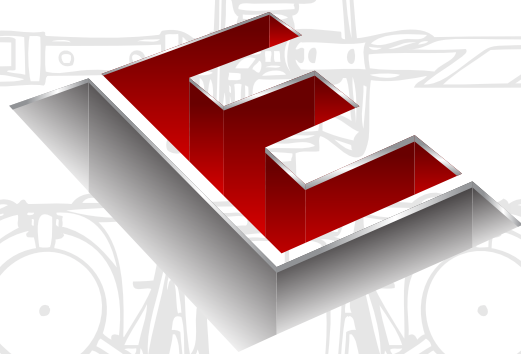
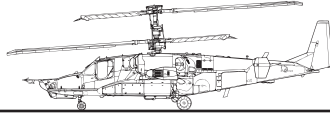




DCS: Black Shark



FSBT-01 - Familiarization
User Guide



Introduction

Welcome to the first Leading Edge Training (LET) lesson for DCS: Black Shark. We are proud to be sharing this lesson with you, and this introduction will discuss the contents of a typical LET lesson, the purpose of this user guide, as well as the best methods for assimilating the knowledge you'll be exposed to.

Every lesson will be composed of a user guide like this, a video lesson, a lesson plan, an area map, spaced repetition cards, and a mission file, at a minimum. Certain lessons might require additional courseware.

The user guide will always contain the script for all of the voice over contained in the lesson at hand, as well as useful links and suggested or further readings. From time to time it may contain extra information, when applicable.

To achieve the best possible results you should familiarize yourself with this guide first, to understand the foundations behind the LET training approach and the premises of the lesson. You should then watch the video. Some find it helps to take notes as they watch, others prefer to concentrate on the video screen. Do what feels natural.

After watching the lesson once or perhaps more times you should head over to the LET website and take the test we have specifically prepared for this lesson. The test does not provide any jeopardy, as you can take it over and over, as many times as you wish, until you are happy with your results.

Lastly, if you wish, you can use a spaced repetition technique to improve information retention. More about it in the text that follows.

We hope you will enjoy this and future lessons, and that our passion for teaching is clearly visible in all of our products.

Thank you for your time,

A stylized, handwritten signature in black ink, appearing to read 'Fabio Miguez'.

Fabio Miguez

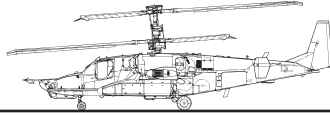
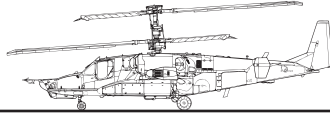


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ZIP Contents

Here's a description of what you'll find inside the ZIP file:

File Name	Description
FSBT-01_*.mp4	Video lesson
FSBT-01 LP.pdf	Lesson plan
FSBT-01.miz	Mission file for DCS
FSBT-01 map.png	Area map
User Guide - FSBT-01.pdf	This document
UGKO - Airport Diagram.pdf	Kopitnari airport diagram
FSBT-01 SR Cards.mem	Spaced repetition cards

Video Lesson

This is the video that contains the entire lesson. To allow for smaller file sizes and, therefore, quicker downloads, it has been compressed. The compression algorithm, which is called a codec, that Leading Edge Training chose to use is the H.264, so make sure you have it installed. After that you should be able to watch the lesson in Windows Media Player, VLC, or other major video players. Take a look at the Links section at the end of this document to find out more about codecs and video players.

Lesson Plan

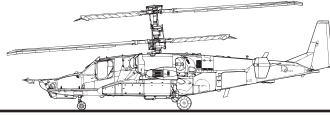
This is a short document describing what we set out to accomplish during this lesson. The layout is standardized between lessons, so these will always look the same, with just different content. Every lesson plan will contain the following sections: Objective, Elements, Schedule, Completion Standards, and a Weather and Weapons briefing.

Mission File

This file allows you to mimic the video lessons by flying it yourself. It contains the same elements used during the recording of the video lessons, to include weather, units, flight plans, triggers, and aircraft fuel and weapons setups. Just place this file in your /Eagle Dynamics/Ka-50/Missions folder and it will be available from the Missions menu in-game.

Area Map

Each lesson will include customized area maps. These have been kindly provided by igormk, and are extracts of his "Lock On Flaming Cliffs 2.0 & Digital Combat Simulator Tactical Chart 1", which should be available in printed format from Eagle Dynamics by the time you read this. You can find out more about this chart by visiting [this thread](#) on the Eagle Dynamics forum.



