Preview

Lock On (v1.1): Flaming Cliffs

Part 1 - Eagle Dynamics follow-up to LOMAC

by **Cat**

Just about a year or so ago I sat at my computer to do my first article for SimHQ. That was a review of **Lock On: Modern Air Combat**, then the latest in the line of simulations from Igor Tishin's Eagle Dynamics concern in Russia. Tishin was doing Oleg Maddox-style things for sim-dom way before *IL-2* was even on the simulation horizon. Beginning in 1995 with the original *Flanker*, he has been on a mission to provide world flight simming with a clear alternative to the ubiquitous American combat aircraft modeled in combat sims. Its real world alternative, the Sukhoi Su-27, and the other Russian combat aircraft seen all over the world. Hardcore fans of Eagle's *Flanker* series like to think of Lock On as *"Flanker 3.0"*, since it comprises the latest advance in a beloved simulation title, the original *Flanker*. I'm a *Flanker*head from eons past, from the 1.5 version, able to recall the old days of the *Flanker* online ladders. It was my first realistic flight sim, and to this day I prefer its basic avionics presentation over that of simulated Western fighters.

Nowhere else but in an Eagle product can you find even a semi realistic portrayal of the three Russian combat aircraft that Western air forces most often confront in the skies over almost every conflict in which they get involved: the Sukhoi Su-27 "Flanker B," the Sukhoi Su-25 "Frogfoot," and the Mikoyan-Gurevich MiG-29 "Fulcrum A" and "Fulcrum C" variants. These aircraft are used by literally hundreds of diverse nations in one form or another, and variants of the Su-27 especially are the standard for air forces desiring modern-day interceptors that can challenge the best of the West.

For red-hot fans of Russian military aviation (like myself) the original *Flanker* series had only one drawback: the presentation of the Russian airborne radar. The original *Flanker* had a pretty decent look at this, but it was clunky to use. Further, the original had a purported air to ground radar that was pure fantasy, a view that looked for all the world

like a television camera view. Hardcore fans raged about the radar for years. When *Flanker 2.0* released, and was patched to 2.5, and then 2.51, things didn't get much better on that front, although new radar modes were introduced to make the simulated Flanker aircraft more fun to play. But simmers wanted The Real Deal™ and they weren't getting to Nirvana with the still-fantasy package they were seeing, although version 2.51 was a step in the right direction. The penultimate *Flanker* showed us what the BVR modes should look like in some ways, a taste that merely whetted our appetites. Simmers all over the world analyzed the Russian radar and compared them to the real thing, and some great articles came out. One of the best was posted by a rabid combat simmer named Matt Wagner, who had some access to Inside Dope™ on the operation of the *Slot Back* series radar from military-only journals, and who posted one of the definitive looks at what we were missing: the real-life N-001 radar wasn't as easy to use as we were seeing, and had a whole lot more functionality, though it put workload on the pilot to get to it. *Flanker*heads rhapsodized about how totally cool it would be to be able to see it the way an actual Su-27 pilot did.

When *Lock On* released, Flanker fans everywhere, self included, thought that AT LAST we'd get to see a crisply modeled N-001 radar. We salivated over the prospect. But our hopes got derailed early on, because Lock On was destined to be more than *Flanker 3*. It was ambitious. It had vision. It brought U.S. combat aircraft into the mix. "Oh, no," *Flanker*heads groaned. We're going to get left behind! The masses want U.S. aircraft like our beloved Su-27's nemesis, the F-15C, and the A-10, and we're not going to see the hardcore Su-27 we're dreaming about! It took four years of development time to get the F-15 and A-10 ready for release.

We were heartened by the addition of Matt Wagner to the Ubisoft team by then-project leader Carl Norman. Ha, we all thought. Matt won't let them ignore the Crane! But real-world marketing pressures were brought to bear, and it was not to be. The Russian aircraft released with *Lock On* were near-total repeats of the *Flanker 2.51* stalwarts. Norman left Ubisoft, and so did Wagner after the project. But all was not lost. Wags let us know that Igor Tishin had not forgotten the legions of *Flanker*heads that kept the dream alive. And we found out that they'd been trying to bring the real N-001 and N-019 radar into *Lock On* all along, in fact, the detailed design work had been done years beforehand and time had just run out! Time and money forced them to release the product before they were quite ready; large retailers were canceling and reducing orders for the game. Patches would be coming, perhaps something could be done. Even when Ubisoft turned its corporate back on the product, Eagle stayed resolutely in the game. There would be a follow-up product to *Lock On*. And Russians would see an add-on to existing *Lock On*. One that would introduce a new aircraft: the Tank Killer. The Su-25T. The Russian A-10, with that aircraft's deadly optically-guided weapons system. With a new flight model that Eagle had been desperately working on as the original *Lock On* project drew to a close. Various fixes for the in-game aircraft.

