



# HUSSARS GAMING GROUP

Series: Hussars Help Hussars

Title: Desert Combat Choppers

A Guide to DC Helicopters

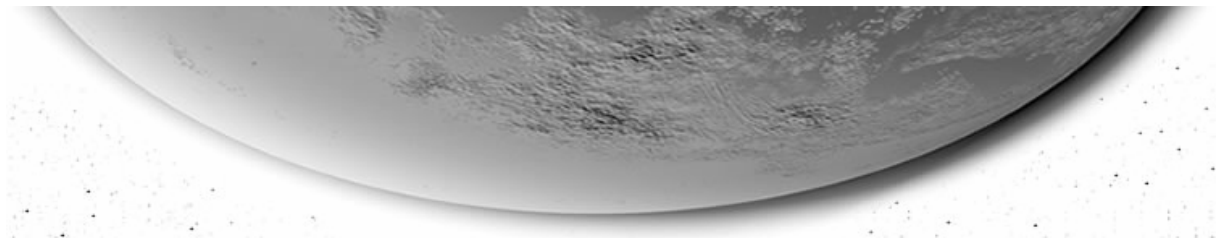
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Version: 1.0

Date: 13.6.2003



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## 2 Introduction

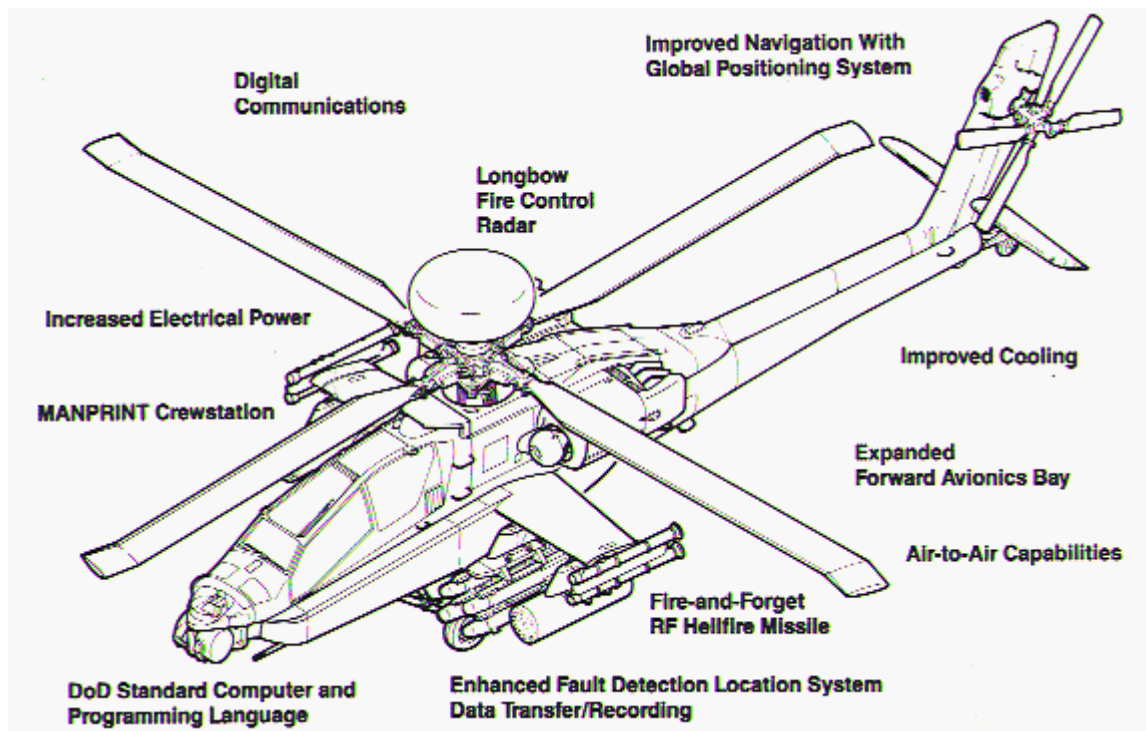
As I prefer to spend my time drinking coffee in the mornings with something constructive I have taken to writing little docs on different subjects for fellow gamers to read and hopefully profit from. As far as I know the things I put in here are correct and helpful but it we will up to each reader to decide for him- or herself.

This time, being deprived of my favorite Desert Combat server for over 24 hours I have decided to get my "Chopper Fix" from writing about them instead of flying one.

