

The Aviator

Magazine



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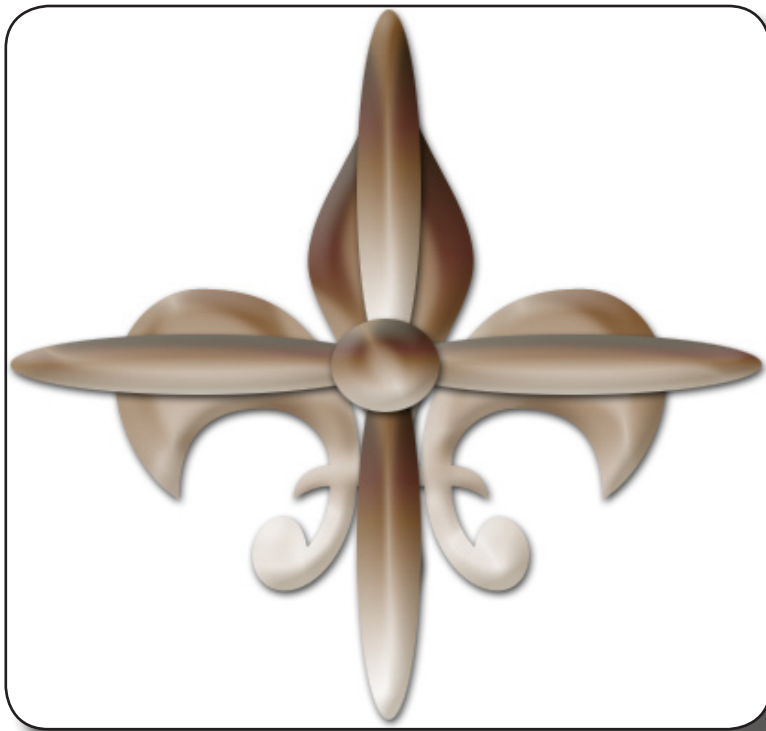
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“FLIGHT SIMULATION FOR THE 21ST CENTURY”

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From The Editor...

Wow what a shock last month's issue was. We had over 19,687 requests on the Aviator site alone. Not to mention the many other sites that we upload to. To our count for authorized uploading sites we have somewhere in the neighborhood of about 35,000 downloads of our first issue of this volume! That is extremely great news and makes us proud to see that we are providing our readers with what they want to see. This count makes this the most downloaded issue of The Aviator magazine!

As you may have noticed when downloading this issue we have changed a few things in regards to The Aviator magazine. We have a brand new website, the issue had some great content added to it, we picked up a few new advertisers, and a big note is that we changed our contact information on the website. The old address will be forwarded to the new ones for about 90 days and then they will be removed.

Do you want to be a part of something special? Do you want to say you helped achieve a level of success that we hope to achieve here at The Aviator? Then contact me at [editor\(at\)theaviatormag.com](mailto:editor(at)theaviatormag.com) and let me know what you might be interested in. We are looking for anyone with a journalism background, a photography background, an aviation background, and/or a management background.

Also added to our site was a "Industry News" section that will be updated on a regular basis and then top stories will be selected and included in the monthly issue. If you have news that pertains to our Flight Simulation or Aviation community please email us at [news\(at\)theaviatormag.com](mailto:news(at)theaviatormag.com)

John Bratcher

John Bratcher

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In This Issue...

“The Outer Marker” *page 5*

“Simming - Art or Exercise” *page 10*

“The Sweet Spot” *page 12*

“T38 - Zoom & Boom!” *page 16*

“CLS Airbus Review” *page 22*

NEWS...

Nemeth Designs Releases Eurocopter EC-135

Eurocopter's EC 135 is a very powerful lightweight twin-engine multipurpose helicopter and is operational worldwide. Over 600 have been delivered since the helicopter entered service in 1996 and the helicopter is flown by over 100 customers in 27 countries.

The helicopter incorporates Eurocopter's low-noise patented Fenestron tail rotor. The array of ten blades in the Fenestron are arranged asymmetrically and are spaced at different intervals which substantially reduces

the helicopter noise.

The standard version carries the pilot and six or seven passengers. The VIP / executive version is fitted for four or five VIP passengers. The cabin is fitted with large sliding doors for easy boarding and exit. The Emergency Medical Service helicopter can be flown by one or two pilots. The helicopter can carry one or two stretcher patients and up to three doctors and medical attendants. Different medical installations are tailored to the operating organisation's need.

Eurocopter offers a choice of two engine types for the EC 135, both types equipped with Full Authority Digital Engine Control (FADEC). The FADEC system provides enhanced performance, engine protection and power plant monitoring. The engines available are the Turbomeca Arrius 2B (T) and the Pratt and Whitney Canada PW206B (P).

Nemeth Designs EC-135 package includes three variants



CLS Releases Service Packs

CLS is pleased to announce the release of several service packs to make products compatible with FSX Sp2 and acceleration.

The following service packs are now available from our web site www.commerciallevel.com



A330/A340

A340-500/600

F117A

Business Jet

Sky Blue Radio Looking For Painter

Looking to do some painting? Then Sky Blue Radio wants to hear from you! We're on the hunt for someone to paint some planes for us. The scheme is, essentially, pretty simple. The look would be based on the graphics on our web site, with the Sky Blue logo on the tail and possibly some smaller additions near the nose for those groups we're affiliated with in some way - Orbis, American Topgun Productions, and others. We need repaints for both the Level D 767-300 and

the PMDG 737-700 no winglets version. If you'd like to know more, email TDR@skyblueradio.com.

Sky Blue Radio already sounds great at any altitude. Now we'd like to look good at any altitude too, but we need some help....



The Outer Marker

By: Chip Barber

"Which Is It?"

So, which is it? Do we spend our time and money on a game? Or, do we assuage our consciences by convincing ourselves that the dollars and hours are spent in pursuit of, for the young'uns, the development of a potential vocation? And, if such is the case, what about we elders who are about as close to flying commercial aircraft as we are to proving fatherhood of Anna Nicole Smith's baby? I suppose in the final analysis, it really doesn't matter. But, as the numbers continue to add up, and as the developers continue to hone their craft and provide us with progressively complex aircraft, I find I really need some honest justification.

When a person, such as me, is physically challenged, the question is somewhat simpler to answer. After all, the time I am capable of spending standing upright without pain is practically nil. As such, I feel entitled to park my fat butt in front of my monitor/yoke/throttle in a mostly guilt-free fashion. A ready made excuse to spend time enjoying my hobby. For the rest of you, not so much. How do you convince yourself that it is acceptable, at your advanced age, to spend time and money on a game?