User Guide

As discussed in the Introduction, the User Guide will contain information pertinent to the lesson. One of its major attributes is the script of all voice overs present in the lesson. This is done with a couple of reasons in mind. First and foremost, a large portion of our audience speaks English as a second language. It might be easier for some to follow along by reading what is being said in the video. Second is the fact you might not always have your computer or a video player available, and at that time a printed copy of this document might provide some or all of the content you were in need of.

The User Guide also contains useful links and articles to allow for deeper reading and understanding of information mentioned throughout the lesson.

Kopitnari Airport Diagram

This airport diagram was specially designed for you to use during your LET training. This will be our home base for all of the Flight School, so you now have a good tool to help you become familiar with your surroundings.

It follows no international or national standard. Instead, it aggregates what our background in aviation suggested would be necessary for a good understanding of the airport and the encompassing environment.

Spaced Repetition Cards

In a nutshell, spaced repetition works by testing you on things you learned at a calculated time interval. This interval is determined based on how accurate your answers are. The better you know things, the less often you have to be quizzed on it.

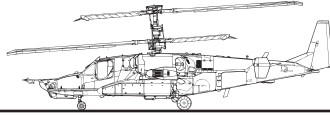
Although there are several options of software that will help you with Spaced Repetition we provide ready-made study cards related to our lessons in a format that Mnemosyne, a free software, can read and use.

The Links section at the end of this document has an entry for you to download Mnemosyne.

When running Mnemosyne for the first time a Getting Started guide pops up automatically. Do not skip through this, as this technique is only as good as your usage of this program. This Getting Started guide teaches you how to grade your answers, which is key to making Mnemosyne work properly.

After that, simply use Mnemosyne's menu and go to File | Open, and select the .mem file you extracted from the ZIP file. You can then start your training by answering the questions.

Spaced repetition is an optional aid, you will not be missing any of the lesson's objectives if you chose not to use it.



Lesson Script

Good morning cadet, welcome to Kopitnari Air Base. Congratulations on being selected for the attack helicopter program, I know the competition these days is very big. My name is Fabio Miguez, and I'll be your instructor for the next few months. During your training, things are going to be pretty fast paced, so you'll have to be dedicated and study hard to stay ahead of the curve. I am going to assume you have already read through your training program packet and are familiar with the sequence of lessons we will follow during Flight School. If you haven't, I suggest you do it first thing, as it's important you know how things will flow. Like my old instructor used to say, you can't hit a target if you don't know what it looks like.

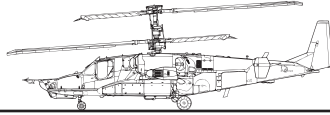
The way things work around here is we go for a flight, where I fly the maneuvers we are working on that day. I take a black board with me, so at times I can use it to illustrate a talking point. When we get back to base, you have a chance to fly the mission you just watched via a mission file you should have downloaded with this lesson. You can then take a written test to solidify that knowledge in your head. You're free to take the test as many times as you want, until you're satisfied with your score. The test will be posted on our website, so you can get to it from the convenience of your barracks. We also have a forum where you can get answers to any questions you may have. As an added option, we have something called spaced recall. It's a technique the braniacs in our Psychology department say helps you retain knowledge better than anything else. I'm not sure why, but it seems to work really well, so check it out on the website.

Ok, I think we are ready to get started. Every good lesson starts with objectives, so let's take a look at the ones for today.

OBJECTIVES:

- We start by familiarizing ourselves with a brief history of our wonderful fighting machine, the Kamov Ka-50*
- I'll then take you out to the ramp where we'll do a quick walkaround of the Ka-50, while I point out some of its main characteristics. In our next lesson we will take a much deeper look at the Ka-50*
- We then go for a flight around the local training area, during which you'll familiarize yourself with our home airfield of Kopitnari and the surrounding area. All of our flights will be done around here, so by the end of this series you will know it like the back of your hand*
- As we have some time in the air before we get to some of the landmarks that I want to point out, I'll give you a rundown of the Ka-50 cockpit*
- And finally, on our way back to base I'll teach you about the clock method of traffic reporting. Kopitnari is a pretty busy air base, so we need to be on alert as we approach it to spot and avoid all traffic. We'll use this method to make it easier to report traffic or to find it when someone else reports it to us*

Alright, now that you know how these lessons will work, and what we will do today, we are going to get familiar with what will be our training base for some time to come. But first, let me introduce you to someone who will be helping you quite a bit as you work to become an attack helicopter pilot.



