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From classics to cutting edge

Hello and a very warm welcome to the latest edition of *PC Pilot*, our second issue in 2026.

As I write this, Europe's biggest flight simulation event, FSWeekend, is just winding down in the Netherlands. The community participation seen at this show has gone from strength to strength in recent years and, as I mentioned in my editor's note this time last year, it's humbling and reassuring to visit a space with so many liked-minded people and see how healthy our hobby is in 2026. Our writer Mohamed Roushdy rounds up some of the most significant news announced at the event on page 64.

There's a theme of old and new this issue. We've got a full interview with the iniBuilds Tristar development team, who lift the lid on what it was like referencing a real Saudia L-1011 to create their stunning looking new product in MSFS 2024 (see page 28). We've also got a feature on the newly released classic ERJ Family 2.0, a significant upgrade on a popular regional jet for the X-Plane platform (see page 40). And we take a step back to the 1960s on page 36, as Joe Lavery reviews the Lockheed A-12 Archangel by Kwikflight, a marvel of Cold War engineering.

For the 'new', we have iniBuild's modern recreation of Hong Kong International Airport (VHHH) and some excellent hardware releases in the shape of Moza's AB9 Base and MH16 flightstick. Moza Racing's Flight Sim division has been going from strength to strength and has been bringing accessible force-feedback to the flight market. With some new product announcements at FSWeekend, we're excited to see what's next for them.

As always, please feel free to email me directly at jacob.little@keypublishing.com if you have any article suggestions, comments or anything you'd like to see more of in the magazine. This publication is for you, our community, so with so much happening in the flight sim world we always want to make sure we've covering topics that are of most interest.

Until next time, safe flying in the virtual skies.

Cheers,
Jacob Little
Editor-at-large



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Next Month

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Vector previews brand-new 787 development



A new development team called Vector has previewed screenshots and information on its upcoming Boeing 787 project, which is going to be created from the ground up for MSFS. The screenshots offer an early glimpse at what promises to be a highly detailed long-haul addition to the sim, highlighting a strong focus on cockpit fidelity, advanced systems depth and accurate flight modelling across the entire Dreamliner family. While still firmly in development, the project is already generating considerable interest, with a 2026 release anticipated.

Aerosoft A340-600 released



Aerosoft and ToLiss have joined together to release an Airbus A340-600, bringing one of the longest passenger aircraft ever built into the virtual skies. Designed with a balance between accessibility and depth, the aircraft features a fully modelled long-haul cockpit and cabin, detailed external modelling and a comprehensive suite of systems developed by ToLiss, which is well known for the accuracy of its X-Plane 12 Airbus aircraft.

SimWorks Kodiak now available for MSFS 2024



The popular Kodiak utility aircraft from SimWorks Studios has made the leap to MSFS 2024, bringing with it a refined package that takes advantage of the simulator's latest technologies. Known for its rugged versatility, the Kodiak is perfectly suited to bush flying and remote operations. This updated release includes improved flight dynamics, enhanced systems and visual upgrades that make it feel right at home in the most modern MSFS platform.

Boeing 777-300ER from FlightFactor

FlightFactor has announced the continuation of the 777 family for XP12, with the development of a Boeing 777-300ER as an addition to their successful 777-200 project. This marks a significant addition to the line-up, and early information suggests a detailed recreation of the aircraft, as you'd expect from this team, including an in-depth simulation of the systems that are unique to Boeing's largest twinjet. Given FlightFactor's track record in high-fidelity airliners, expectations will be high, with this variant opening up ultra long-haul routes in the sim.



CSS classic 737 updated



The classic Boeing 737 from CSS has received a fresh update, refining both its visual presentation and underlying systems. The latest version introduces improvements to flight modelling and avionics behaviour, alongside bug fixes and performance tweaks. SimBrief integration has been implemented, as well as crew sound packs that are customisable and a virtual crew and first officer. For fans of older-generation airliners, the update ensures the aircraft remains a competitive and enjoyable option within an increasingly modern sim ecosystem.

Bluebird Simulations releases new 757 trailer

A new trailer has been released showcasing Bluebird Simulations' Boeing 757, one of the most highly anticipated aircraft yet to be released in MSFS. The video offers a closer look at the aircraft's external modelling, cockpit detail and lighting, as well as hints at the level of systems depth being targeted. The 757 remains a favourite among aviation fans and this latest preview suggests Bluebird is aiming to deliver a highly faithful, detailed and visually impressive recreation.



Realops Ground Operations for X-Plane 12



We have GSX for MSFS and now we've got Realops for XP12. A new ground handling solution has arrived for X-Plane 12 with the release of Realops Ground Operations. Designed to enhance immersion on the apron, the add-on introduces dynamic ground services, realistic vehicle movements and interactive turnaround procedures. Custom profiles are adapted to popular add-on aircraft such as the Zibo 737. By adding a deeper layer to pre-flight and post-flight operations, Realops aims to bring a more authentic sense of airline workflow to the simulator environment with X-Plane.