Something extraordinary happened the other day. I had a face to face discussion of flight simming with another enthusiast! The really great part was, he's the I.T. guy in my of-



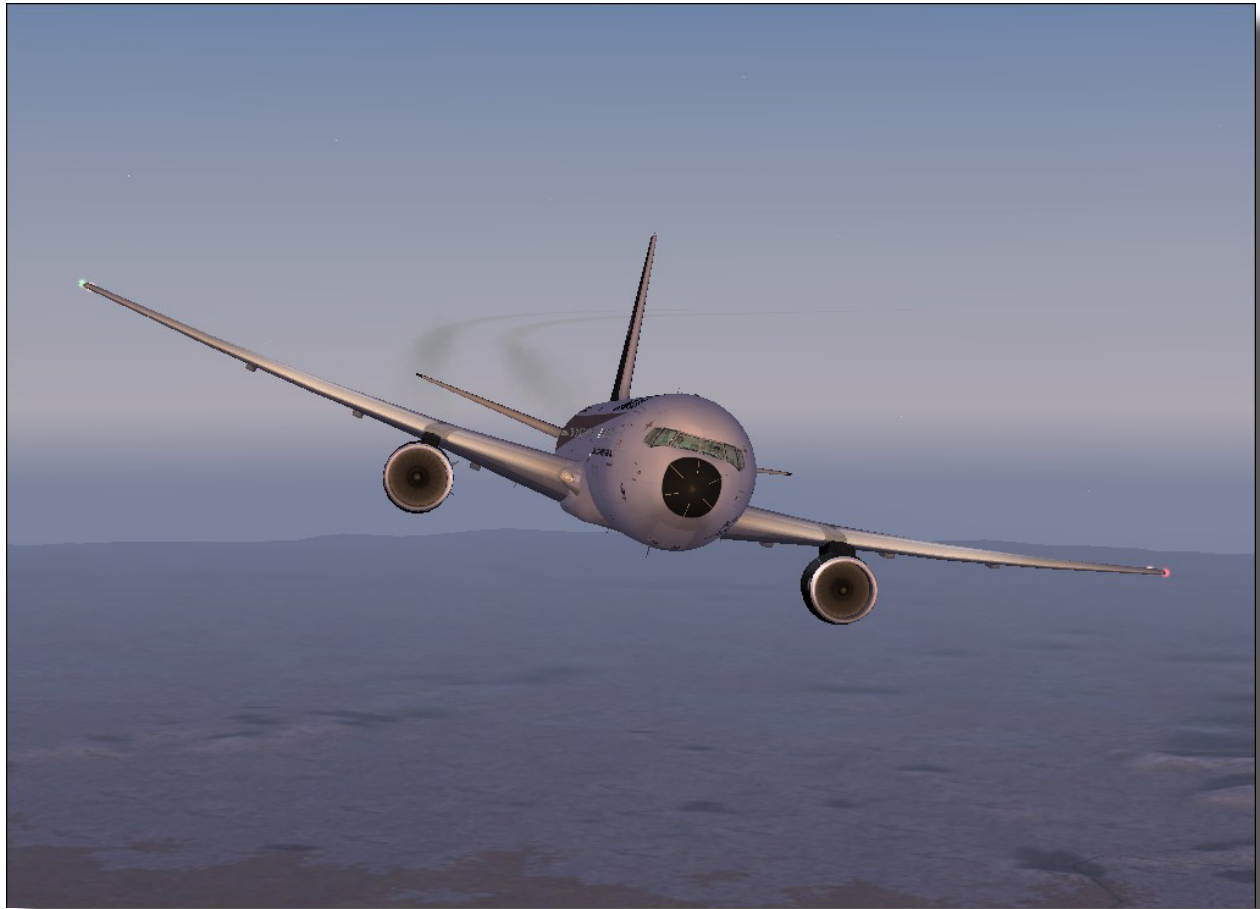
fice. And, he's got his PPL and has a ton of RW experience. As the saying goes, this could be the start of a beautiful relationship! I'm thinking I may finally learn VOR navigation!

So, he and I were discussing this very topic. We've reached the decision that, at least for us, flight simulation is neither game nor hobby. It's an obsession. Once we realized we shared this disease, we babbled on for about an hour about our favorite birds, scenery, and the like. For instance, we both strongly favor the Boeing 73x series, regardless of the manufacturer. While he favors online flight with live ATC, I find myself, with my ever-fading attention span, doing short hops so that I'll be able to enjoy the landing and trip to the gate. Either way, we were a couple of older guys going on about our mutual devotion to a game.

I took my son to our local gamer and

comic book store this morning. We both walked out of there nearly wetting ourselves. Have you seen any of the Hollywood depictions of a nerdy type of kid who immerses him/herself in these board games? It's TRUE!! I swear, the place was full of them! Now, you may ask why we were there. Well, actually, he was looking for a set of cards, and I was hoping to find an interesting board type of game that he could buy for the old man's birthday. But, that's not the point.

The point is, I couldn't help but wonder if this is what the I.T. guy and I looked like as we were discussing flight simulation. I mean, those kids are really, really into their game(s). I caught snippets of conversation here and there, and in retrospect, it occurs to me that he and I probably sounded awfully similar in a lot of ways to an



outsider. This, for me, was certainly enough to make me at least reconsider the light in which I saw all those kids!

And I got to really thinking. Are we really just playing a game? At least Mark (the I.T. guy) has his PPL, and can justify his time spent at the monitor as practice. In fact, he feels it's actually more difficult to fly/land in flight sim. But me? And, for that matter, you?

Well, ok. Fine. It's a game. I admit it. But, it's a singularly unusual game. You see, there are no winners, no losers. You don't score points, unless you wish to by using one of the many add-ons that do such a thing. You don't compete with anyone else. There's no time limit. What the heck kind of stu-

pid game is this?

So maybe it's not a game? No, wait, I've got it. It's exercise. Now, don't go running away screaming. It's mental exercise. Sure, you're not trying to do better than anyone or anything other than your last flight. In the process, you are running checklists, watching dials and gauges and generally trying to defy the law of gravity. Sure, there's an awful lot of fun stuff you may add to enhance your experience. But really, we're just trying to do a little better than last time. Maybe this time, we'll remember to turn off the landing lights above 10,000 feet. Or, remember to kill the strobes before we get to the gate. There are a hundred little picayune steps to recall and processes to complete in order to consider a finished flight

satisfactory. Should we so choose, we may make the entire process more difficult with the addition of, say, FsPassengers, or Radar Contact 4.

Regardless of what we choose to add to our experience, we are meeting a challenge every time we fire up flight sim. We're exercising the old gray matter, trying to see if perhaps we can do just a little bit better than we did last time. Sometimes we do, and sometimes we don't. This, I think, is what keeps it interesting. That, plus all of the cool places we may choose to fly. I may never set foot in Japan, but I can tell you all about several of their major airports and surrounding landmarks. I'll never see a Norwegian fjord, but I've sure have crossed any number of them.

I've actually gotten to know the geography of Europe fairly well by now. Yikes! I'm learning far more than I ever thought I would with this stupid game!

Maybe it's not a game at all. Maybe it's an insidious Microsoft plot, devised to improve the minds and reflexes of all those who use Flight Simulator with any regularity. If so, it's working! Were it not for my dear old FS9, I wouldn't have maps from all over the world surrounding my computer station, lovingly notated with cities, ICAO's and distances. I sure wouldn't be able to tell you how far it is between Hannover and Berlin (about 131 miles, as the Boeing flies).

Call it what you will, as far as I'm concerned, Flight Simulation is

perhaps far more than even the developers had in mind. Reflex sharpener, mental treadmill, geography teacher, and a great way for like-minded folks to exchange thoughts and ideas.

