Introduction

This summer is the seventy-fifth anniversary of the Battle of Britain. Airplanes had been used in combat since the First World War, but the summer of 1940 was the first time that a whole campaign had been waged in the air -- a fact that’s reflected in the battle’s German name, *Die Luftschlacht um England*, “The Air-Battle around England.”

This product, developed by Aeroplane Heaven and published by Just Flight, commemorates the planes of the Battle through a series of models for Flight Simulator X. Several types were involved, including Heinkel He-111 bombers and Junkers Ju-87 Stukas, but the objective of the battle was air superiority over southern England, as a prerequisite for seaborne invasion. This meant destroying the enemy’s fighters, and fighters (accordingly) are what this package is about: specifically, the early versions of the Supermarine Spitfire Mk. I, the Hawker Hurricane, and the Messerschmitt Me-109E (“Emil”).

All of these aircraft have been modeled before, at least twice, in Flight Simulator X: the Spitfire by A2A and RealAir Simulations; the Hurricane by Sky Unlimited and First Class Simulations; and the Me-109 by A2A and Flight Replicas. I’ve reviewed most of these products for AVSIM. Having said that, the excellent RealAir product is based on the Mk. IX and Mk. XIV Spitfire, not the Mk. I’s that fought in the Battle of Britain; the Sky Unlimited Hurricane hasn’t been upgraded yet to native-FSX status; and neither have the Flight Replicas Me-109s (which are of later versions anyway, not the Emils that crossed the English Channel).
This narrows the field somewhat. Still, flyers who own one of the previous versions (or no version) will want to know: what’s new here, and are the new models better than the existing ones?

**Installation and Documentation**

I received the product on DVD. Installation was the way I like it: completely forgettable. I noticed that there was a printed manual, smiled approvingly, and then ignored it for the next two or three days while I control-E’d myself into the heavens.

That was a mistake. This is one of the better-written manuals I have read. It’s 96 pages long; with black and white illustrations (maybe they’re color in the download version, I don’t know). It starts with a history of the battle, reprinted with permission from the RAF’s own website.

Each aircraft is then discussed separately, with notes on the plane’s history, the versions and liveries that are modeled here, and cockpit procedures. Something I’m not used to seeing is a brief walkaround tour. This is useful for a couple of reasons: it draws attention to the models’ special animations, and it tells you what you’re looking at.

This last point is particularly important. If you don’t know what something is, it’s very easy not to see it. I’ve been flying each of these aircraft for a couple of years or more (in the sim, of course, not in real life), but there were several things I never noticed about them, because I didn’t know what they were for.

This extends to the liveries as well: how they varied from unit to unit, and how they changed over the months of the first year.

**External Models**

For the external model, there are two places where this package has an advantage over the A2A versions: variety and extras. Whereas the A2A Spitfire has one livery and one model (Mk. IA), the Just Flight Spitfire has twelve liveries and three separate models, representing the prototype, the early Mk. I (with two-bladed wooden propeller) and the Mk. IA (with bubble canopy and three-bladed, metal propeller). There are, it’s true, several third-party liveries for the A2A Spitfire, but Just Flight still holds the advantage. A new paint scheme won’t change the shape of the canopy, or add another blade to the prop.

Also, the paint schemes here illustrate different phases in the RAF’s history. The most noticeable of these is probably the shift in schemes for the underside. For the first nine months of the war, most RAF planes, including the Spitfire and Hurricane, had their undersides painted black and white -- the so-called Night-Day scheme -- to aid ground observers with identification.

In June 1940, the RAF switched to painting the undersides a solid “sky,” but the Night-Day terminology was still retained in the Hurricane’s cockpit, where the port side of the undercarriage is labeled “Night” and the starboard side is labeled “Day.” When you can see the history, it makes sense; and this product encourages that.
The other feature that distinguishes the Just Flight fighters from their A2A rivals is extra animation. The Hurricane and Spitfire both have battery trolleys for start-up and you can remove the engine cowling to see the Rolls-Royce Merlin underneath. The radio compartment is also accessible (and in the prototype versions, it’s empty, just as it should be) but this seems like something that you try once or twice, after you buy it, and then never again thereafter.

The Me-109 doesn’t have a battery trolley, but you can remove the engine cowling, and it has an animated radio antenna that bounces realistically in the slipstream; this is one of my favorite parts of the aircraft.

With all three fighters, you can also blow off the canopy altogether; this could be useful for making movies. Finally, all three fighters have machine gun effects, with sound: you can’t actually hit anything, but it’s fun to see the smoke, shells, and tracers.

