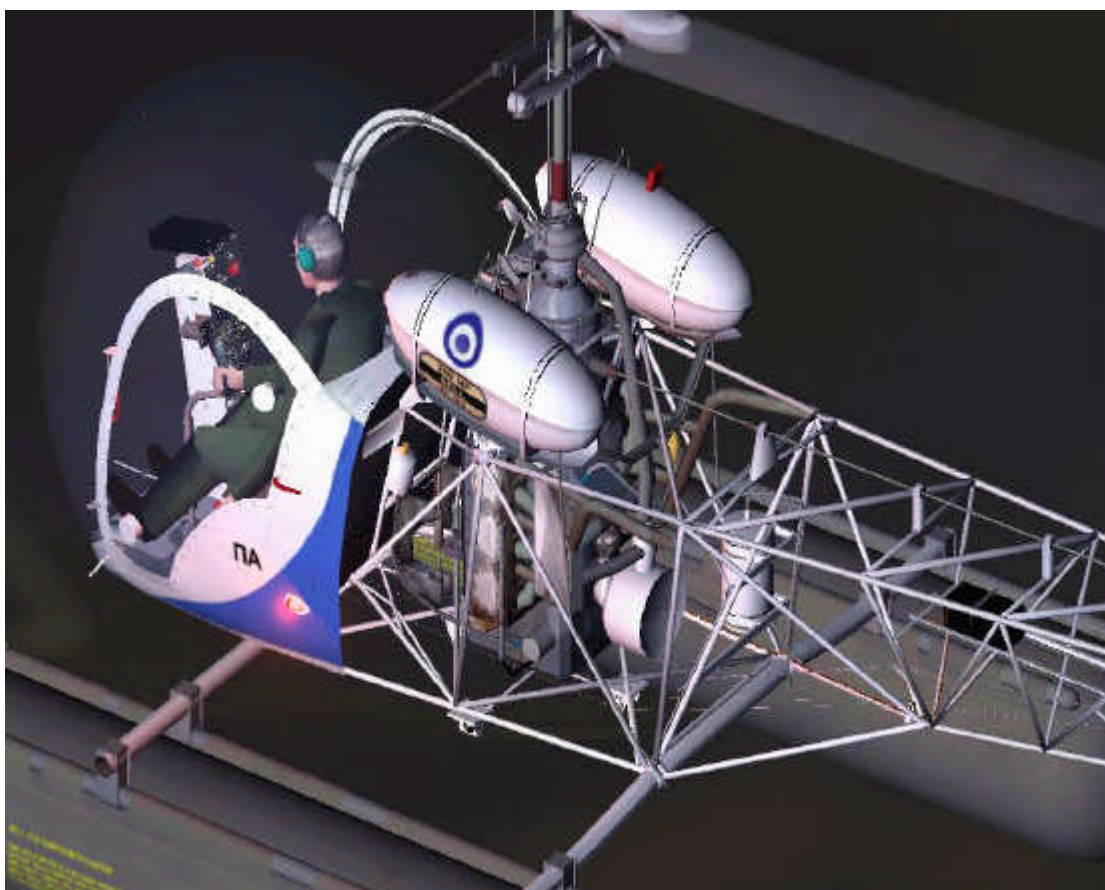
- Maximum speed limit (glide, dive or smooth air): **130 KIAS**
- Landing skid system: The best VSI while landing is 10 ft/min and 0 KIAS. You must never exceed **800 ft/min** or **10 KIAS** when landing on earth or water surface.
- Load factor limit: **+2.2 G / -0.8 G**

SPECIAL VISUAL FX

Blowing sand or waving water while landing can be noticed, but you’ll be surprised by the pilot’s hands, legs and head movement while controlling the helicopter. The pilot’s left door can be fully opened / closed by pressing **Shift + E** buttons on your keyboard at any time. The right door can be also be fully opened / closed by pressing the **2** button after the **Shift + E** buttons had been pressed.



Night lighting is available during night. Lights can be operated through the **Main lights switches (25)**.



Hellenic Air Force AB-47G photos