## 3 The Hardware

I'm going to give you a summary of important things to know about these in the game, followed by some real military data on these toys.

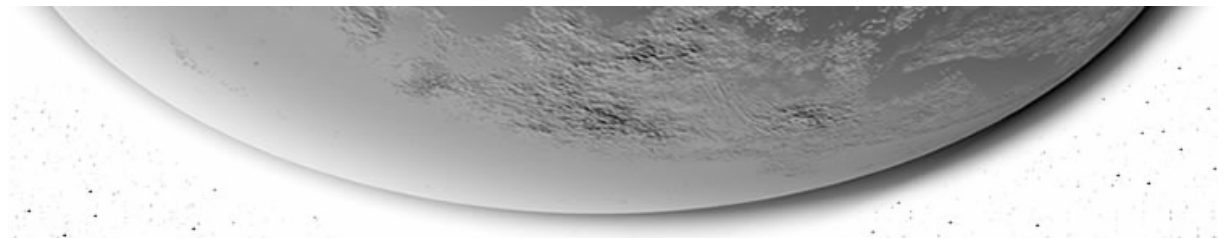
### 3.1 Allies: Apache Gunship



This helicopter is slim, fast and very sensitive to rudder movement. Helicopters don't actually have rudders, they adjust the rotors but it's our rudder controls we use for sideways movement that this one is very sensitive to. The Apache is light and agile; it also has the best firepower of all helicopters and reacts to stick commands without delay. It turns very quickly and has plenty of power to change direction even when flying at great speed.

Be careful with throttle when on or near the ground. It's important when on the ground to cut the throttle entirely. The more throttle the jerkier this one gets and tries to topple

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over. When landing make sure you completely close your throttle once you get down. This prevents it bouncing around or toppling over. Apaches are not easy to hover calmly.

### 3.1.1 Crew:

2 crew: pilot and copilot/gunner

### 3.1.2 Dimensions

**Diameter main rotor blades:** 14,630 cm

**Height:** 3,590 cm

**Empty weight:** 5,352 kilograms

### 3.1.3 Performance:

**Maximum cruising speed:** 260 kilometres per hour

**Maximum rate of climb:** 942 meters per minute

**Maximum vertical rate of climb:** 474 meters per minute

**Range:** 400 kilometres on internal fuel 1,900 kilometres on internal and external fuel

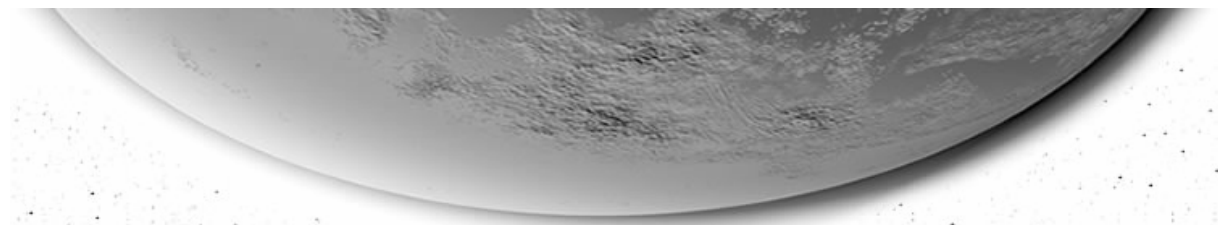
**Maximum endurance:** 3 hours 9 minutes on internal fuel

**The g-limit values:** +3.5 g to -0.5 g

The Apache employs three primary weapons systems; the AGM-114 hellfire missile is used against enemy armor, the Hydra 70 rocket system is used against light-skinned targets, and the 30mm chain gun is used against buildings, equipment, and to defend the aircraft from close-range threats.

### 3.1.4 Hellfire Missile

The hellfire missile will defeat all enemy armor in existence today. Once a pilot locates a target, they will "designate" it by firing a coded laser beam onto the target and fire off a missile. The missile will climb up in altitude and a seeker head will search the battlefield for the coded laser spot being "painted" on the target by the pilot; once located, the missile will fly itself into the target. Maximum range of destroying a target is 8 kilometers (unclassified) and top speed of the missile is 950 miles per hour. This tremendous max engagement range allows the aircraft to destroy enemy units while remaining undetected. An enemy commander does not even see or hear the Apaches that are destroying his unit. Current hellfire missiles feature dual warheads for defeating reactive armor, electro-optical countermeasures hardening, and contain a conical-shaped charged warhead with a copper liner cone that forms the jet that provides armor penetration. The Apache can carry a maximum of 16 hellfire missiles, but typically carry 8 to incorporate a



mix of rockets and missiles. An Apache platoon is capable of destroying an enemy tank battalion.