What about basic modeling, the bread-and-butter of lines and textures? It depends on what you look at. Extend the flaps on the Just Flight Hurricane or Spitfire, and you will be astonished by the finely detailed rivets and flanges. Bump mapping is used to create shadows, but the colors end up looking flat. Those sound impressionistic but compare a screenshot of the A2A Spitfire with its Just Flight equivalent:

The A2A model isn’t bump-mapped at all, but creates the illusion of depth with gradients. Now compare another pair of screenshots, both taken under identical lighting conditions. The first screenshot is of the Just Flight Spitfire again, in the livery of an early prototype. The second screenshot is of the A2A Corsair, which has more sophisticated surface mapping than the A2A Spitfire. Notice how the Corsair wing looks metallic, even when the paint has a matte finish.
Unlike the Hurricane and Spitfire, which come in three versions each, the Me-109E only comes in one version, but ships with more liveries: seventeen, including a Soviet scheme (from the period when Germany and Russia were allies), French colors (for a 109 that the Allies captured during the Battle of France), and a Japanese livery (flown by the test pilots of Kawasaki). The 109 is also the only plane with a load-out panel, which you can use to add bombs or a drop tank.

All of the planes, even the prototypes, show weathering. Compared with the A2A versions, the Just Flight versions seem a little more scuffed and scratched. They’re both valid styles, so take your pick.

Does that mean it’s all just a matter of taste? Not always. Look at the slats on the leading edge of the Me-109's wing. At low speeds, these slide out automatically, to give the wing extra lift and keep it from stalling. This behavior is modeled in both versions, but the A2A models are more articulated: when the slat deploys, there’s actual space between it and the wing; whereas, in the Just Flight version, that space is filled with an indeterminate material of silvery aspect.
Another thing I’ve noticed about the Just Flight wings is that the sides of the ailerons are not always painted the same color as the wing; that doesn’t matter so much when the wing surface is a light color, but when the wing is dark and the side of the aileron is white, it calls attention to itself in an unwanted way.

The real showpiece of this package is the Hurricane. Again, there are three models -- a prototype, an early version with two-bladed propeller, and a Mk. I with three-bladed propeller -- and eleven liveries. For FSX, there’s really no competition. The only rivals are the non-native model by Sky Unlimited, and the native model by First Class Simulations, which isn’t as polished. My favorite, among the Just Flight versions, is the silver prototype livery, because it shows off the ribbing on the stretched-cloth fuselage. The bump mapping on the wings is also persuasive.

**Virtual Cockpits**

The Spitfire and the Hurricane in this package both have 3D gauges. The First Class Hurricane has these too, but not the A2A Spitfire. So far, no one has produced 3D gauges for the Me-109.
For clarity and sharpness, Just Flight is the winner. The 3D gauges help, but in general the textures are sharper too, and it's easier to read the labels on the instrument panel. Of course, when everything's clear, it's easier to spot when something's not perfectly round or smooth. That's not a defect, by the way: it is part of the modeler's art, to improve frame rates.

Another part is to conceal this art with blurred gradations of color and shadow; and, in general, I think A2A does that better than almost anyone. But consider the reflector gunsight in the Hurricane and Spitfire: A2A has modeled the behavior of the sight correctly (so that it points to the right place, even when your eyepoint changes), but Just Flight has a better-looking unit: the reflections are more convincing, and so is the metal housing.

Which is more important? It's hard to say: when you fly these planes, the gunsight is always front and center, so you want it to look good. But function should come first, shouldn't it? Maybe, except in FSX you can't actually shoot anything.

What about the 109s? I was disappointed that Just Flight made 3D gauges for the two British fighters but not for the one German. In practice, though, I can't say that I've ever had trouble reading the gauges; and the labels all look sharp, even up close. I've switched back and forth between this 109 and the A2A version quite a few times now, and one of the things that strike me every time is that the Just Flight gauges are clearer.
The one gauge that’s demonstrably better in the A2A version is the magnetic compass. In the Just Flight version, this might as well be a tape: it tells you the heading, but that’s all. In the A2A version, the magnetic compass is a so-called whiskey compass: suspended in liquid (usually kerosene), it shows the heading, but also responds to pitch and yaw. It’s not as good as an artificial horizon (which the early 109s did not have), but it does provide more information than just heading.

Something else I noticed, switching back and forth, is the chain that runs from the trim wheel (in the cockpit) to the trim tabs (on the elevator). I hadn’t seen this until I started testing the Just Flight version, because A2A omits it altogether. I suppose the next step would be to animate the chains, so that they move when you turn the wheel.