Which is it? I have no idea. But whichever it is, whatever it is, it is far more than it appears to be. And, I suspect it has become far more than it was meant to be. That, I think, is the true beauty of Flight Simulation, and it is that esoteric quality that keeps us all wanting to keep doing it.

Three Green!



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WestCoastATC.com is a premier aviation community providing a wide array of online aviation services to our members that enjoy flying online with Microsoft's Flight Simulator 2002, 2004, and FSX. Our online pilot and controller two way voice communication is handled over TeamSpeak's voice over IP software, adding to the full depth and exposure by today's aviation standards. Bringing our pilots through an immersive experience is one of our fundamental goals. WestCoastATC.com began providing services to its members, December of 2002. Our site and infrastructure today represents about forty percent completion of the master plan and over all vision. We're the only place online where you'll find top of the line Fiber Optic OC connected gaming servers delivering pure raw excitement, running in tandem with high speed private servers in a redundant backbone infrastructure. With servers open seven days a week twenty-four hours a day, providing our members a full time aviation environment. Planning for the future today, so our members have a home tomorrow.



Simming - Art or Exercise?

By: Alex Barrett

Dangerous waters already and we haven't even started!

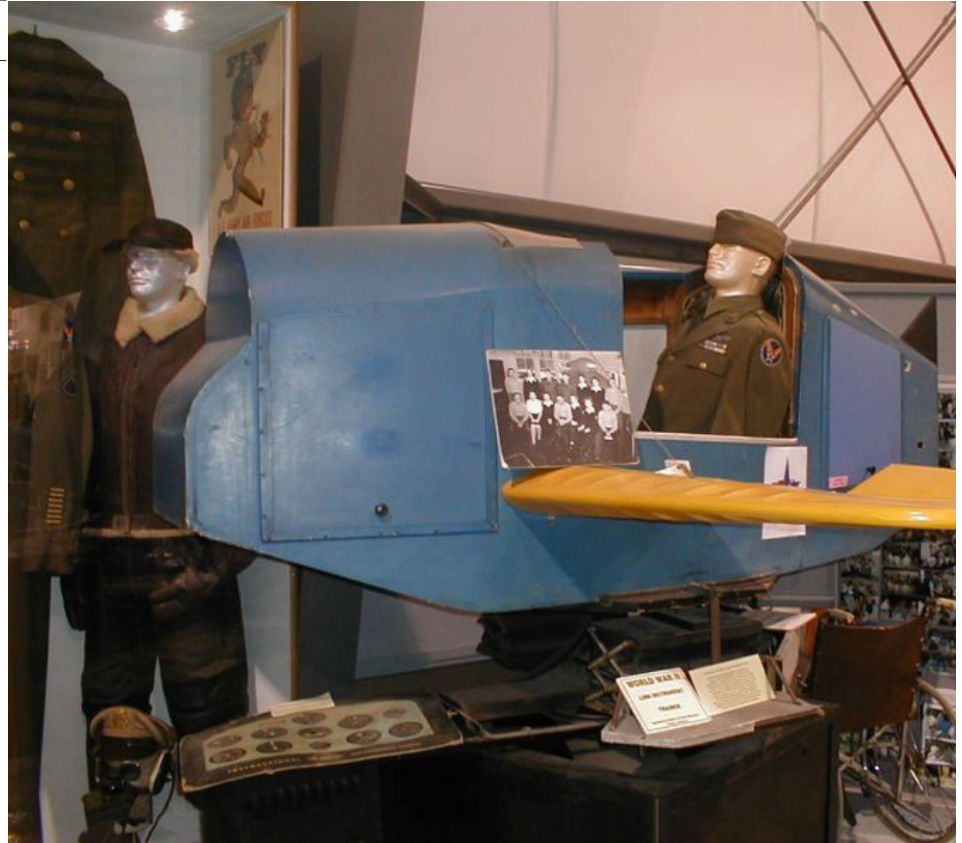
The purpose of this brief article is to discuss a question often asked in hushed tones on forums and other communication channels world wide. Indeed this has been going on since before the days of the Internet, when we flight simmers were confined to a world with no graphics, just words -- and lots of them!

Is our little hobby a true art? Or are we just procedure followers?

The inspiration for this article comes from a conversation I had with a seasoned simmer only a few weeks ago. Like me he has some real flying experience. We discussed the differences in the way we plan flights for the simulator as opposed to the so called "real" world.

Our real world flight bags contained much the same things: an array of checklists, manuals and those lovely things they call "computers" but are really bits of cardboard pinned together that you turn and manipulate till they tell you how much fuel you will need or what angle you'll need to not muck up your circuit on this busy summer day.

We pulled out the flight plans from our last real flights and went through them. There in detail was what radio calls we expected to make and on what frequencies, what the fuel cost was at each airfield, how much fuel we would need, and how much fuel we would have in our tanks over each



waypoint.

We then got to talking about our last simulated flights. For him it had been a long haul to New York from Heathrow, in a Citation. He'd got a few figures written down but for the rest it was "Oh, the FMC sorts that for me" or "I normally get that from FSNV".

I'm a little more boring. I like planning flights as much as I like to flying them, but I still realised that if this was real world then my one little sheet of flight planning wasn't going to save my backside when I needed my figures to hand.

So why had I let myself get so lax with my simming? Well, after much discussion my friend and I decided that it was probably because we have become so used to, and reliant upon,

the procedures that we follow on a regular basis.

I can be certain that if I fly my A340-300 on route X, at FL whatever, then it will use the same amount of fuel it did last time, give or take a little, but not enough to worry me.

Even when I fly online it's much the same -- the same old controllers at the same positions night after night. It leads to me getting complacent, chatty even. TURIN 3 Juliet approach again? Quel surprise!

So I decided to do a little survey of ten of what I consider to be my "hardcore" simming friends. We all have them. They're the ones who go to sleep with the wiring diagrams for their beloved 767 or A330 on their bedside table. (Side note: I have an A321 Operations Manual on the

shelf above my bed -- but that doesn't make me a geek, I promise.)

Sorry, I digress. I asked them to list the three components they were most familiar and comfortable with for planning their most realistic simulated flights.

Nine out of ten were sadly predictable. They said either the PMDG 747, Level D 767 or the PSS A330 along with FSNav or FS Commander, and IVAO or VATSIM.

I then asked ten newcomers to the scene (i.e. since FSX) what they used before their flights. I was pleasantly surprised because calculators and chewed bits of pencil abounded!

So what did my sadistic little mind cook up to see who fared better?

Obviously we needed some sort of "fly off" pitting them against each other, but how could I do it without them realising what I was up to?

It took a few hours of devious thinking but I got there in the end. I had

just repainted a great little Maule for a VA, and I had come up with some bush flying routes around some rugged terrain. Before releasing these to the masses I asked some of my friends (for this now read "test subjects") to use their expertise to test out the routes and the suitability of the aircraft. (Set a pilot a challenge and he'll flock to it like flies around something rather unpleasant.)

We were all running an ACARS system so all the details of the flights were logged: how much fuel went in, how much was used, what the touchdown speeds were and so on.

Can you guess what the outcome was, friends?

Well who'da thunk it! The newbies, mindful of not messing up, had planned their fuel rather well. The old hands left it a bit fine once they'd made those two overhead passes to "scope out the lay of the land." Touchdown rates were a lot better with the newbies too, and the old hands had plenty of excuses:

"Oh, of course this is nothing like the

heavy metal I'm used to", or "I don't think this thing flares quite right", both of which are, I'm sure, more than valid.