### **3.1.5 Hydra 70 Rocket System**

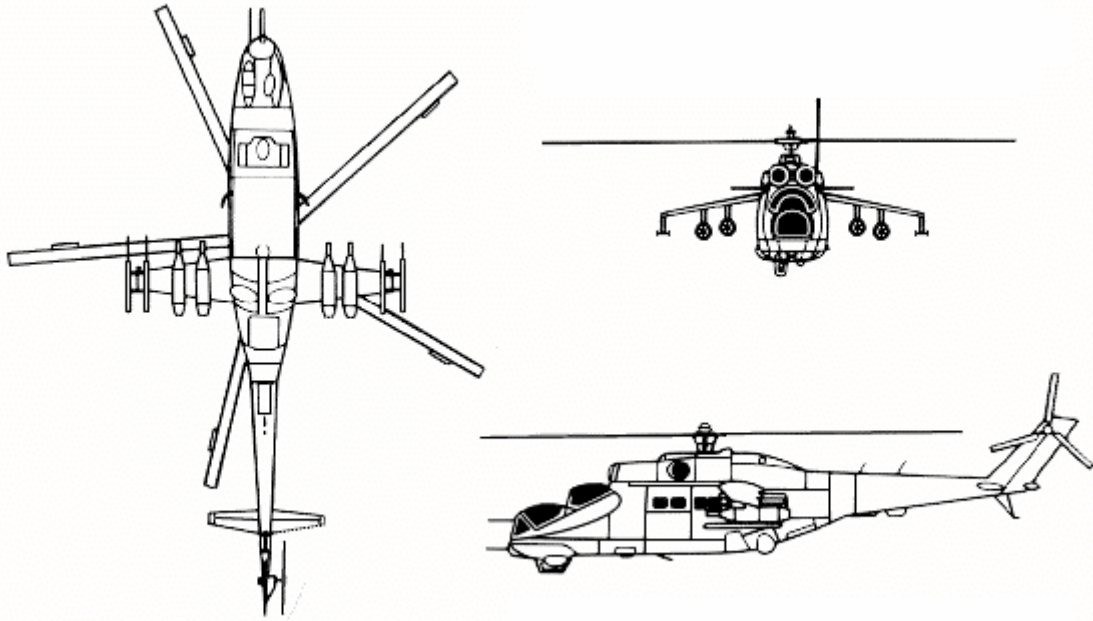
The Hydra Rocket System, commonly referred to as the 2.75 inch rocket, is used in a variety of missions. Pilots can fire a variety of rockets: flechette, smoke, illumination, and high explosive rockets. It is an unguided rocket system; once the pilot has launched the rocket through an advanced sighting system, the rockets are in free flight until they reach the target area. Max range is 10 kilometers (unclassified) and top speed is 2500 feet per second. While not as accurate as the laser-guided hellfire, the rockets are extremely effective at mid-range targets. Max rocket capacity of an Apache is 72 rockets, resulting in a devastating amount of firepower being unloaded on the enemy.

### **3.1.6 30MM Cannon**

The 30mm cannon is designed to destroy enemy personnel and equipment by firing high-explosive rounds at a rapid rate. Each round has the burst radius of 4 meters, the same as a hand grenade, and the weapon can fire up to 650 rounds per minute. Maximum effective range is 4 kilometers (unclassified); being able to accurately shoot 650 hand grenades at 4000 meters gives the Apache unmatched self-defense and lethality. It can be aimed either through hand-controls or "slaved" to the pilot's helmet. A fire-control computer compensates for wind and trajectory effects so all the pilot has to do is to move his head till the cross-hairs on his helmet-mounted display is on the target and squeeze the trigger. No "Kentucky-Windage" or adjustments are needed of the pilot, improving accuracy and response time.