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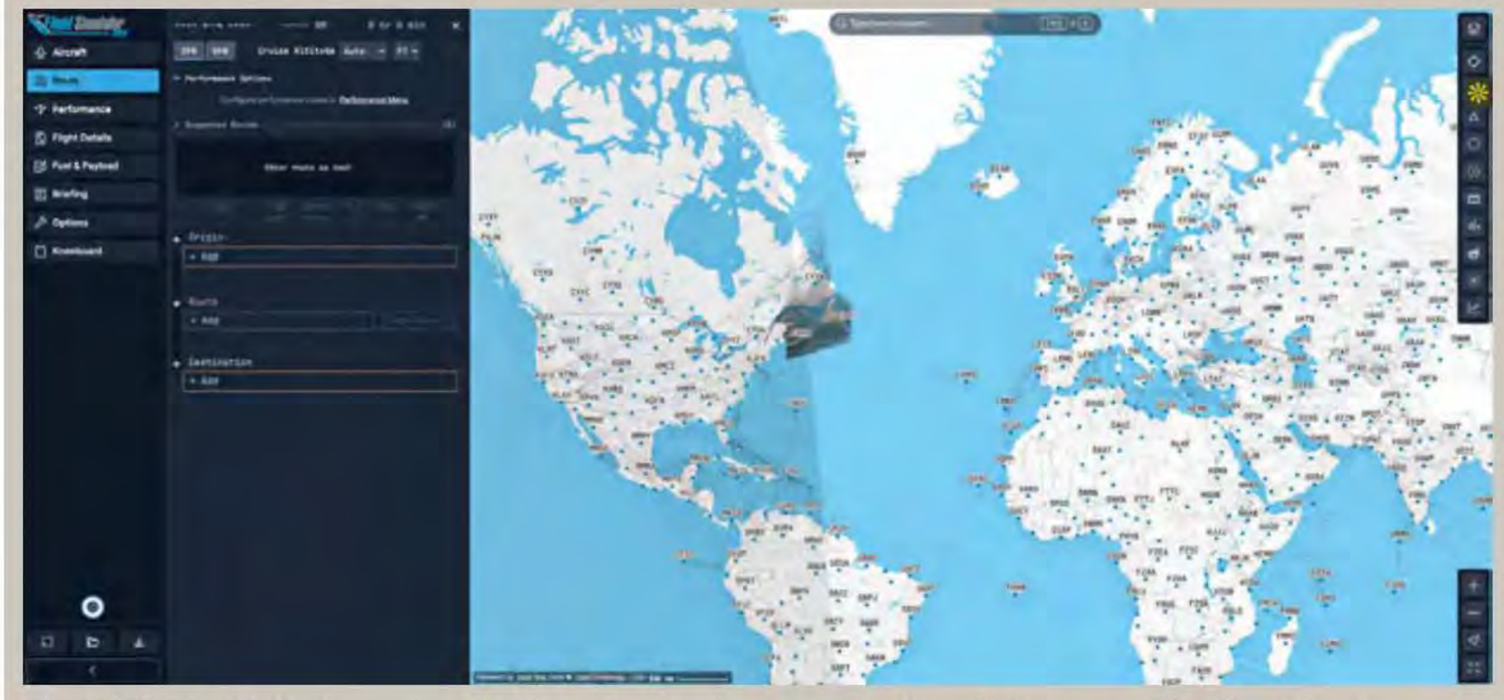
We would like to issue an erratum for the Xtreme Prototypes Learjet Model 25 CSE review, featured on page 28 of *PC Pilot* issue 161. In the header, we mistakenly used images of the old model that was released for Prepar3D. Some new pictures of the most current model are shown below. Version 1.01 is due to be released soon. You can find more information at www.xtremeprototypes.com



The Xtreme Prototypes Learjet

Flight planning in MSFS 2024

Dear Sir,
Maybe you could help me. I used to love FSX, as you could set up a flight easily. Now with these versions it is a pain. Could you ask how I get a flight plan on MSFS 2024? It is well hidden.
Regards,
Peter



The MSFS 2024 flight planner is available on the cloud, so you can plan a flight on your PC without the sim launched

Hi Peter,
Thank you for getting in touch.
The new Microsoft Flight Simulator has a different approach to flight planning that is incorporated in the in-built Electronic Flight Bag (EFB), but it can be a little tricky to find your way around. You can either set up your flight in the main free flight menu by entering a departure and an arrival then let it calculate your route for you, or you can do it once loaded into a flight by pressing 'Tab' and going to the flight planner. There is a lot more detail to the flight planning system now and it also allows you to send your route to the avionics suite and the GPS in the plane you're flying. You can even visit planner.flightsimulator.com online and create a route without loading the simulator. This guide is useful to consult: https://fsnews.eu/msfs-2024-flight-planner-guide/
I hope this helps.
Cheers,
Jacob

Storage concerns

Hi *PC Pilot*,
I'm fast running out of PC storage between the base simulator, world updates for 2020 and a growing collection of aircraft and scenery and I'm constantly having to juggle space on my SSD. Do I need to keep upgrading my storage or is there a smarter way to manage it? What should I look for if I'm purchasing new drives?
Many thanks,
Graham



It's worth upgrading to fast SSDs with at least 1TB of space for flight sim products

Hi Graham,
You're certainly not alone, as storage space has become one of the biggest practical issues in modern flight simulation. Despite MSFS 2024 relying far more on streaming from the cloud, juggling add-ons and multiple platforms means that space can fill up fast.