I'm mindful that I may seem to be drifting from the title here but bear with me. My point is that in the attempt to keep it "as real as it gets", those who would like to consider themselves masters of the art are ending up more and more like procedure followers. Take them out of their comfort zone and, rather than reacting to it and learning from it, they just get disorientated and make mistakes.

I think as a community we need to recognise that over the years we've improved so much that we may have lost some of the original spark that kept it all fresh and new.

It's great to see that now we have a brilliant selection of GA aircraft to choose from, available from both payware and freeware developers at amazing quality levels. So next time, instead of jumping on that airway to the same old airport thousands of miles away, just take an hour to do a quick trip from a small grass strip somewhere. Fly by the seat of your pants but plan your fuel, check that your battery is charging and that your magnetos are still evenly matched.

You might not have the thrill of hurtling through the skies at 450kts in a big tin tube but you just may remember something you had forgotten. It IS an art, but if we become too complacent then it becomes just another string of procedures that we soon get comfortable with. And that, good buddies, is not the spirit of an aviator.





Chapter 1 - Old Family Money

The Sweet Spot

Tony "Red" Underwood

Well, the picture is fuzzy, and the details are sordid. It was on the same day God's Own Drunk was recorded. A walkin' tall blond in a tight white sweater and me on my best behavior. I smiled at her as I walked in the back, a short time later, this daring young pilot was under attack.

Joe Ed Barentine was old money, I used to call it old family money and it was quickly pointed out to me that I was obviously from the poor side of town, as only the poor called it "old family money". Joe Ed's money is so old that it predates paper money. Mr. Barentine has spent his life as an hotelier; his first is the pride of Savannah

the Mossy Oak Estates, a place that is as stuffy and pompous as its name implies. However the locals gather there every Sunday after services for the Sunday Dinner and the most elite of the Savannah Society are invited members to the Mossy Oak Supper Club.

For my own glory, I am not a member of this club and have yet to sleep at the Mossy Oak.

Joe Ed Barentine is something of an enigma. He enjoys the flare and company of many beautiful women; everywhere he goes there are always four or five in tow. Georgia's own ver-

sion of Hugh Hefner, I suppose. Not to judge Joe Ed but his attire, mannerisms and wispy speech would make one question his need for said female companionship that he keeps in tow.

I suppose Joe Ed likes me though. Joe Ed has been flying in my planes as long as I can remember, well as long as I have had a shop in Savannah anyway and he is always referring me to his friends and clients. In the south the referral of a friend is better than the yellow book.

On this cold, windy day when Savannah is hunkered down with the threat of rain and sleet, Joe Ed Barentine has chartered a plane to take him and his friends down into the Caribbean to some sort of crazy attired, odd mannerism, wispy voiced hotel owners meeting. No matter the cause of the trip, we would spend a week or more flying around to any place Joe Ed's old family money would take us, old money I mean.

Sweet Shell's hasn't made the jump to jets yet and our fastest offering is a Piper Cheyenne 400 and it happens to be one of Joe Ed's favorite. I'd be flying with not only a co-pilot but also a cabin attendant for this flight. I mean heaven help Joe Ed if he or one of the hotel owners had to pour their own drink or serve themselves something. Dave Palmer was going to fly the right seat, and the fun and sun of a free vacation in the Caribbean, has his wife Connie coming out of retirement. Two Palmers in one plane, where is my Excedrin?

"Red, what route do you plan on taking down to Puerto Rico?" Dave asks as he leans over the planning table in the pilot's lounge.

"The southern route," I reply with my feet propped up on the table and looking out the window.

"Red," Dave calls once more, "They are all southern routes, you got a better answer for me than that?"

I love Dave Palmer as much as a heterosexual man can love another heterosexual man, but we are simply two different people. Dave likes to plan his trip down to the last drop of oil used for the trip and I tend to just throw it in the air and see how it comes out. For all our differences, we enjoy flying together and in the world of aviation as long as you enjoy that, you are doing good.

"Direct GPS." I respond.

"Hey Red," Dave calls once more. I did not have to look, because I know he was giving me the universal sign that I am number one.

I was rubbing my nose trying to feel nose hairs that I could pull out when an experience just as painful started. The Purple metallic 1969 Rolls-Royce Phantom VI pulled to a stop in front of the FBO, Joe Ed had arrived. Standing up I watched as Joe Ed climbed from his Rolls wearing his Sunday best Purple Velvet suit and as any true southern gentlemen would do, offered a hand for each lady coming out of the car with him. I walked from the lounge to the lobby as the entourage came inside.

"Ladies," Joe Ed's voice rises above the cackle of the hens, "I'd like for you to meet the greatest pilot on earth, Captain Red Underwood." For added flare Joe Ed clapped his hands followed by the ladies clapping as well.



"Thank you all very kindly," I respond, "If you'll follow me to the hanger we'll store your baggage, do a quick safety brief and then we will get going."

NS008A sits beside the Sweet Shell's terminal, she has been cleaned from top to bottom, the maintenance crew has spent the night going through her and we spent the morning packing away food and beverages for the trip.

"Ladies and Gentleman, I'd like to introduce my co-pilot Dave Palmer and our cabin attendant Connie Palmer."

As Dave packed away the luggage and Connie and I stood by the boarding ladder and greeted our guest as they went up the small set of stairs into the plane. I did have to hand it to Joe Ed, while I did suspect his fruit fly credentials; he did know how to pick some attractive women

to travel with.

As I plopped down in the left seat of the plane Dave reached behind us and closed the smaller set of doors between us and the cabin. Dave read off the pre-start list and I hit the switches as he did so. After a few minutes the first of the Garret engines was whining to life. I watched the port engine belch some smoke and then the prop turn. Reaching up I hit the bleed air switch and we went about starting the starboard engine.

From the start of the engine, to the taxi and take off, it took us around 15 minutes to get in the air. In that time Joe Ed and his crew had drank one bottle of champagne. We were going to take the plane up to FL350 on this flight. Our first leg would see us stop at Marathon, Florida to pick up Joe Ed's sister, Liz Barentine. I've never meet the lady, but the gossip is she is a former Miss Georgia and current model living in Miami.

As we rocket across the sky, Dave talks to Jacksonville Center getting the weather in route and I look out the window a lot. Like I said we fly differently.

Connie knocks on the doors before she opens them; it's an old airline stewardess habit so no one in the back sees the entire flight crew asleep. If you've never been in a Chey 400, let me assure you of one thing, you will not go to sleep at the controls.

"How's it going up here?" Connie asks as she hands Dave a cup of coffee and me a can of Red Bull.

"We are about an hour out according to my math," Dave says with a sense of pride as he taps his finger on the kneeboard he had worked the figures on.

"Yeap" I say tapping the GPS unit in front of me, "An hour out."

Dave gives me the eat dirt and die look while Connie and I chuckle. Dave's an engineer and engineering habits die hard.

As we get close to KMTH, Miami Center takes over our flight and begins the downward decent and transition around everything and everyone as we get on approach. Since I had taken off back in Savannah, Dave will land the plane.