Ed Macy: "Hello, I'm Ed Macy. Until recently I was a British Army combat pilot flying the Apache AH-Mk.1 in Afghanistan. I wrote about my experiences in the book "Apache: Inside the Cockpit of the World's Most Deadly Fighting Machine". It's a pleasure to meet you.

I'm glad to be helping Leading Edge Training make you a better attack helicopter pilot, one on one. Welcome to Flight School Basic Training.

From time to time you'll hear me chiming in with tips related to the lesson at hand. My objective is to make it easier for you to understand the concepts being taught, so that you can graduate to the Advanced Training school in no time!

For now, let's get back to the lesson so you can finish getting to know the training area and your brand new fighting machine."

Thank you Ed. Headquarters tell me this cadet scored pretty high on his entry exams, but I am going to believe it when I see it. Let's keep going.

Let me bring up the airport diagram. There we go. Time to dive in. As you have probably already spotted, we only have one runway, the big black strip down the middle. It is 2500 meters long and 45 meters wide, so it's plenty big for even the Tupolev cargo planes that you'll see once in a while. The runway is oriented pretty much East to West, which is in line with the predominant winds we get around here. We refer to the runway directions as 08 and 26. Notice I didn't say 8 or twenty six. It's standard phraseology to say "zero eight" and "two six" when referring to a runway.

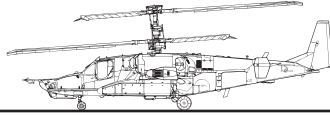
Now what do the numbers mean? Well, they are simply the headings of each direction rounded to the closest decimal. Runway 08 is actually on a heading of 080.5°. Even if it was up to 084 degrees we'd still refer to it as 08, as we would have rounded it down to 080. If it had been anywhere between 085 and 089 it would have ended up being runway 09, as we would have rounded up in that case, as the last digit was 5 or higher. Notice also that the difference in height of either threshold is not very significant, so we have a very slight incline gradient of 0.3° on this runway.

The airport tower is just north of the runway, and so are the fire station and the maintenance ramp. If our machine is ever broken that might be the destination for us to get her fixed up.

The north side also has a lot of Hardened Aircraft Shelters, or HAS, and a North Parking area. The ramp we will operate most often from is on the northwest corner of the field, here. The nice thing about it is that it's a pretty short taxi to the runway.

The south side of the field has another parking area, the fuel depot, and the base ops. Keep your nose out of trouble and you'll never have to see what that building looks like from the inside.

Finally, both southwest and northeast corners of the airport have dispersal pads. These are big enough for an Ilyushin 76 to fit in, but we might use them for practice or if the ramp area is crowded.



That pretty much sums up the airport, but you might want to study the chart on your own. If so, you have a copy in your training packet.

As a helicopter combat pilot you'll quickly learn that the weather plays a big role in our missions. One of the things we will do before every flight is to have a weather brief to make sure we know what we're about to fly into. Later, as we get into combat school, the weather can not only affect our ability to fly, but also our ability to fight. Never underestimate the weather.

Our standard weather briefing will include sky conditions such as visibility and cloud coverage, and wind. Today's weather is just about perfect, with unlimited visibility and no clouds, and a very light wind of 1 meter per second. Don't worry if the "meters per second" scale seems strange to you, after some flight experience dealing with the wind during takeoffs, hovers, and landings, you'll soon know what one or four or nine meters per second mean to you, in a very practical sense.

Another step you should get used to as we prepare for a training session is looking at the route we will fly over the area map. Before we get started, have the Area Map handy. You should have it as part of the training packet you downloaded. If you don't have it, this is a good time to pause this video and go get it.

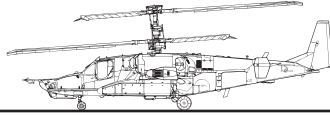
Alright, here's a quick introduction to the region. Our home base for the entirety of the Flight School series will be the Kopitnari Air Base, located a few miles southwest of Kutaisi, in Georgia. Wait, isn't Georgia often the enemy in Black Shark? They sure are. But for our training, this airport and its surroundings provide us with an ideal location to accomplish all that we are setting out to do, so it will be home for the duration of the Flight School training series. Don't get too comfortable, though, as we will fly some cross country trips that will take us away from this valley.

As a bit of geographical information, the city of Kutaisi, which we will overfly often, is the second biggest city in Georgia, after Tbilisi. Kutaisi is located in a wide valley that runs roughly East-West. The Black Sea is about 80 kilometers to the West, and the closest air base to Kopitnari is Senaki, otherwise known as Tzkhakaya, about 36 kilometers to our West.