You can be selective about what you install and make use of add-on managers and flight sim shops to archive software. Most platforms now make re-downloading relatively straightforward, so you're not losing anything long-term.

It's also worth separating your simulator onto its own dedicated SSD if possible. These days, fast storage can be relatively affordable. Check that your motherboard supports it, but we'd recommend Gen4 NVMe M2 SSDs – 1TB should be enough, but if you can stretch to it 2TB gives you a lot of headroom. You should be able to pick up 2TB of storage at premium speeds (7,500MB/s or thereabouts) for about £200.
Cheers,
Jacob

Picking a platform

Hi there,
Perhaps you can help. I am re-entering the sim world for the first time since FS2004! There seems to be a baffling amount of choice, especially when it comes to what platform to choose and which add-ons to purchase. What are the pros and cons of each and how do I get set up and started?
Best wishes,
Harry


Re-entering the hobby in 2026 allows for plenty of choice!

Hi Harry,
Welcome back! The good news is that you've come back at a great time. Choice means there's lots of options and a good amount of competition, so quality has increased enormously. Each simulator has its own strengths and weaknesses. Put very briefly, if you're looking for graphic beauty and a realistic representation of the world, we'd opt for MSFS 2024 if your PC can handle it. If flying physics and accurate flight training is more your interest, there's no beating X-Plane 12.

In terms of getting started, we'd look out for deals on Steam (the game platform where you purchase titles) for X-Plane 12 – it's often on offer. Alternatively, you can sign up to pay monthly for Xbox Game Pass on PC, which allows you to access the standard version of MSFS 2020 and 2024 – that way, you can pay for a month or two and if you don't get on with it, simply cancel your subscription, helping keep costs lower.
Cheers,
Jacob

XP12 graphics

Hi *PC Pilot*,
I've been really enjoying X-Plane 12 and its enhanced graphics and weather engine since the more recent updates. However, I'm still not sure that I'm getting the best out of it – there appears to be lots of jagged edges and 'shimmering' in the distance. Is there anything you could recommend to fix this?
Best wishes,
Justine



X-Plane 12's recent updates have brought a lot to the platform and greatly enhanced its visual appeal and systems depths on aircraft such as the A330

Hello Justine,
Great to hear you're enjoying XP12 – it has come on a long way over the course of the last year or so, but it's a platform that does require a bit of tuning. You may not get rid of all the issue with shimmering you're seeing, but some tweaks go a long way.

We'd recommend heading over to YouTube to follow the content creator 'Q8Pilot'. He has just released an X-Plane 12 Complete Settings Guide 2026 + Q&A. It's also worth making sure you make some small changes in your overall graphics settings in Windows (in the Nvidia Control Panel or App) Adjusting rendering distance and shadow detail can dramatically improve visual fidelity, while keeping performance in check.

The good news with XP12 is that to get the best results you don't need to push everything to maximum. YouTube is the best port of call.

Let us know how you get on!
Cheers,
Jacob

SCENERY ADD-ON FOR MICROSOFT FLIGHT SIMULATOR

Jetstream Designs Geneva

Andrew Underwood heads into the mountains of Europe to close out the winter season

When considering new third party scenery for my MSFS collection, the destinations I choose generally fall into one of three categories.

Firstly, locations I have personally flown into or out of in real life, reliving holiday memories. Secondly, airports renowned for their dramatic terrain or for offering a particularly challenging approach. And thirdly, any newly released scenery that has usually been brought to my attention by fellow reviewers at *PC Pilot* magazine.

Today I am stepping slightly outside my usual selection criteria to examine my latest MSFS scenery acquisition: Geneva Airport by Jetstream Designs.

Although I am yet to visit Switzerland in person, the style of flying I am currently enjoying most in the simulator consists of narrowbody sectors across western Europe.



Landside at Geneva, showing an abundance of 3D detailing



An aerial overview of LSGG, looking from north to south, with the city of Geneva in the mid distance



The three circular satellite terminal buildings, connected via underground walkways to Terminal 1

Lake Geneva (or *Lac Léman* in French) is a waypoint I have crossed overhead numerous times at cruise altitude, yet it had never occurred to me to make it a destination in its own right. That changed while I was studying a continental route map and realised that Geneva marks a perfect central point among many of the other Nordic, British and Mediterranean third-party airports already installed in my collection.

A quick Google search led to the discovery of the highly rated Jetstream Designs Geneva International Airport that was released in September 2024. I promptly made my purchase and easily downloaded the 845mb install file through the Contrail app, which expanded to 2.51GB once unzipped into my Community Folder.