I read the check list off to Dave as we start the descent, and landing phase of the flight. Marathon is a small island in the Keys, just 10 miles long. With the airport in site we slowly make our way into and down. One thing for sure about the 400, is she goes fast and stops fast



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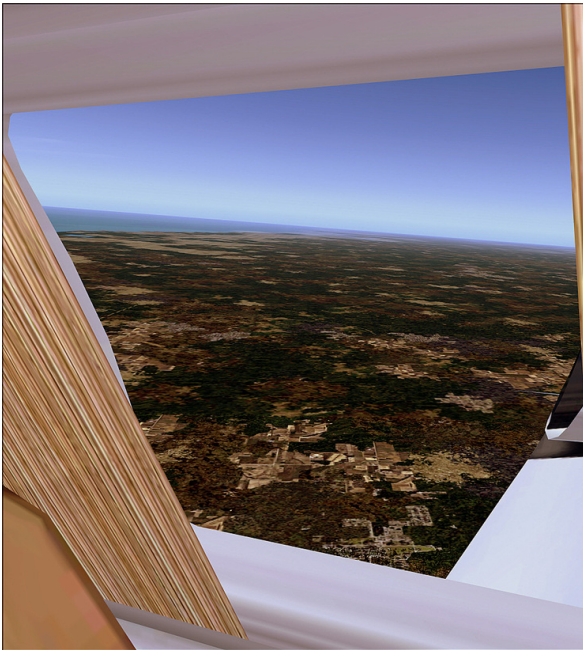
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too. It also helped that Dave is an outstanding pilot.

As we taxied to the terminal parking spot assigned to us, I was able to make out a woman standing in the FBO waiting room. The closer we got, the more interested I got. Once we were snuggled into our parking spot right next door, I was able to see her fully and she was something else, well she gave new meaning to attractive.

It was going to be a long flight, but thank God that planes do not have rear view mirrors and we have the cabin doors.

The Sweet Spot!



T-38 Zoom and Boom

John Visser



Probably the greatest experience I've had in my 30 year (and counting) flying career, is my assignment as an instructor pilot in the Northrop T-38A at Laughlin Air Force Base near Del Rio, Texas in the early to mid 80's. Not only was the T-38 a blast to fly, it was truly rewarding to see them progress from novice students (we called them "bricks", as in fly like a...) to some of the most capable pilots in the world.

In those days, all USAF pilot training students flew the T-38 after qualifying in the Cessna T-37 in a program

called "Advanced Jet Training" of USAF Undergraduate Pilot Training (UPT). Since then, the Air Force has split off students who will fly Tanker, large reconnaissance and transport aircraft (except C-130s) in a separate program that uses the T-1 Jayhawk (a modified Beechjet business jet). The C-130 students go to the Navy to fly the T-44 (a modified Beech King Air). Fighter, attack and bomber students continue to fly the T-38 in a program that more resembles fighter lead-in training. The combination of those separate flying training programs are now called Specialized Undergraduate Pilot Training (SUPT).

The current system uses modernized T-38C aircraft with updated wings, "glass" cockpit avionics, and fighter-style heads-up displays (HUD). SUPT is clearly more efficient and effective training, but for TTB students going to fly the "heavies", they miss out on some one-of-a-kind flight training in the T-38.

The first flight in the T-38 was a ride we called the "Zoom and Boom", so named because most of the profile was conducted in after-burner, mostly in the take-off, climb and supersonic flight. It was meant as a introduction to the capabilities of the T-38, and a chance to demonstrate a few of the maneuvers that would later be expected of the student. As you might expect, the flight used a lot of gas—most of the 3790 lbs (about 580 gallons) of JP-4 was expended in less than an hour, so there wasn't too much time to perform as much of the mission requirements as you needed to.

Thanks to some excellent add-ons, replicating the flight is remarkably realistic and makes for an interesting simulation in Flight Sim. The first add-on is the fantastic T-38 add-on by FSD-International. It comes in two flavors, the freeware T-38A originally intended for FS2002, and the payware version for FS2004. Although they call it a T-38A, the payware version has a glass cockpit, which is more like the modern T-38C. However, the flight model of the payware version is somewhat more realistic. They're both great models—you can find the freeware version on flightsim.com as well as the skin paint I uploaded of one of the actual aircraft I flew at Laughlin and use here in my screen prints.

Interested in writing for "The Aviator"?

Have you ever thought about trying your hand at writing? Do you feel passionate about Flight Simulation or Aviation in General? Well then The Aviator might be the place for you. We are currently looking for members in the Aviation community that wish

to write articles on a onetime or regular basis. If you are interested in contributing either one a regular basis or just one time then please let us know. You can reach our Editorial staff at editor@aviatorsociety.com

The second add-on is the very detailed Randolph Air Force Base By James Shaddox, also available at flightsim.com. Randolph AFB near San Antonio, Texas is the home of Pilot Instructor Training (PIT) for USAF Air Education and Training Command (AETC). All instructor pilots checking out in any of the Air Force's T-1, T-37, T-38, and T-6 training aircraft get to spend some time here, and it makes an appropriate place to practice T-38 maneuvers.

The mission starts with arrival at the T-38, parked on the north ramp at Randolph along with rows of other T-38 aircraft. The scheduler and supervisor of flying (SOF) assigned you the tail number of your aircraft based on your take-off time and information they get from maintenance, so your choice is easy. Engine start and taxi out to the runway, 14L is easy. Canopy close, flaps set to ½, hold the brakes, and run up the power to "mil" (military power or 100%). The nozzles in the exhausts of the J-85 engines constrict to more efficiently extract thrust from the engines. There's a limit however, as the EGT rapidly climbs to the maximum allowed, and the nozzles open up a little just before reaching 100%.

Release the brakes, and engage the afterburner. Fuel is sprayed through small perforated openings throughout the aft barrel section of the engine, igniters light off continuously to ensure combustion of the fuel, and the nozzles open all the way up. It makes for a beautiful blue flame out of the engines at night. You can't hear that in the cockpit, but a quick check at your nozzle gauges, indicating two "swings" is your assurance that

you've got the required thrust for takeoff. Afterburners are technically not required for take-off—you have enough thrust to reach take-off speed of about 155 knots—but the unique way stubby swept wings designed for supersonic flight fly create dramatic increase in drag at the lower take-off speeds. An engine flameout at a critical time may not guarantee acceleration and climb or abort in the remaining runway. That's the classic "sabre dance" and the culminating reason for the 2000 Concorde crash in Paris.

Rotate at 155, check two indications of climb, and immediately retract the landing gear, and flaps. It comes quickly--new students often don't react fast enough and risk over-speeding the 240 knot limitation of the flaps and gear doors. Hold the nose down for a shallow climb and acceleration to 300 knots. That should occur before reaching the end of the runway, an equivalent acceleration of 0-330 mph in less than 8000 feet! At 300 knots, pull the nose up to

between 30 and 40 degrees nose high to maintain 300 knots until reaching 10,000 feet. That should give you a climb rate in excess of around 10,000 fpm, in excess of the 6000 fpm physical limit of the VVI gauge. US airspace normally restricts airspace below 10,000 feet to 250 knots, but the T-38 has an exemption to 300 knots due to its clean (unconfigured) minimum maneuvering speed of about 280 to 300 knots (depending on weight). At 10,000 feet, lower the nose again to accelerate to 400 knots, and continue to climb at 400 knots until reaching .9 mach. Climb at .9 mach until above 30,000', the minimum altitude for supersonic flight in special airspace.