## 3.2 Axis: Hind



The Russian Hind Attack Helicopter is the largest of all the DC helicopters and is very heavy. This Chopper is also the fastest of them all once it gets going. Firepower is great but it has half the AG Rockets of the Apache has so it needs taking to re-arm a lot when you are on anti-tank missions. You will find yourself clearing tanks before landing or entering a drop zone since this vehicle doubles as personnel carrier for the Axis. Due to its weight this chopper has a lot of inertia to counter when you want to change direction. It reacts to stick commands slowly but with ample power, so if you are dropping and start opening the throttle, then leave it open till the chopper is moving upwards you will find it moves up fairly quickly, so the trick is to anticipate when you have given it enough power to stop dropping or slow it don far enough to land smoothly.

### 3.2.1 Crew

**Pilots** 2

**Passengers** 6

### 3.2.2 Dimensions

**Blades** Main rotor: 5 Tail rotor: 3

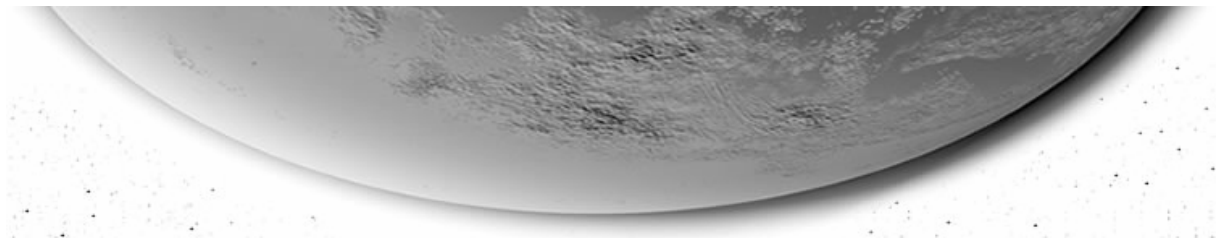
**Rotor diameter** Main Rotor : 17.3 meters Tail Rotor: 3.9 meters

**Wing span** 6.5 meters

**Length** Length : 21.6 m (rotors turning) Length : 17.5 m (fuselage)

**Height** 13 ft., 11 in. 6.5 meters (gear extended)

**Cargo Compartment Dimensions** Floor Length: 2.5 meters



Width: 1.5 meters

Height: 1.2 meters

**Weight** Maximum Gross: 11,500 kg

Normal Takeoff: 11,100 kg

Empty: 8,500 kg

**Fuel** Internal: 1,840 liters

Internal Aux Tank (in cabin): 1,227 liters

External Fuel Tank: 500 liters ea.

### 3.2.3 Performance

**Engine** 2 x 2,200 shp Isotov TV-3-117 turbines

**Maximum speed** 168 mph / 335 km/h

**Cruising speed** 295 km/h

**Range** Normal Load: 450 km with Aux Fuel: 950 km

**Service Ceiling** 4,500 meters

**Vertical Climb Rate** 15 m/s

**Max “G” Force** 1.75 g

**Standard Payload** Internal load: 8 combat troops or 4 litters

External weapons load: 1,500 kg

External load (no weapons): 2,500 kg

### 3.2.4 Armament

Nose mounted 30-mm Twin Barrel Cannon, GSh-30K:

Range (m): (practical) 4,000

Elevation/Traverse: None (rigidly mounted)

Ammo Type: HEFI, HEI, APT, APE, CC

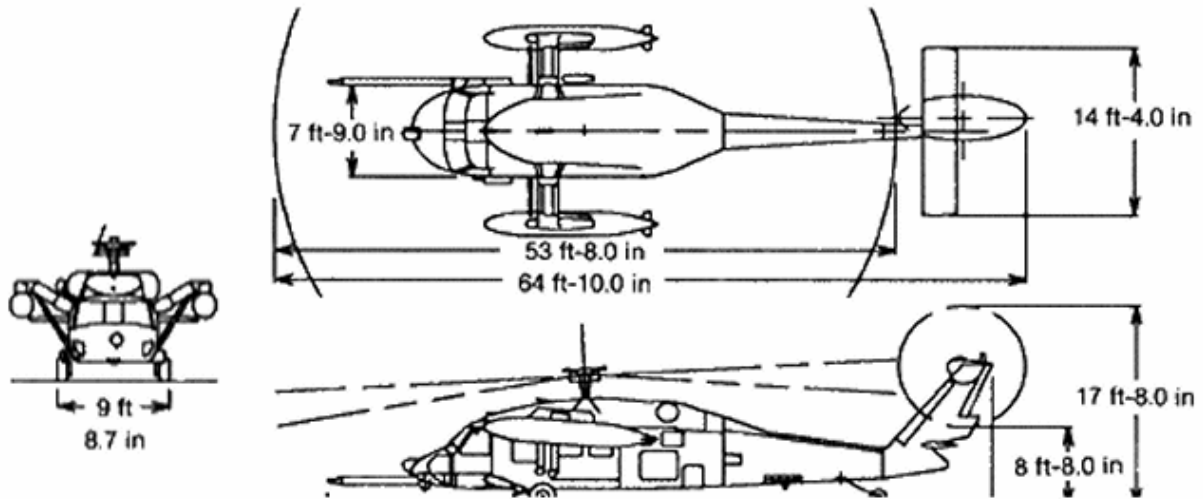
Rate of Fire (rpm): 300, or 2,000 to 2,600