Airside at Terminal 1, the modelling of the jet bridges are brilliant and fully GSX compatible with an included custom profile



An apron overview, with FSLTL AI traffic really bringing Geneva to life

Destination Geneva

Geneva is situated at the western tip of the 73km long crescent-shaped Lake Geneva, at the far western edge of the Swiss Mittelland plateau. It is framed by the dramatic Swiss Alps to the southwest and the gentler Jura Mountains to the north, while the city itself sits in a distinctive enclave bordered by France on three sides.

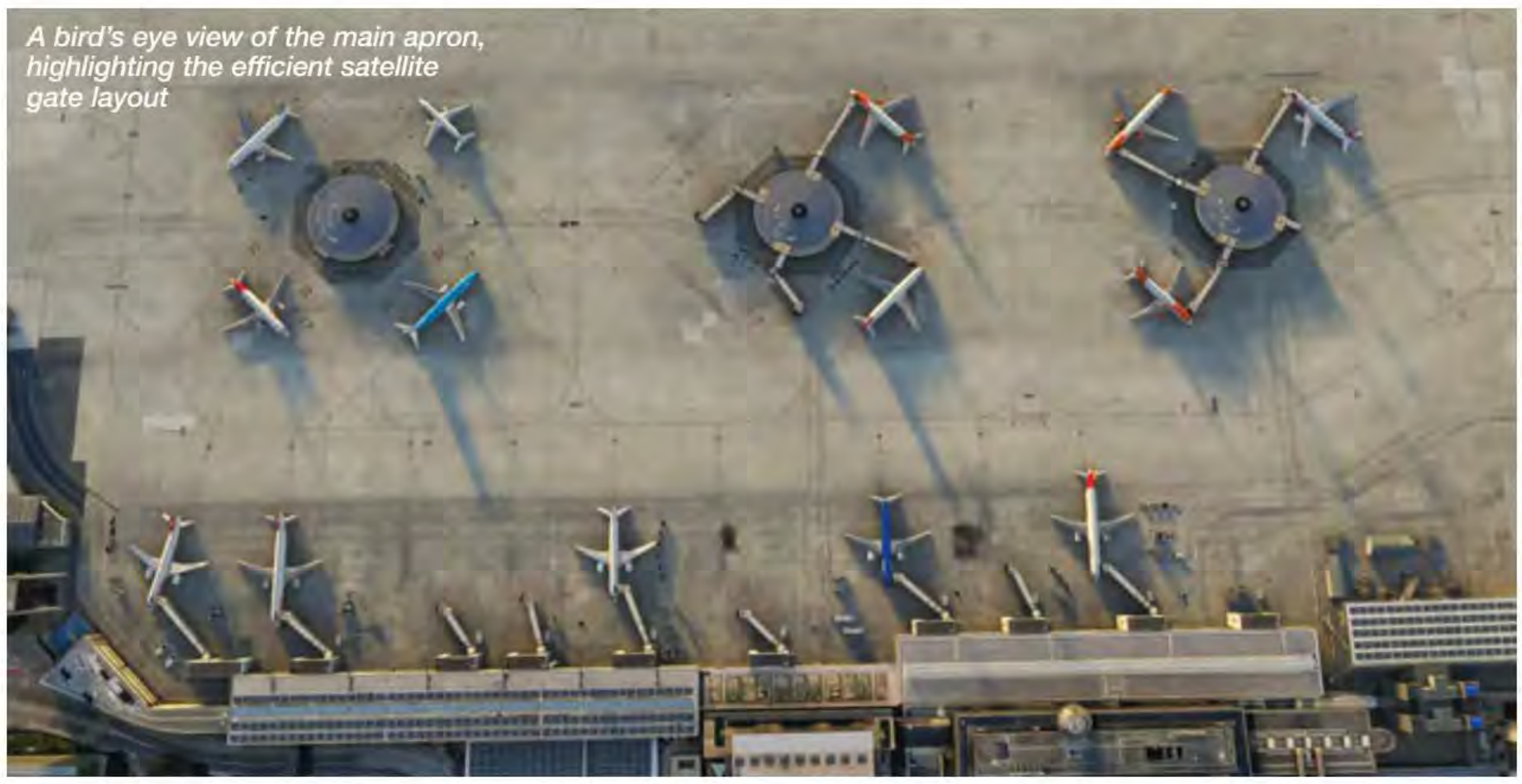
With a population of approximately one million across its wider metropolitan area, Geneva consistently ranks among both the world's most livable and most expensive cities! The urban centre is focused on the harbour at the point where the Rhône River flows out of Lake Geneva. A blend of medieval, neoclassical, and contemporary low rise architecture defines the cityscape, showcased brilliantly with the 'City Update 4' TIN photogrammetry.