And the radar *Flanker*heads have been dreaming of.

We *howled* for a Western release. But it's going to be payware, we found. You can't get all this work for free. We don't care, cried World Simming. And Eagle heard the cries, and they're planning to make a Western release of this feature-laden update available by download from Eagle itself. So new and full of Russian aviation goodness that it has its own name, *Lock On: Flaming Cliffs* is in final testing and tweaking as we speak. It adds features, aircraft, and enhancements. If you're a *Lock On* flier, you want it.

I got a peek. Wanna see?

The New

Flaming Cliffs adds the Tank Killer, the Su-25T and it is built around this aircraft. In fact, *Flaming Cliffs* is almost an old-fashioned study sim for the Su-25T, one that in the late 1990s we'd have paid fifty bucks for a single flyable aircraft to get our hands on it. This is the penultimate Russian air support aircraft, outdone only by the Su-25TM (the modernized version, exported as the Su-39), its tertiary development and an aircraft being looked at for subsequent add-ons to the game. Eagle has taken the opportunity to use *Lock On* and the community as sort of a proving ground for new technology. This gives US the chance to get enhancements to current software, and allows Eagle to see what works and what doesn't work, in a real-world environment. They've put an aircraft model in the game that reaches new standards of verisimilitude in looks and in the flight experience. As I said, a couple of years ago I'd have put down fifty bucks JUST for the Su-25T! Let's take a look at the changes.

1. The Eye Candy

The 3D model for the Su-25T is new and highly detailed. Check out these screenshots of the exterior model.

Every strut has been looked at. Loads of polygons went into this one. They've taken pains to recreate a photo realistic aircraft. Obscure details are here, like the *Sukhogruz* IR jammer, mounted in the tail, and the optics for the Shkval laser designator for optically launched weapons in the nose. This is the same system used on the MiG-27 fast mover for air to ground work, and we get to see it in action in game.

In the cockpit, the beauty continues. Eagle has carefully modeled the cockpit from the actual aircraft, in all respects save one: the radar warning gear. This is classified in Russia and documentation for it was impossible to get. The team therefore installed the SPO-15LM warning system that is ubiquitous for Russian aircraft. It is a good compromise, because modernized versions of the Su-25 produced by firms as technologically advanced as the Elbit firm in Israel retain the

SPO-15 in real world applications.

The IT-3M television monitor is present and operational in its place in the upper right-hand eyebrow panel. Turn it on, and it looks for all the world like an old black & white television, flashing for a second as it warms up and flickering on to give you a Day Television look at the world in shades of gray, and in steps up to 25 power. Its symbology is well-researched and reminds me very strongly of a Russian version of the displays we see every day on the news on American aircraft engaged in air to ground combat operations. It works very much like the TVM in the A-10, and is based on similar technology, although with the IT-3M you're looking at the target from the aircraft camera and not from the missile itself.

With the TV, you have access to optical weapons including the Kh-29T, Russia's larger and clumsier version of the Maverick, which makes up in brute force for its lack of finesse. All the laser weapons that the Su-25 in the original *Lock On* could use are here, and now, you can target them accurately from stand-off ranges. A new weapon for us fixed-wing aviators, the AT-16 "Vikhr" antitank missile, is also present. The Su-25T can carry sixteen, slung from two eight-round APU-8 launchers. The team has exhaustively researched the Vikhr, which is Russia's answer to the American AGM-114 "Hellfire" laser-guided antitank missile. They've modeled things as obscure as the Vikhr's weird seeker that causes the missile to take a wacky spiral trajectory to its target, a simming first. And they've looked at the launch rails that the larger missiles use, the AKU-58. In game, you can see it operate with large air-to-ground missiles. It kicks the missile off with two large feet, and the missile drops away before igniting.