All the while you're climbing, you have to stay on your departure track and headed towards your assigned military operating airspace (MOA). Without getting into too much detail about individual airspace procedures, suffice to say Randolph's MOAs are generally northeast of the base, near Seguin, TX (near Randolph's auxil-





iary field at Seguin, E70) or way out west of San Antonio, near Hondo, Texas. Modern T-38's have more capable nav equipment, but back in the old days, we simply used the horizontal situation indicator (HSI) and distance measuring equipment (DME), both of which are reasonably well simulated in FS. Too stay in an area, students were instructed to set their HSI course arrow to one radial of the tactical air navigation (TACAN), a military-devised nav aid that defined the area. They usually (but not always) coincided with prominent VORs and DMEs. The student then set the heading bug of his HSI to the other radial of the area and then tried to keep his HSI bearing

pointer between the course arrow and heading bugs while remaining in between the DME and altitude limits of the area. That's a lot to keep an eye on while you're flying around at 9 miles per minute in a relatively small area, but students quickly figured out and memorized distinctive landmarks for each of the areas. By the way, MOAs are not restricted airspaces—civil VFR often traverses the areas, and they're not always looking. Although you're travelling 4 times their speed, you've got to watch out for them.

Nozzle indicators are the third row of engine instruments. The sim is in afterburner, so those needles should

be full-right.

Once you're above 30,000 feet, you can lower the nose again and accelerate above Mach one. That's not a big deal like the movies show Chuck Yeager doing it in the X-1. Thin wings and a pointy nose mean shock waves adhere to the aircraft close to Mach one at a speed known as "critical mach". In the T-38, that occurs around Mach .98, so there's very little disruption to airflow over control surfaces. The only sign of supersonic flight you notice other than the Mach gauge is a slight movement of the altitude and VVI as the pressure changes around the shock wave as it passes through the static ports near the tip of the pitot tube. Unfortunately, FS doesn't simulate that little indication.

The T-38 has powerful engines for its size, but they're not strong enough to go much above Mach 1.1, and unlike some modern supersonic aircraft, it can't stay supersonic without afterburners. Sustained supersonic flight eats a lot of gas, so flights in afterburner more than 15 minutes are prohibited. By the way, it's impossible to over-G a T-38 in supersonic flight--the elevator doesn't have enough authority. However, abrupt stick forces while supersonic will dramatically increase drag, causing a deceleration to subsonic flight and immediate over-G (of about 6.7 G's).

Like most aircraft designed for supersonic flight, the T-38 incorporates "area rule" around the fuselage near the wings to reduce drag by evening the pressure build-up as airflow passes around the aircraft. The T-38 does this by constricting the inlet ducts soon after the intake. The design has

the dual purpose of creating a shock wave across the inlet of the duct, slowing supersonic air to more suitable subsonic flow for the engine fan blades. Once you've demonstrated supersonic flight, you carefully pull the throttles out of burner. The J-85 engines were originally designed for the "Quail" air-launched cruise missile and decoy, so they were basically meant to be "throw-aways" before being adapted to the T-38. Consequently they're not especially rugged, and very sensitive to disruptions to airflow such as surges that might happen when changing throttle settings at high mach and altitude. Compressor stalls are not uncommon under those circumstances.

While subsonic, it's a good time to demonstrate the roll capability of the T-38. Small wings make for an arrow-like aircraft, with a very high roll rate. Although it's a prohibited maneuver (due to the violent, disorienting effect on the pilots), continuous aileron rolls while unloading the wings (to remove induced drag from the wings) will create a roll rate of about 720 degrees a second. That's twice a second.

After slowing, instructors used the other side of the airspeed envelope to demonstrate the flying characteristics of the T-38. Since the T-38 was designed for transonic flight early in the history of supersonic flight, it uses the simplest means of achieving that by fitting it with small, swept, symmetrically cambered wings. The entire wing without flaps is actually one-piece of honeycomb structure attached to the fuselage with just four bolts. It flies fine as long as it's going fast, but slow speed is a different story. The penalty for flying near stall

(below basic configured approach speed of about 155 knots) is a dramatic rise in induced drag, eventually to the point where no additional thrust is available to offset the drag. The airplane doesn't technically stall, as there isn't enough elevator stab authority to reach stall angle of attack, which is much higher than aircraft with conventional wings. Instead, the airplane will literally wing rock to the ground, the demise of many a careless pilot.

Unlike the high roll rate available with the ailerons at higher speed, lower-angle of attack, aileron rolls at low-speed are almost totally ineffective. Instead, the rudder becomes increasing effective as any yaw on the

swept wings dramatically changes the lift in favor of the direction of rudder, causing the infamous "rudder roll", a potentially unsafe condition when using rudder at approach speeds. Consequently, rudder is not used for crosswinds on landing. You just land in a crab and scrub the tires a bit more to the next tire change.

With those demos complete, it's time to drop down to lower altitudes to fly some aerobatic maneuvers. No time to go into detail, but generally "over the top" maneuvers such as loops, immelmans and cuban 8's take about 550 knots and 5-6 g's at the bottom of the maneuver, and nearly 10,00 feet of vertical airspace.



From there, you have just enough fuel to RTB (return to base), also known as “bingo” fuel. Usually, you can get one straight-in approach to demonstrate a single-engine or no-flap approach (flown at a basic speed of 170 knots), a touch and go, and maybe on additional “overhead” traffic pattern before it’s time to call it quits. Since the T-38 training is meant to prepare for training in the fighter environment, patterns are flown at a high altitude (usually about 1500 feet above the ground) and high speed (about 300 knots) directly over the runway in a maneuver known as “initial”. That’s to keep the aircraft out of potential enemy fire until inside the “friendly” airfield boundaries. About halfway over the runway, you “break” by reversing direction and fly “inside” downwind. The 2g, 45-60 degree bank turn is usually enough to create enough induced drag to slow the aircraft to less than gear-lowering airspeed, below 240 knots without pulling back the throttle. In the sim, you may have to pull the throttle back a bit. Lower gear and flaps, make your final turn from 1500 feet at about 175 knots and smoothly turn while descending close-in to the field (one of the toughest maneuvers for new students to get right).

After landing, keep the stick back in your lap as the nose stays in the air for the “aerobrake”. The same induced drag you get at low speed flight makes a great way to slow down on the runway. In fact, the only time the wings completely stall is right about 100 knots on rollout. The nose comes down to the ground and use the wheel brakes to taxi speed. There’s no anti-skid, so use of wheel

brakes any faster than that risk blowing the small tires.

Taxi to the ramp, shutdown both engines, sign the log book, and go into the flight room to debrief the flight. Problem is, your student is still at “gear up”.

My view from the instructor’s back seat. That’s the top of student’s helmet in the front seat. We’re in close trail with the ’38 ahead of us.

The Sim’s view. Ejection handles shown in the sim version are actually in the armrests of the real plane.