Renowned for its history of international diplomacy, Geneva is home to the European headquarters of the United Nations, alongside the World Trade Organisation, World Health Organisation, and the International Committee of the Red Cross. In addition to its diplomatic reputation, the city is also renowned for luxury watch manufacture, private banking as well as the cutting-edge scientific research conducted at the CERN Large Hadron Collider.

Collectively these sectors sustain a consistent year-round flow of between 16 and 17 million passengers annually through Geneva Airport, located just 4km from the elegant lakefront promenades.

Cointrin Airport

Geneva Airport (ICAO: LSGG, IATA: GVA) unofficially known as Cointrin Airport to locals, is just 4km northwest of the city centre. Due to the prevailing south westerly winds, the airport operates with a single runway, oriented 04/22, that offers impressive scenery from the flight deck on either approach direction. An ILS approach and


A bird's eye view of the main apron, highlighting the efficient satellite gate layout


The air traffic control tower, which includes a basic 3D interior

RNP approach is available for both runway 04 and 22, with CAT IIIb available for Autoland on runway 22 in as little as 75m visibility!

In practice, runway 22 is usually favoured for landing, which means pilots often make their final approach over the turquoise glacier-fed waters of Lake Geneva, providing a striking aerial view of the city and surrounding mountains in good weather before the rubber meets the pavement at 1,411ft above sea level.

Commercial operations at the current site of Geneva Airport date back to 1919, with gradual enhancements to the runway and surrounding hangars over time to accommodate increasing traffic and larger aircraft.

In the present day, Terminal 1 handles most of the international and domestic passenger traffic with 19 nose-in gates spanning the airside length of the long terminal structure. Interestingly, three smaller circular satellite buildings are positioned mid apron and are connected via underground walkways. Each satellite provides several drive-in, drive-off gates with airbridge access, allowing efficient boarding and disembarkation for aircraft parked away from the main terminal.

Terminal 2 is smaller, and used seasonally, typically for charter flights or to increase T1's capacity during peak travel periods. A business aviation terminal, (Terminal 3) is found at the far south western end of the airport, catering specifically to private and corporate aviation. A cargo apron is located at the north eastern corner, adjacent to the huge Palexpo convention centre halls that dwarf the surrounding airport hangers. On the opposite side of the runway, the North Apron is home to both the Dassault Aviation Business Services FBO and Aéroclub de Genève.

Swiss International Air Lines, easyJet Europe, and Jet2 are the primary airlines serving Geneva, along with a host of other flag carriers and low-cost competition. London, Paris, Porto, Lisbon and Amsterdam are statistically the busiest route pairings, although my personal favourite hop to fly in the sim is easyJet's Geneva – A Coruña flight route. (LECO is included as a bespoke airport in the free Iberia world update and well worth a visit!)

Jetstream Designs Scenery

The developer touts that the scenery was created with the direct assistance of Geneva Airport management, who enabled extensive on-site photo sessions. The result is an impressive recreation of the entire terminal complex, down to the individual rooftop air conditioning ducts, the chairs, tables, and decorative foliage on the Panorama Terrace, and even each 3D bollard in the landside drop-off lanes.

Interiors for Terminals 1 and 2 have also been included, featuring a mix of static and animated passenger models that are visible through the large, slanted glass façades. While the internal detailing and texturing inside don't quite reach Pyreegue's level for example, they sufficiently create a convincing sense of depth and activity when viewed from the flight deck perspective, in stark contrast to the empty, bland default airport terminal models.

Additional immersion is provided by animated airside traffic – one of my personal favourite touches when it comes to bringing large airports alive within the sim. Appropriate liveried passenger busses, maintenance vans and baggage cart tractor trains can all be found driving along predetermined tracks. Their motion, combined with the sight and sounds of AI aircraft taxiing past, and airbridges beeping away in the background really helps convey the same lively vibrance one would expect to experience at a busy international hub like Geneva.