2 Pods of 2x AntiTank-6C Spiral Air to Ground Missiles

2 Pods of 14x57-mm S-5 rocket pods

Loaded combat troops can fire personal weapons through cabin windows.

### 3.3 Allies: Black Hawk



The Black Hawk is the only chopper where the pilot has no weapons. If you get in this one and have no gunner, DONT TAKE OFF. The Hawk is not too heavy but it's slightly underpowered and takes ages to react to stick commands (in comparison). This chopper does NOT like to turn, period. It takes quite a firm push of the stick to make this one rotate and another one to stop it. Handle this one with care. It's a very, very valuable chopper for the allies and its gun is awesome against anything but tanks. If you are sitting in a chopper full of men and are insecure about your flying skills, do the men a favour and get out of the pilot's seat, this chopper is the hardest to fly properly imho.

**Model:** MH-60L 'Black Hawk'

**Length:** 64' 10" 19.7 m

**Height:** 17'8" 5.3 m

**Wingspan:** 53' 7" 1.3 m

**Wing area:** 2,260.0 sq ft 209.9 sq m

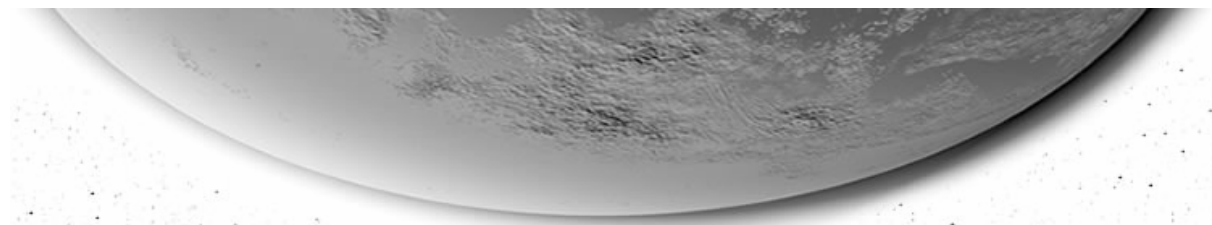
**Empty Weight:** 11,500 lb 5,215 kg

**Max Weight:** 17,000 lb 7,709 kg

**Propulsion:** 2 General Electric T700-GE-701C @ 1940 shp

**Cruise Speed:** 173 mph 278 km/h 150 kt

**Max Speed:** 184 mph 296 km/h 160 kt



As far as I know the Black Hawk is not equipped with a Minigun in real life, but in one of its specific setups it is able to take two side-mounted M60D 7.62mm machine guns.

## 4 Helicopter Pilot Profile

From my point of view, being able to fly properly encompasses the following skills:

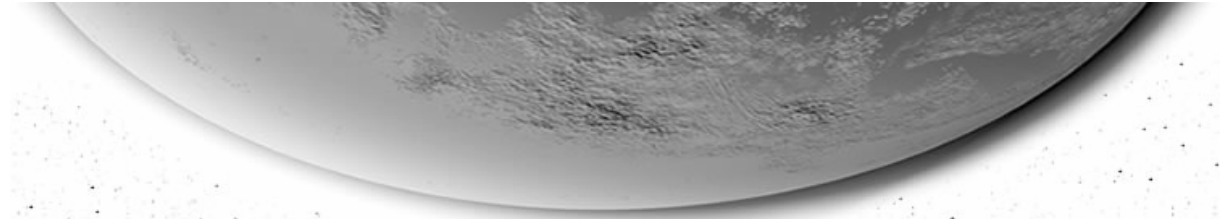
- you can fly calmly while being shot at by an enemy chopper
- you get your men delivered to the line
- you are able to fly level and at a steady rate of rotation so that the gunner has steady sights to aim with
- you know when to break off and fly back for repairs
- you know what targets you should NOT take on
- you know how high to be to escape T-72 rounds
- you have a good fast eye for the minimap to avoid bombing your mates
- you have an eye on the minimap when somebody asks for a pickup or medic (escape can help more than a bandage)