Eagle has also revamped the use of anti-radiation weapons, and given the Su-25T alone the ability to employ two of them: the Kh-58, a modern weapon analogous to the HARM, and the Kh-25MPU, an older weapon with a far more limited onboard threat library. Both of these weapons require a dedicated targeting pod to be useful. This is *Fantasmagoriya*, a useful emitter tracking system. It is slung under the aircraft's belly and I have found it most interesting. Let's talk about SEAD in *FC* for a minute.

Eagle has introduced some technology to the anti-SAM fight we've not seen since *Falcon 4.0's* adaptation of the U.S. HARM Targeting System. *Fantasmagoriya* places a square cursor on the screen that looks just like a square version of the CCIP bomb pipper. Press "tab" and it will lock on the most intense ground emitter being received. If the threat is in the weapon's library and you're in range, you'll get the "launch authorized" firing cue. If you've got the Kh-25MPU aboard and it doesn't know your target-such as a ZSU-23/4 radar gun, which the Kh-25MPU doesn't have in its library-you've got to think fast. I had that happen to me and here is how I resolved it: by using a Kh-29T.

You see, you activate *Fantasmagoriya* by using the same key as you would use in a radar-equipped aircraft, the 'i' key, to turn on the radar. Which means that it can be used in conjunction with ANY weapon to show you where the offending radar IS, once it's in your HUD field of view.

Once you have done, that, simply place your optical or laser weapon's HUD cursor over *Fantasmagoriya's* displayed HUD cursor that is pointing you to the threat, and take a look at the IT-3M to see who is causing you the heartburn. Then launch on his butt and eliminate the threat. It's really useful even when you don't have anti-radiation weapons!

The Su-25T has access to the first true low-light level vision system in *Flanker* history. The Russians use a system known as Mercuriy to allow use of optically launched weapons in low-light conditions. *Mercuriy* is sort of a giant, aircraft-carried version of the AN/PVS-4 Starlight Scope that American soldiers got used to in Vietnam days. Bringing this online gives you the ability to add image intensification to the IT-3M display. You can lock and fire at night with it! You can even navigate, like an American A-10 pilot using an IR Maverick for hip-pocket night-vision in the days before NV goggles became standard for U.S. pilots. You can track targets with gun pods day or night, using the *Shkval* and *Mercuriy* together. The selectable gun pods will actually track targets you lock with the system!

Want more eye-candy? They've worked on the KMGU-2 canisters. These are like giant mobile bomb-bays. For the first time, Eagle has engineered these so that you can see them open and drop AO-25 or PTAB bomblets! Also, some of the other Russian bombs have all-new 3D shapes.

2. Under The Hood of the "T"

The cockpit is all new and well executed. You can see switches and levers move as you execute keyboard commands. The IT-3M monitor is easy to use and very legible. View limits from the pilot's seat have been enhanced in the T, and you have a realistic aft view now. This also translates to the other aircraft in-game.

A new thing for the Russian air to ground bird is the new modernized HUD. The Su-25T has several of the combat modes you're familiar with from the MiG-29 and Su-27. All the main navigation modes are present, including the "HAB" navigation view, the "MPW" en route mode, the "BO3B" return mode, and the "nOC" landing mode. The bird has an air to air combat mode using FIO to target IR missiles, and it can carry both R-60 and R-73 air to air missiles. It has the familiar "zem-lya" air to ground mode, and the "Setka" grid mode as well. You won't have trouble getting used to the Su-25T. And you'll like this: ripple-release modes and timing, like in the A-10, are now present and active in the Su-25 and -