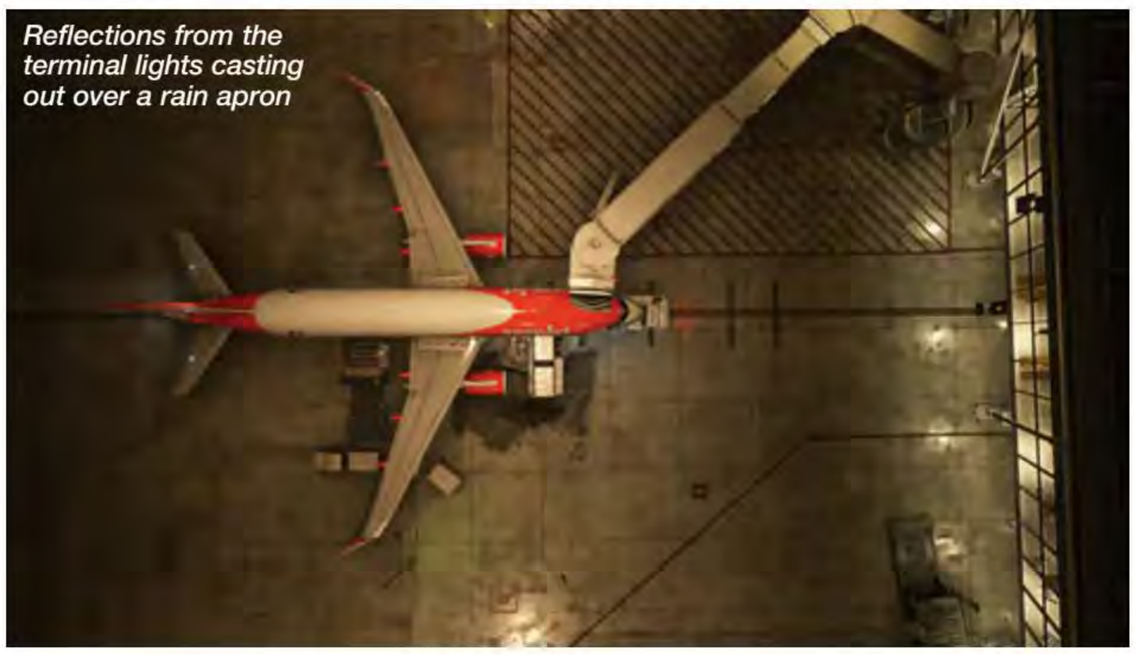
Appropriate airside clutter such as parked baggage carts, mobile passenger stairs,


Basic 3D terminal interiors are included, with this view showing one of the satellite gate departure lounges


A view along the apron on a warm summer's evening, showing a mixture of widebody and narrowbody visitors



The view from the flightdeck towards the terminal on a rainy evening, with the emissive lights from the ground vehicles reflecting off the PBR apron textures



Reflections from the terminal lights casting out over a rain apron

cargo ULD stacks and snow ploughs further add to the authenticity, appropriately stickered in local branding when zoomed in on with the showcase camera.

Static business jets are parked at the general aviation FBO ramps too, which can be switched on and off through the scenery Configuration page in the Contrail app to improved performance if desired. All models appear to be well optimised with several LODs depending on distance from the user's camera position however, and I found no need to deactivate any scenery elements myself.

Fully functional Visual Docking Guidance Systems are included for every stand, and realistic 3D snowbank buildups will even appear in the winter months given the right weather conditions.

A custom-built GSX profile has been included for users of the software (a must-have in this day and age for realistic ground handling), which needs to be manually copied into ones Virtuali profile directory.

Night lighting could also be mentioned as a feature in its own right. The first time I loaded the scenery after installation was on a dark, rainy evening. The reflections of the terminal building into the water puddles atop the PBR apron textures, combined with the immersive glow from the lighting towers across the bustling apron created a real 'wow factor' moment. I've been keeping an eye on Geneva's weather forecast for miserable conditions just to experience that atmosphere again with the sim's real world weather engine.



Appropriate clutter makes the airport feel an authentically busy

The groundplate ortho textures vary in quality, with the landside roads noticeably lower in resolution than the airside areas. Even the apron and grassed sections aren't quite as sharp as some of the other recent scenery releases, though this is really splitting hairs when inspecting them up close with the drone camera. Overall, the apron markings represent a significant improvement over Asobo's default version, with occasional oil and grime build-up further enhancing the realism of the on screen scene.

Conclusion

I'm thrilled to have discovered another high spec airport to fly to on a regular basis in MSFS. In my opinion, Jetstream Design ranks alongside Aerosoft's Mega Airports in terms of overall immersion, which until now have been my hands down favourite destinations to fly to.

My only grievance is it has taken me until early 2026 to find this version of Geneva! Needless to say, I'll be making up for lost time flying the Fenix A320 in a certain vivid orange paint scheme in and out of Cointrin Airport for the rest of the year. I'm especially looking forward to experiencing the airport transform across different seasons, as the Alpine environment offers such dramatic variation as the months change.

PCP

By Andrew Underwood



Snowbanks appear adjacent to the taxiways when appropriate environmental conditions are present

Review System

Platform: MSFS 2020
Processor: AMD Ryzen 7 5800X
Graphics: NVIDIA GeForce RTX 4070 (12GB)
RAM: 32GB DDR4 RAM
Hard drive: Samsung 970 EVO 500GB SSD, Crucial BX500 1TB SSD

PC Pilot Verdict

At a glance: Splendor in Switzerland. A top-quality airport that is overdue a review!
Developer: Jetstream Designs
Distributor: Contrail, SimMarket,
Price: €19
Website: www.jetstream-designs.com/lsgg-for-msfs
Score: 85

Western Sydney International Airport

A new era dawns down under



After: an aerial overview of Western Sydney International in its Phase 1 completed state

Sydney is Australia's largest city and the state capital of New South Wales. For most readers, the city's name instantly conjures up images of the famous white-shelled Opera House, the coat-hanger-like steel arches of the Sydney Harbour Bridge, or the relaxed beachside surfing culture.