## 5 Helicopter Philosophy

Flying a chopper requires a lot of gut feeling, self control and the ability to anticipate its flight-path. Why self control? Well choppers are slow moving objects in the sky. That makes them easy targets. Combine that with the fact that choppers rarely react instantly to your commands and you realize that it becomes VITAL to keep control of the chopper. If you lose control you have a dead zone between recognizing you lost control, thinking of what to do, doing what you want to do to regain control and the chopper reacting to it. This is a fairly long time when you are being blasted by a Hind. Your mind flies a lot faster than the chopper. You need to tune your mind to the chopper and get a feeling for flying "in the future".

The stick commands you give it will be executed that little bit into the future to make a difference. The chopper may move quickly, but its flight path takes time to change. It's this lag between stick and flight path that causes many people to give up on choppers and hop back into a jet. The Chopper makes you think you're not really in control, that you are just making suggestions what it could do and it picks the ones it wants by itself. That's what it feels like when you wobble the stick around as if you were in a jet. To fly a chopper SLOW DOWN, be precise with the stick. Small stick movements have a great effect on choppers but not immediately.

As you read above, the choppers are profoundly different. You need to get a feeling for



each one and remember to apply it when you jump into that leather seat. Once you have that feeling practice will do the rest.

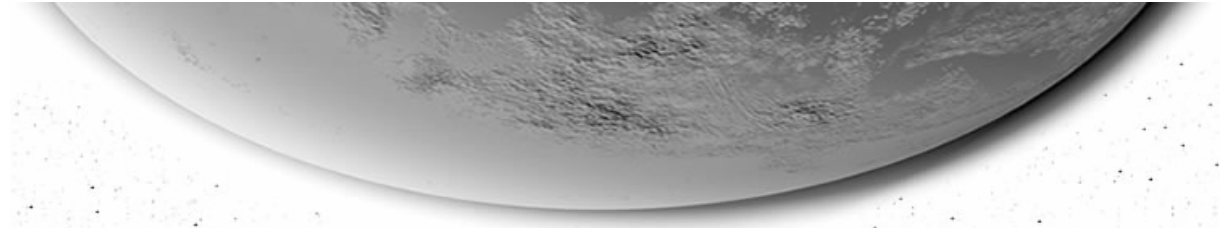
## 6 Helicopter Ethics

You are flying the most versatile and powerful tool for your team. It's your responsibility not to waste this limited resource and serve your team as best you can as long as you can. A Helicopter is not spawned for your personal amusement for zipping around canyons and racking up your kill scores. That Helicopter, if you take the time to look around in it, invariably has more than one seat. In all but on model, there are quite a number of seats ready for an assault team to get into. Anyone taking off and entering combat in a Helicopter alone is ignorant and selfish. Of course there will be times when gunners are scarce because everyone is out in the field, or there will be times where the other man on the helipad wants to fly himself and won't gun for you... well damn just get out, let him fly and gun for him instead. Maybe next time round he will return the favour and you turn up to be a good team? If you have an empty seat it is your prime duty to listen for "requesting a pickup" radio from the field, as you are in the vehicle that represents that soldier's greatest chance of survival!

During my flight hours I have found (and was found by) about 5 people in total who perfectly matched me and who I perfectly matched in a Black Hawk. We are in synch in a hawk. I know exactly that I can fly the Hawk so they can hit targets best because I KNOW that if they see a target they will aim and shoot at it. If there's no target they don't shoot. This allows me to watch the Minigun barrel while flying the Hawk and try to fly so that the barrel is pointing levelly out of the Black Hawk at 0° elevation. In that case I would enable the gunner to aim straight at his target. Its being aware of what others need that makes a good Helicopter pilot, not the kills racked up by the pilot. I'd jump in with an inexperienced pilot with the right attitude any day of the week whereas I'd instantly bail out of one flown by a kill score addict who ignores his team. A Helicopter has unique abilities that are of such great use to the team that using it as a solo killing-machine really has to be second or third choice.