If this were an advert, we would stop here. But since this is a review, we should also mention some bugs. As originally distributed, the turn coordinators in all versions of all models were reversed; a patch has been issued (BOBSP1.EXE) that fixes this for the Hurricane and Spitfire, but not for the Me-109. There is also a report, in the Just Flight forum, that the P8 compass in the British machines does not function like the original; there was a similar report, several years ago, about the A2A Spitfire.

### Sound

I’m pleased with the sounds in this product, especially the running engines and the engine start-ups. Compared with most products, the flaps and the undercarriage are going to seem way too quiet; at take-off, when the engine’s close to full power, you can barely hear them. I assume this is intentional; whether it’s accurate I can’t judge.

### Flight Dynamics

I’m always embarrassed when I get to this part of a review, because I’ve never piloted anything except cars and bicycles. I’ve tried to make up for that by studying pilot reports, but there’s no substitute for experience.

Here is what the non-pilot noticed about flight dynamics. The A2A Spitfire is easier to tip over when you’re taxiing. This behavior might be exaggerated in the model, but the real Spitfire (and the real Me-109) both had a narrow undercarriage was easy to upset. The early marks of the real Spitfire also suffered from a couple of weaknesses in flight. They didn’t have fuel injection, so negative Gs made the engine cut out; and the controls froze up over 350 mph. The A2A Spitfire models both of these characteristics, but the Just Flight Spitfire carries on happily if as if nothing were wrong. I mentioned this to someone from Aeroplane Heaven, and he came back to me a few days later with a new airfile, which is now available through a patch (BOBSP1.EXE). With this airfile, the model will conk out and freeze up just when it’s supposed to!

The early marks of the real Spitfire also suffered from a couple of weaknesses in flight. They didn’t have fuel injection, so negative G’s made the engine cut out; and the controls froze up over 350 mph. The A2A Spitfire models both of these characteristics, but the Just Flight Spitfire carries on happily if as if nothing were wrong. I mentioned this to someone from Aeroplane Heaven, and he came back to me a few days later with a new air file.

With this air file, the model will conk out and freeze up just when it’s supposed to! I didn’t see a link to it yet on the Just Flight forum, but there’s talk of a patch there, and I’m assuming this will be part of it.

The other thing that stands out from my weeks of flying is the difference between early and late versions of the same plane. The prototypes of the Hurricane and Spitfire look different, but fly also fly different from the Mk. Is and Mk. IAs. Most noticeably, they don’t have as much power as the production fighters. There’s also a (finer) difference when you step up from a two-blade prop to a three-blade prop with variable pitch: specifically, you can climb faster. This is observable in the Hurricane series as well as the Spitfire.
Performance

For high frame rates, the A2A fighters are some of the best models I know. On my rig, the Just Flight models took a little bit longer to load their textures, but I would put them all in the category of frame rate friendly.

Conclusion

It was clear when I corresponded with Aeroplane Heaven about the Spitfire’s flight model that the team is eager to make this a worthy tribute to the Battle of Britain on its seventieth anniversary. Except for the Me-109’s turn coordinator, all of the issues that I brought to their attention have now been addressed in a patch.

The download version, if you buy all three models, is 40 pounds, 50 euros, or 60 US dollars. If you want to buy the planes individually, the price is 20 pounds, 25 euros, or 30 US dollars for each fighter (or series of fighters, for the Hurricane and Spitfire).

As I’ve said already, there is nothing out there right now that can match the new Hurricane. Choosing between the A2A and Just Flight versions of the Spitfire and Me-109E is harder. Just Flight wins on gauges, but A2A has better sound, and its planes are less expensive -- but you only get one version. If what you need is a whole series of Spitfires, including the prototypes, Just Flight is the only game in town.

<table>
<thead>
<tr>
<th>What I Like About Battle of Britain</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Lots of historical liveries</td>
</tr>
<tr>
<td>● Excellent manual, with walk-around instructions</td>
</tr>
<tr>
<td>● Frame rate-friendly</td>
</tr>
<tr>
<td>● 3D gauges for Hurricane and Spitfire</td>
</tr>
<tr>
<td>● Separately modeled prototypes and early versions for Hurricane and Spitfire</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>What I Don't Like About Battle of Britain</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Me-109’s turn coordinator still needs a patch</td>
</tr>
<tr>
<td>● Missing paint on some ailerons</td>
</tr>
</tbody>
</table>

Printing

If you wish to print this review or read it offline at your leisure, right click on the link below, and select "save as"

Battle of Britain

(adobe acrobat required)

Comments?