The city is a hub for business, tourism, and sport and home to a population of 5.3 million residents, with the urban sprawl stretching some 60kim inland from the sands of Bondi to the foothills of the Blue Mountains. The demand of commercial aviation here has always been strong, however the city's continued growth, coupled with geographical and regulatory constraints, has long presented significant challenges for its aviation sector.

For more than a century, Sydney Kingsford Smith Airport (YSSY/SYD) has served as the city's primary aerial gateway. (Represented brilliantly in MSFS by FlyTampa I should add). Built on the shores of Botany Bay, just 5km from the downtown skyscrapers, it operates under a strict noise curfew between the hours of 11pm to 6am due to surrounding residential suburbs that have steadily encroached on three out of four sides of the airfield over the last 100 years.

Badgerys Creek

Badgerys Creek, a rural district at the south-western urban fringe, was identified as the preferred site for a secondary airport as far back as the 1980s. Although land acquisition commenced in that decade, development progress stalled soon after, with the powers that be of the time deciding that construction of a third runway on reclaimed land at Kingsford Smith Airport was a preferential capacity solution.

An inevitable steady upward trend in passengers arriving and departing YSSY saw the federal government dust off their second airport project plans once again in the early 2000's, culminating with ground finally being broken on site in September 2018 after several revisions.

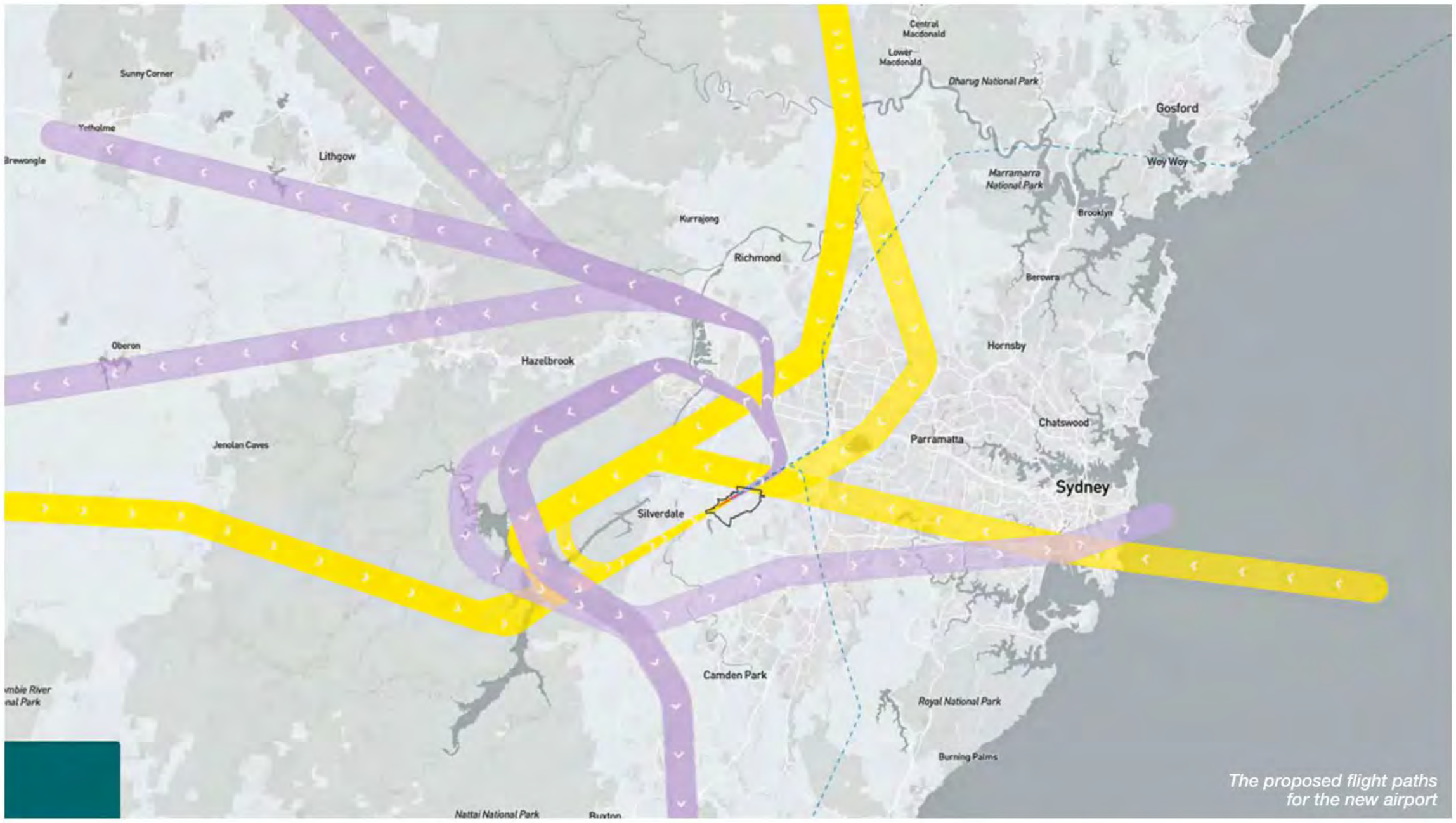
The new airport has been officially designated Western Sydney International Nancy Bird Walton Airport (ICAO: YSWS, IATA: WSI), named after the famed Australian Aviatrix who was the youngest female pilot to gain a Commercial Pilot's Licence in the British Empire. Interestingly, Charles Kingsford Smith, the namesake of Sydney's other airport was Nancy's flight instructor back in the 1930s!