## 7 The Pilots Tools

The best way to fly a helicopter is using a mouse and the keyboard? I don't think so. Of course this will be down to personal taste and in part whatever you used first and have grown accustomed to, but I can't imagine a mouse and keyboard combo being much good, unless you compare it to a bad stick. I use my trusty old MS Force Feedback I



(with force feedback turned off in the game) to fly choppers. The stick twists for rudder control so it's like having the chopper in your fist. You twist your fist and the chopper turns under the rotors. There's tons of buttons you can setup and use... and it's a very sturdy stick. I wouldn't fly a chopper without a twisty Joystick handle unless I had a very good rudder control on it as HOTAS setup (on a separate controller with throttle and some other stuff, like the Saitek X45).

## 8 Flying a Helicopter

One thing I just heard from [1stHsr]Perkins that I remember being a problem for me too at least initially is that when you get in and throttle up, the chopper veers off in one direction and crashes.

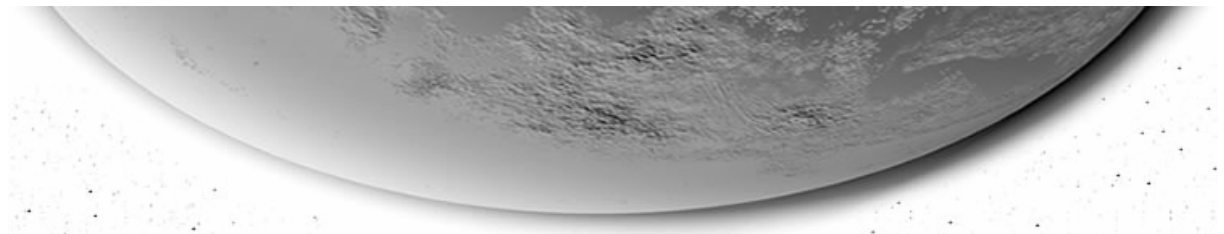
First, I'd like to explain the reason for this so you may understand and hopefully remove the "I hate choppers I won't get in one" approach.

Your joystick may not be perfectly centered when you get in, or during the first moments of takeoff. It only needs to be slightly off center for it to veer off like that. You need to remember that a chopper does not have wings. That may sound silly but on a plane you have wings, and those wings, contrary to common belief, are NOT life surfboards that you surf ON the air with, they are more like strings that PULL the plane upwards. As the speed of air going over the wings is the same on each side the plane doesn't topple, its stabilized fairly automatically as long as it is moving forwards at a minimum (air-)speed. A chopper doesn't have that because although the rotors are wing-shaped in profile and do extend left and right of the center of gravity on a chopper, they pull on the axle, so in the center.

If you take a small spinning top - spin it, then nudge it you will see it continue to move in the direction you nudged it although you are not pushing it that way anymore. That's a bit like your chopper, just that we have a stick on the chopper that can lean the rotor at an angle to the fuselage and that can also change the angle of the rotors toward the axle and thus change the direction in which the down force works and our chopper moves. In short: we have control.

Secondly the solution:

When you jump in that chopper and it takes off and starts veering off, twist your joysticks handle (or use whatever device you have for a rudder) in the direction your chopper is veering. Also open the throttle some more, don't take the throttle out! This will move the chopper under your rotors but not change the direction of the down force.



When you turn, your choppers nose will go down and the same force pushing it sideways before should now push it forward and upwards!

That maneuver bought you some time to get accustomed to the chopper and try and get a feel for it. Hovering stationary is very hard at the beginning, so just try to stop twisting the stick, twist in the opposite direction until the choppers fuselage stops turning and see if you can fly in a straight line (still with the nose down a bit or you'll just go UP). If you want to try hovering or slowing down, pull back on the stick and take out little of your throttle. If the chopper starts to rise, take out some more throttle until it's flying level and forwards again. If you perfect this it's a good exercise leading to hovering abilities and will also help you land it.

## 9 Links

US Army Helicopter Info <http://tri.army.mil/LC/CS/csa/aadesc.htm>

Comparison of Helicopters <http://www.fas.org/man/dod-101/sys/ac/row/helos.htm>

"Rest of World" military Aircraft <http://www.fas.org/man/dod-101/sys/ac/row>