Today we are going to do a short introductory flight from Kopitnari, overflying a couple of airports that we will use later in the series for practicing maneuvers, and returning back to base. It should take us about 15 minutes.

Ka-50 History

First, a little bit about our helicopter. The year is 1975, and on the other side of the world, the United States Army is hosting the final portion of a competition to develop an Advanced Attack Helicopter. The two finalists are Bell and Hughes, who have designed and are now flying the YAH-63 and YAH-64. Hughes is chosen as the winner, and the AH-64 Apache is born. The Soviet Union responds with the activation of the Mil and Kamov Design Bureaus, in its own competition for an advanced attack helicopter to replace the popular Mi-24 Hind. Kamov initiated a project called V-80, which later became the Ka-50, while Mil had their aim set on what would become the Mi-28. Following the Kamov company tradition, the V-80 had a twin-rotor configuration and, unique to attack helicopters, only one pilot.



Kamov employed the Tula Design Bureau for both the cannon and guided missiles. The cannon chosen was the 30mm 2A42, while the Vikhr anti-tank guided missile, or ATGM, was to be the Ka-50's main weapon. This choice meant the Ka-50 would have to carry a laser designator, as that was the only guidance available for this missile, and so was born the Shkval automatic TV sight.

By 1980, two prototypes each of the Ka-50 and Mi-28 were being built. In 1982 the Ka-50 conducted its first flight, and through the next 5 years it proved superior to the Mi-28, a fact evidenced by the production of the Ka-50 being ordered by the Soviet Council of Ministers in 1987, although Mil decided to continue development of the Mi-28, and nowadays it is also in operation with the Russian Air Force. The Ka-50 saw combat for the first time in 2000 over Chechnya, and today there are 15 Ka-50 in operation with Russia. Lately the Indian Air Force has shown interest in acquiring 22 Ka-50, but that competition was withdrawn by the Indian government.

Ka-50 Walkaround

Ready to go see her in person? I thought so. Well, here she is, proudly wearing the Leading Edge Training livery. Once you graduate Flight School and enroll in Combat School you'll be flying camouflaged versions. One of the things you'll notice right away is the lack of a tail rotor. That's because we have two main rotors that rotate in opposite directions, countering the torque reaction of each other. More on that in the next lesson. We also have three retracting landing gears, one on the nose, and two main ones towards the back. Two stubby wings help produce lift when at speed, but are also important as the hard points on which we carry our main weapons. Since this is a Flight School flight all hard points are empty.

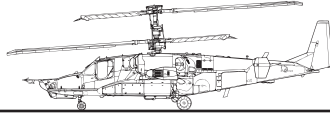
Up front is the Shkval, housed in this little box. It's basically a camera, so we have a protective glass pane in front of it, and it even has its own, dedicated windshield wiper! What you should draw from that is that the Shkval is very important to us.

The Ka-50 is a little unusual in that it is a single seat attack helicopter, whereas most other attack helicopters have a crew of two, a pilot to fly it and a weapons officer to acquire and destroy targets. In the Ka-50 you get to do both jobs, so you can expect to be very busy! This is one of the main reasons why it will be important that you master the flying and operation of the weapons system well, otherwise it is easy to become overwhelmed. War historians talk about the fog of war. If you are not the master of this aircraft, you will be surrounded by the fog of Kamov. But fear not, that's why you are here, I will teach you everything you need to know to become a very proficient, if not deadly, Ka-50 combat pilot.

Local Area Flight

Let's get going then. I'll take off and start heading northeast. Keep an eye out for traffic, as there are many other Ka-50s in training and routine daily traffic in and out of Kopitnari.

Alright, let's jump inside and take a look at this helicopter's cockpit. I do that by hitting the F1 key on my keyboard. Keep in mind in our next lesson we will look at the Ka-50 and its systems and avionics closely, so don't worry if you don't think you are retaining all the names and places of things. One of the first things you notice is that it's pretty crowded. There are lots of dials everywhere, but you'll be amazed by how familiar they will look to you in no time. Another pretty easy thing to notice is the TV screen right in front of us. That's part of our Shkval system, or what



we use to find targets visually.