U.S. AIR FORCE





John Visser is a retired Colonel in the Air Force Reserve with experience in T-37, T-38, KC-135 aircraft. He's currently a Boeing 737 Captain for a major airline with over 15,000 hours of flight time and type ratings in B707, B737, B757, B767, DC-9, and Fokker 100 aircraft.



Aircraft Review CLS

"Airbus 330/340"

By: Matt Long



First off, I would like to thank the developers over at CLS for their generosity and allowing us the chance to review their product. I think it speaks a lot about a company when they are willing to let a magazine get a test model for review purposes, even when there are plenty reviews on the market already.

I've wanted to review a big, wide-body jet for sometime, but am still unwilling to tackle the challenges and complexities of reviewing something along the lines of a PMDG 747 or Level D 767. After a thorough search of the offerings available, I settled on the A330 / 340 package from Commercial Level Simulations.

The A330 / A340 family was first launched in the late 1980's, and first

revenue flight was in late 1993. Using lessons learned from the A320, Airbus integrated an advanced EFIS flightdeck and fly-by-wire technology in their new widebody offering. 3 engine offerings are available on the 330, GE CF6-80E1A2's, Pratt and Whitney 4164's or 4168's, or the Rolls Royce Trent 768's or 772 Turbopfans, all of which are modeled in the sim, depending on the livery installed and that airlines engine choice.

The download was off of CLS's site, and I must say, was a bit confusing. You first get a 31 MB file with instructions for downloading the aircraft, a livery manager, and a few other files, then you get a 170 MB .exe from which you get the actual aircraft. Depending on the date of

your download, the aircraft will come with the 2 service packs released, or if not, they are easily found in CLS' downloads section. The livery manager is a separate .exe that allows you to either browse to liveries already downloaded, or download and install them directly via the manager from the website, which I thought was very handy.

After basic install, you have 4 aircraft, the A330-200, the A330-300, the A340-200, and the A340-300. I started my review in Seattle at KSEA. I used the included Airbus house livery with the A330-300. The 2D panel seems relatively straightforward logic wise, (I'm coming from a Boeing mentality here). Many of the "support screens" are easily called up with the standard "Shift + 2...etc" function. The ECAM system jumps out as being somewhat in depth, allowing you access to APU status, Hydraulics, Doors, Pressure, Wheel Temps, and of course Engine status. 1 point to mention here, depending on which engine variant you have, you'll get a different engine display, ie, the Trents feature a 3 stage system, so you'll see 3 arcs per engine, compared to the dual stages for the Pratt's and the GE's. Do the research, it'll come in handy and make for an enjoyable flight. Speaking of research, CLS includes a 167 page manual to spell everything out for even the novice simmer. I spent a few minutes searching for a checklist, only to find in is internally included in MSFS's checklist feature, a payware first for myself, and I found it pleasantly surprising.

AVIONICS / INTERNAL WORKINGS

For the flight plan, I ventured to the MCDU (FMS / FMC...we need to

standardize the names of these darn things...) to enter the route for my 3 hour hop to KPHX, only to be sucker-punched in the gut by finding out the computer isn't modeled for that...a la Eaglesoft's first Citation X. So now one must create a route in MSFS (or export one from FSnav) and load it into the system, though any enroute changes will be hard to make. There are only a few options available via the MCDU, V-speed entry, a NAV-RAD function for radio frequencies, and a progress button. This is my main gripe against the entire product. As a payware offering, for the price asked, I would definitely expect a fully modeled flight management system at least on par with PMDG.

The FCU (autopilot) or Flight Control Unit is also a bit underdeveloped and a bit user unfriendly. While not difficult to figure out the logic, I would do at least one or two test flights before trying to invest time for a long haul flight.

Also missing is any sort of load / fuel manager, forcing one into the depths of MSFS's lovely system. Fuel consumption averages 5100 – 5500 lbs/hr at cruise for the A330. I tested a few different fuel configurations, and when both the 330 and 340 are carrying long haul fuel loads, take off rolls seem to drag on forever.

The transponder and TCAS were a bit tricky to find, but after consulting the manual I found a clickspot on the rivet / screw underneath the Navigational Display (ND) that brings up a set of 12 icons with the standard icons for the kneeboard, GPS, map, and TCAS / Transponder. Also in the set are icons for the overhead panel, ECAM, pedestal, air-stairs, virtual

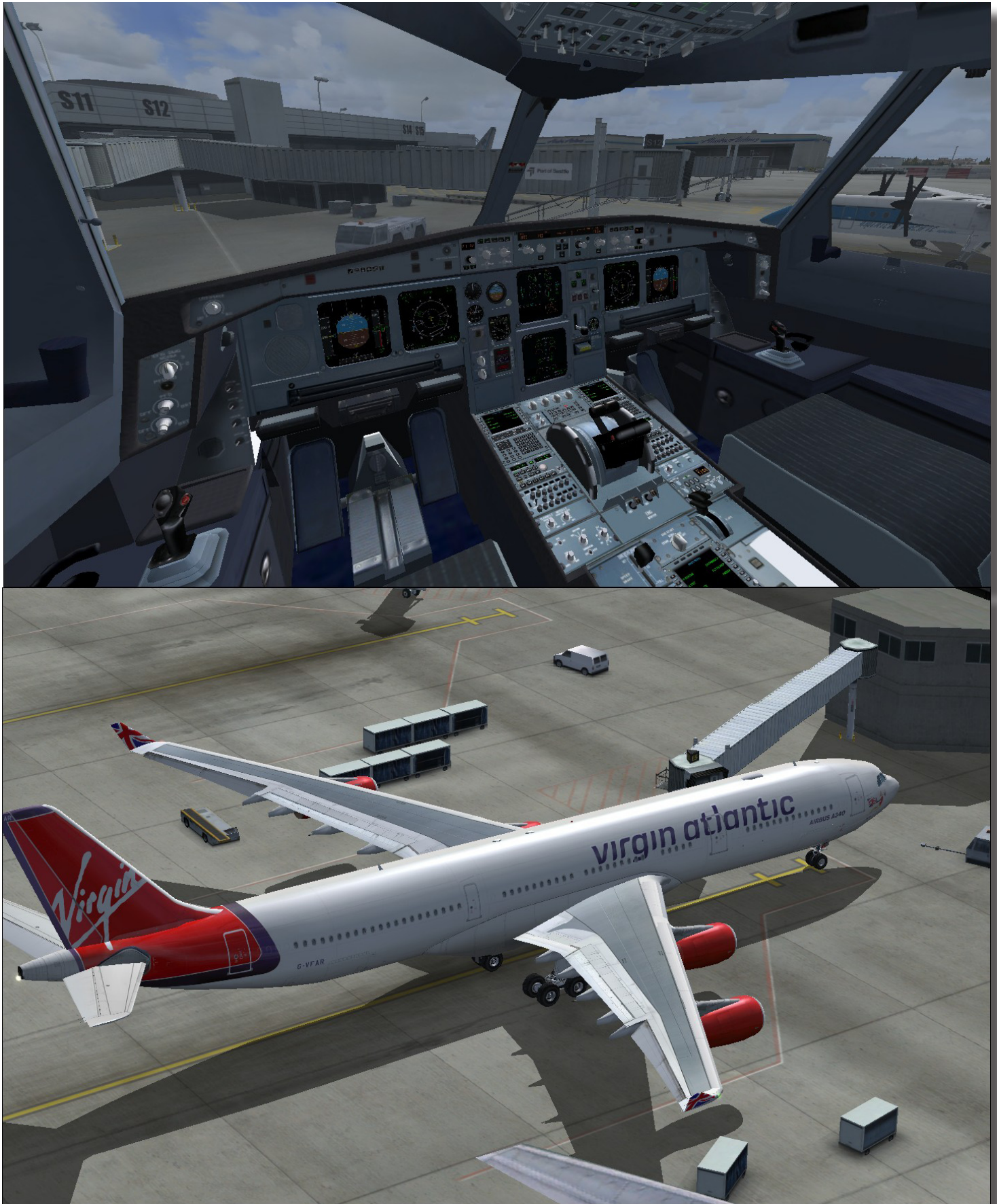


cockpit (selects on or off for frame rates), wing views, and the push back tug, which I'll describe later.