25T. *Russian air-to-ground is in da house now, baby!*

You'll notice a different flight model. In *FC*, Eagle has implemented the much-ballyhooed "advanced" flight model. Frankly, it feels in flight much the same as before, only smoother, particularly in the slow-speed, high-angle of attack flight regimes. The Su-25T is more stable at slow speeds and in the landing pattern than the version 1.02 Su-25 was. It is rock-solid in bombing runs at low altitude. Conversely, it will take you a few takeoffs and landings to get used to its behavior there, especially in a crosswind. You'll run right off the runway at least once in a landing, I promise you. These aren't scripted any more. It's a lot like IL-2 in this department. If you have trouble getting a Bf-109 down in one piece in *IL-2 Sturmovik: Forgotten Battles - Aces Expansion Pack*, you'll be swearing at the Su-25 and Su-25T now, because both have the new FMs. Wind effects on the Su-25 and -25T are different, and the transition between turbulence states at altitudes is more realistic. I have flown through layers of turbulence that seems to smooth out as you gain altitude, just like in a real airplane! Even the way the pilot experiences "g" forces is different with the new FM, and it has a good seat-of-the-pants feel to it. You don't randomly gray out anymore. The legacy aircraft are still utilizing a scripted flight model and you'll see the hated "suck down" landings for them still, though I can tell you that these have been tweaked, because the MiG and Su-27 have a different and more fluid "feel" to them and I think the Su-27 in particular retains energy better than it had before.

The Su-25 and Su-25T have a new and more realistic autopilot. Several different modes are present in the game, including pitch/roll hold, barometric altitude/roll hold, radar altitude hold, return to level flight, and fly to nav point. The Su-25T has the SAU-8 autopilot, with route, landing, and combat (tracking a point that the *Shkval* is locked onto) modes, as in the real aircraft.

The damage models have also been enhanced. You can have single-engine fires, now, and see pieces of the structure blown off rather than whole wings and whole tails. This is less obvious in the legacy aircraft in game, because the new features have only partially been implemented for them.

3. Avionics

For me, the most important change is one that a lot of people won't pay much attention to. We at last have access to the most realistically modeled air radar seen in a sim since the *Falcon* series. What Eagle did for the AN/APG-63 in the F-15C, they have at last done for the Su-27's N-001 and the MiG-29's first-generation N-019 radar…only more so. More

than new radar modes have been added. The team has tweaked radar performance in all the aircraft. Radar jamming gate has been overhauled. ECM burn-through ranges are now modeled more precisely. Doppler effects are better modeled. And there's more.

FC actually looks at the geometry, how the target is presenting in relation to the emitting platform. This is most prevalent in the Russian aircraft, because the Russian radar have to be set for front-aspect or rear-aspect targets to perform most efficiently. Part 2 of the *Lock On (v1.1): Flaming Cliffs* Preview will cover the new radar modes in-depth.

Other Changes

- F-15 pilots, they haven't forgotten you. Your aircraft gets a wider field of view in the HUD and improved missile steerdot logic.
- The AI has been updated for both air and ground vehicles. It uses counter measures, the EOS in Russian aircraft, and the SAMs are nastier than ever.
- New buildings are in game. You can build your own bases now.
- New explosion graphics look slick and powerful. Ammo bunkers have ongoing secondary explosions that look like fireworks going off.
- Ballistics for the AMRAAM, most SAMs, cannon shells, and machine gun bullets have been recalibrated. Roll motion is implemented for cannon shells and MG bullets.
- You get flashing beacons or steady beacons on the Su-25 or Su-25T. You get to choose! You can also change the intensity of landing lights on all aircraft.
- Maverick stabilization problems have been looked at for A-10 pilots.
- They are experimenting with a world events randomizer in missions, although I haven't figured out how it works.
- IR missiles' lock and track logic has been tweaked.

A Final Word

If you are a *Lock On* flier or a determined *Flanker*head like me, you have to have this update when it becomes available. It is worth every penny of the price of admission, gang, because it adds a lot of functionality and new features, along with the new aircraft. Here is proof positive that *Flanker* Lives! Igor Tishin, Andrey Chizh, Valery Blazhnov, Oleg Tishenko, and the rest of the great Eagle Dynamics team are not about to go gentle into that dark night, and simmers everywhere should be ecstatic. I am.

Postscript: I want to thank Matt Wagner, who is no longer on the Eagle team but still a beta tester for *Lock On: Flaming Cliffs*, for his assistance in getting my hands on a beta of this update. *Gracias*, Matt. Don't stay out of the game long — combat simming needs you!

System Specs

- AMD Athlon 3000+ processor
- MachSpeed N2PAP-Lite motherboard with onboard Aureal AC97 sound
- PNY Technologies Verto GeForce FX 5950 Ultra
- 1GB Kingston PC2700 DDR DRAM

- Creative 12x CD-ROM
- Maxtor 40GB main drive
- DirectX Version 9.0c
- Windows 2000 with SP4