As you might recall from the introduction, the methods we will use during this entire training series are based on proven instructional techniques, but to make sure they work, you will have to follow the recommended training program. That's because the sequence of the training events is very important for continuity and the building block approach. Imagine that by the end of this series the knowledge you will have acquired is equivalent to a brick building. To build that building, we have to start with the foundation, and then add one brick at a time. Each lesson in this series builds upon the previous, as if they were the different levels that make up that building. So it's important that even if you see a lesson's title and decide you already know that subject, you go through it anyways. There's no saying what small nugget of information is going to be in that lesson, among many things you might already know, that was unknown to you. That could become a missing brick on your building, and it could be sorely missed at a later stage. If anything, it will give you a chance to verify you do indeed know everything there is to know about that subject, and you can feel confident you are ready for the next lesson.

The airport we are overflying now is Kutaisi West Airport, for which the ICAO code is UG26. This is a small airport that has one runway and taxiways and an apron, which we will use for some takeoff and landing practices.

OK, let's turn her and start our way back to Kopitnari.

This next airport, devoid of taxiways, no longer exists in the real world to the best of my knowledge, but it will serve us very well for training inside DCS. On December 19 2009 a memorial celebrating the ones who lost their lives in World War II, which was located just to the south of this runway, was demolished by the government, to much criticism from the local people. The name of that memorial was the Kutaisi Memorial of Glory. To honor that, and due to the fact I have not found its official name, we will refer to this airport as the Memorial Airport from now on.

Ka-50 Cockpit

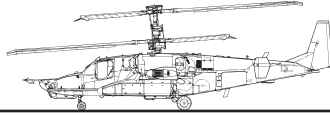
The panel that houses our Shkval screen and ABRIS is, very originally, called the Front Panel, and it is mainly divided into left and right sides. It contains the most important instruments and switches used in flying the helicopter. We enter our cockpit through a door on the left side, so most of the switches that didn't fit on the front panel were added to the right side of our cabin, and were divided into the right and the wall panels. And if you keep moving back, they even added them to the back wall, on a panel called the rear auxiliary panel. Some switches did fit on the left side of the cockpit, but you can tell that's nothing compared to the right side.

Finally, if we look up, we have some more controls above the front windshield, an area we call the overhead panel.

The cyclic is this stick between our legs, which we use to mainly change the attitude and speed of the helicopter. Our left hand is usually on the collective, which is mainly used to control our altitude.

Clock method of reporting traffic

OK, we are getting close to Kopitnari, so let's start paying attention to the world outside, as air traffic usually converges around airports. It's a good thing we started paying attention, see that aircraft just taking off? This is a



good time to introduce the clock method of reporting traffic. To understand it better, let's change our viewpoint.

Imagine that we are inside a clock, and the helicopter is located in the very center of it. The clock method is simply referring to the relative position of the traffic as they would be located on this clock. By doing that, we can see that the aircraft just taking off would be located at 11 o'clock. This is a very simple but useful way for ATC, a Forward Air Controller, or even your wingmen to draw your attention to a certain portion of the sky, making it much easier for you to spot the traffic (or the enemy!) in no time. Imagine how much better this can be. Instead of saying "It's off your nose, a little to the left, but not much" you can simply state "It's at your 11 o'clock". The trick is to just picture yourself at the center of that clock every time.

Always remember to keep checking for traffic while in flight. The skies look very vast and empty, but they can get very crowded in a hurry! Plus, by training yourself to break away from looking inside the cockpit and at the outside world you will be practicing a skill that will be very useful in picking up enemies, which you'll be doing visually every time.

That concludes our flight and our lesson. Let's recap what we learned.

Lesson Summary

Our home base is the airport of Kopitnari, located here

There are two other airfields we will be using during training, Kutaisi West, which is here, and Memorial Airport, here

The cockpit is divided into different areas. There is the left side, the overhead panel, the front, which has the Shkval TV screen, the right panel, and the wall panel, the rear auxiliary panel, and we control the helicopter via the cyclic and the collective.

The clock method of reporting traffic is done by imagining we are on the center of a big clock and whatever we want to report is by a certain number on the face of the clock, as seen from above

Great job cadet, that should be plenty for today. Now go back to your barracks, get some food and rest, and report back to me first thing in the morning. In our next lesson we'll take a deep look at the Ka-50 to understand all the parts that make her up. And don't forget, take your test! Goodbye for now.



Further Reading

1. [Spaced Repetition - Wikipedia](#)
2. [Kamov - Wikipedia](#)
3. [Ka-50 - Wikipedia](#)
4. [Codec - Wikipedia](#)

Links

1. [igormk's Tactical Chart 1](#)
2. [Mnemosyne](#)
3. [VLC video player](#)