External Views / Eye Candy

The visual model is on a better playing field than the MCDU stands. I tested the A330 with the new US Airways colors, and the A340 with the Virgin Atlantic paint, both were crisp and did not disappoint. You get moving flaps / slats, though in my opinion, the slat movement seemed a little overboard, but I'm also not familiar with the real world A330/340 so this may be a just representation. The nose gear, rudder, elevator, spinning engines, gear doors, ailerons, flaperons, and spoilers are all modeled as well. You can open the main passenger door located at L2 from the overhead panel, as well as the galley door (set to the tailhook) at R2. Both cargo doors can be opened using the

left cargo door icon, the icon on the right however, which is set to the wing fold in MSFS, apparently does nothing....try as I may, I could not figure out or see what this second cargo door button opened. If any readers are aware, please let me know, as I'm really curious and frustrated! As I mentioned earlier, 2 more bits of eye candy are included for your viewing pleasure, say a jetway isn't available, or you're directed to a remote stand, a CLS air-stair truck is available from that hidden clickspot. It's obviously modeled to a section of the aircraft, so is somewhat comical to see it sliding along while taxiing. Right next to the air-stair button is the pushback tug. If you activate this feature (it'll turn green) when you initiate the pushback sequence ("Shift + P") a tug will appear to be helping you out of the gate. I think a neat addon would be a slightly more advanced model, allowing you to specify the length of the pushback, and perhaps specify



a degree of turn. I also enjoyed the different reverser models on both the A330 and A340. The Trent engines (I think) have the 4 bays that open when unlocked that resemble claws to me, and the P & W's and GE's have the entire engine open up. Small as that seems, this is one of the things that really tickled my fancy. This leads me to the main external problem I have with both models, however. While taxiing, the aircraft seems to slide to the outside of the turn, not due to inertia or speed, but while the inside gear truck is rotating through the turn, the outside truck seems to "ice skate" through it, seeing it for the first time threw me for a loop.

The Virtual Cockpit is adequate, with almost everything that's clickable in the 2D panel clickable in the VC mode. Again, I only say it's adequate because it seems kind of forced, textures don't look all that smooth, and it can kill frame rates on a basic system...though a higher end processor / video card will crisp it up a tad.

HANDLING

Here's where the two stablemates prove they are different from just having four throttle controls to two. I found, in all aspects of flight; taxi, takeoff, and especially approach, the A330 is pretty squirrely. At the end of a long haul with nothing left in the tanks except for the reserve fuel, only minor inputs need be applied to the twin engine. I found myself struggling time after time to fly a basic visual approach (perhaps it's just my technique though...I could also be a bad pilot!) I found myself vindicated however while riding the four engine behemoth down the rails. The A340 is somewhat slow in control response, but that's to be expected, and it's

pretty easy to tell where the airplane will be in 15 seconds. I don't think this is bad programming, but perhaps a good representation on the actual flight characteristics...I'm not an airline pilot (yet) but both flight models seem to make sense, and will present enough of a challenge when hand flying an approach, which I think makes it all the more fun!

VERDICT

I'm torn with this aircraft. The underdeveloped autopilot and, in my opinion, the lack of any real flight management system really bring down its' rating. On the other hand, it's obvious the developers went to great lengths to create a great visual model, with some cool extras thrown in, and I think anyone can appreciate that. Overall, if you're a by the books, "as real as it gets" kind of simmer, I feel you'll be disappointed, if, however, you're just looking to hop in a big piece of metal and look cool doing it, you won't have any gripes. Keep an eye out though, CLS is continually

addressing bugs found and reported by users, and it's obvious they want a happy customer, Kudos.

Keep the blue side up!

Matt Long, VAA006

-System Specs-

AMD Athlon 64 3200+ Venice
2.0GHz

-Gigaram 512MB 184-Pin DDR
SDRAM DDR 400 (PC 3200) – 1.5
Gig.

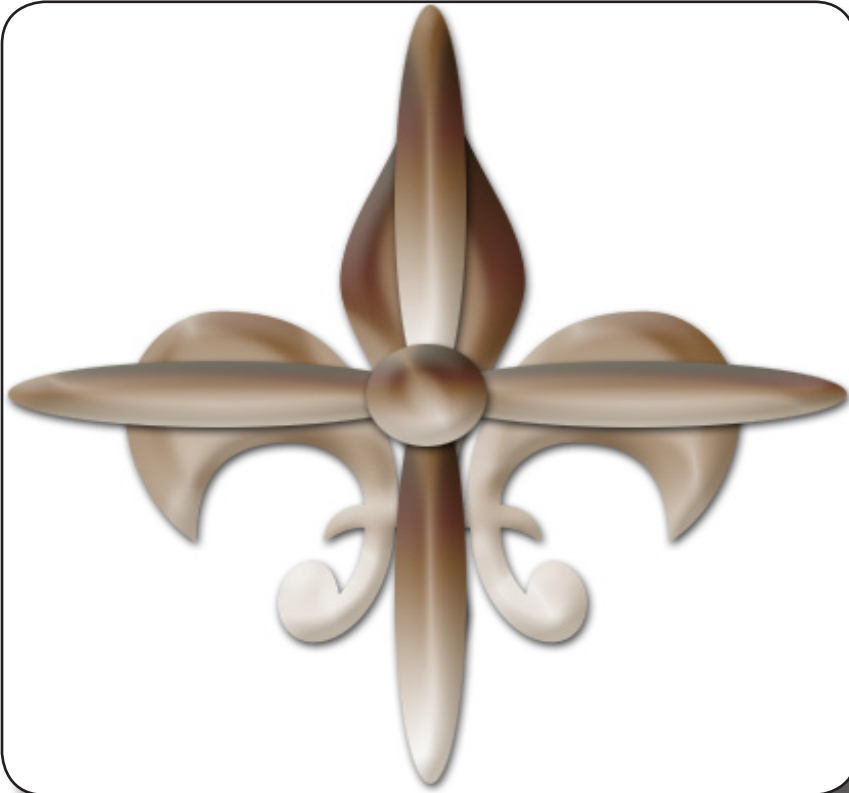
-EVGA 256-P2-N381-TX GeForce
6800XT 256MB DDR PCI Express
x16 Video Card

-Windows XP SP2

-FS9

RATING:





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