Being a greenfield development, construction has been carefully staged to meet projected demand with space specifically allocated for future expansion. Initially the complex will contain a single 3,700m runway, with a combined 13 airbridge domestic and international terminal, capable of handling ten million passengers a year.

Provision exists for a parallel second runway

Before: Badgerys Creek as seen with the current Asobo ground aerials, a big messy construction site

www.Key.Aero



The proposed flight paths for the new airport

and expanded apron and terminal which will wrap around to the south of a centrally positioned public transportation hub. An eventual capacity of approximately 82 million passengers per year is expected by the 2060s, with WSI destined to eventually become Sydney's primary airport.

A key advantage of WSI from its inception, however, is that unlike its coastal counterpart, it will operate without a curfew, enabling continuous 24-hour use of the facilities under development from day one. This will be of particular benefit to the airfreight industry which often operates through the night, with a large, dedicated cargo complex located close to the runway 05 threshold.



Looking down on the solar panel covered 678,000 square metre terminal roof

The airport

As one would expect with a modern airport design, the four level terminal build has been engineered for an efficient and enjoyable passenger experience with wide concourses, light-filled atriums, and easy to navigate domestic to international transfers under one ginormous roof. Aesthetically, the architecture reflects local heritage and landscape by incorporating sandstone textures, native landscaping elements and regionally inspired motifs within the contemporary structural form.

The airport is home to Australia's first fully digital air traffic control facility, replacing the traditional manned tower cab with a high-resolution remote camera array. Sustainability initiatives include large-scale rooftop solar panel arrays, rainwater harvesting mechanisms, and taxiway layouts optimised to minimise taxi distances and reduce ground emissions.



The state-of-the-art digital control tower replacing the traditional manned cab



The main apron, featuring 13 gates, and showing several static traffic models in situ

Community opposition

There has been a fair amount of controversy surrounding the proposed flight paths to and from the airport, after planned SID and STAR tracks were publicly proposed to the surrounding city fringe residents in 2015. The original plan was for WSI to operate with a completely independent set of air routes, avoiding shared waypoints with SYD. To facilitate this, a waypoint positioned above the Blue Mountains township of Blaxland was designated as the primary convergence point for both arriving and departing traffic.

Community resistance to the proposal was significant, largely driven by aircraft noise concerns, and its eventual abandonment became a key commitment by Western Sydney politicians during election campaigns. A revised indicative flight path map now shows arrivals joining in a wide downwind pattern overhead the Warragamba Dam and Lake Burragorang in the Blue Mountains wilderness before turning back towards the runways. Departures follow a similar flow, climbing overhead the same waterways before tracking south east over bush clad national park land to minimise engine noise for residents living in close proximity to the airport.

The Drzewiecki Design treatment

From the outside, it appears to be a rather unusual decision for a flightsim developer to release MSFS scenery for an airport that is not yet fully operational. Nonetheless Drzewiecki Design had the right industry connections to make it happen, sourcing drone-captured orthomosaics for the high-resolution ground plate, and architecturally accurate schematics to create remarkably detailed renders of both the interior and exterior of the 678,000m² terminal building.

Performance friendly level of detail optimisations have been used throughout, with the interior detail including animated escalators, elevators, baggage conveyors and passengers. Outside, custom jetways, static aircraft, apron clutter and an appropriate minimal level of surface wear create convincing ramp ambience. Full PBR materials gives the airport scenery the fresh, newly constructed character of the real-world facility, contrasting noticeably with some of the heavily used and abused aviation hubs around the virtual world.

Dynamic lighting deserves particular mention, seeing as WSI has been designed to operate 24 hours a day. Night operations benefit from carefully tuned apron floodlighting, high contrast centreline lighting, and 3D light pole arrays arranged for the REIL systems at both ends of the main 05/23 runway.

Animated metro trains, along with appropriate clutter landside and airside, add to the atmosphere, along with subtle ambient audio recordings that fade in and out as one roams around the complex with the showcase camera. One detail I did notice was the absence of moving airside vehicles, which is typically one of my favourite features for enhancing immersion. The first impression is crisp and fresh overall, with the vast expansive aprons and clear bold lines creating an unmistakable 'brand new airport' feel.

Airlines & destinations

While the official opening is not planned until October 2026, a light aircraft did carry out an emergency landing on the earthworks at the construction site in December 2020, marking the airport's first official arrival. The first planned landing occurred on October 2, 2024, when a Piper Twin Comanche conducting lighting calibration flights touched down as part of the test programme.

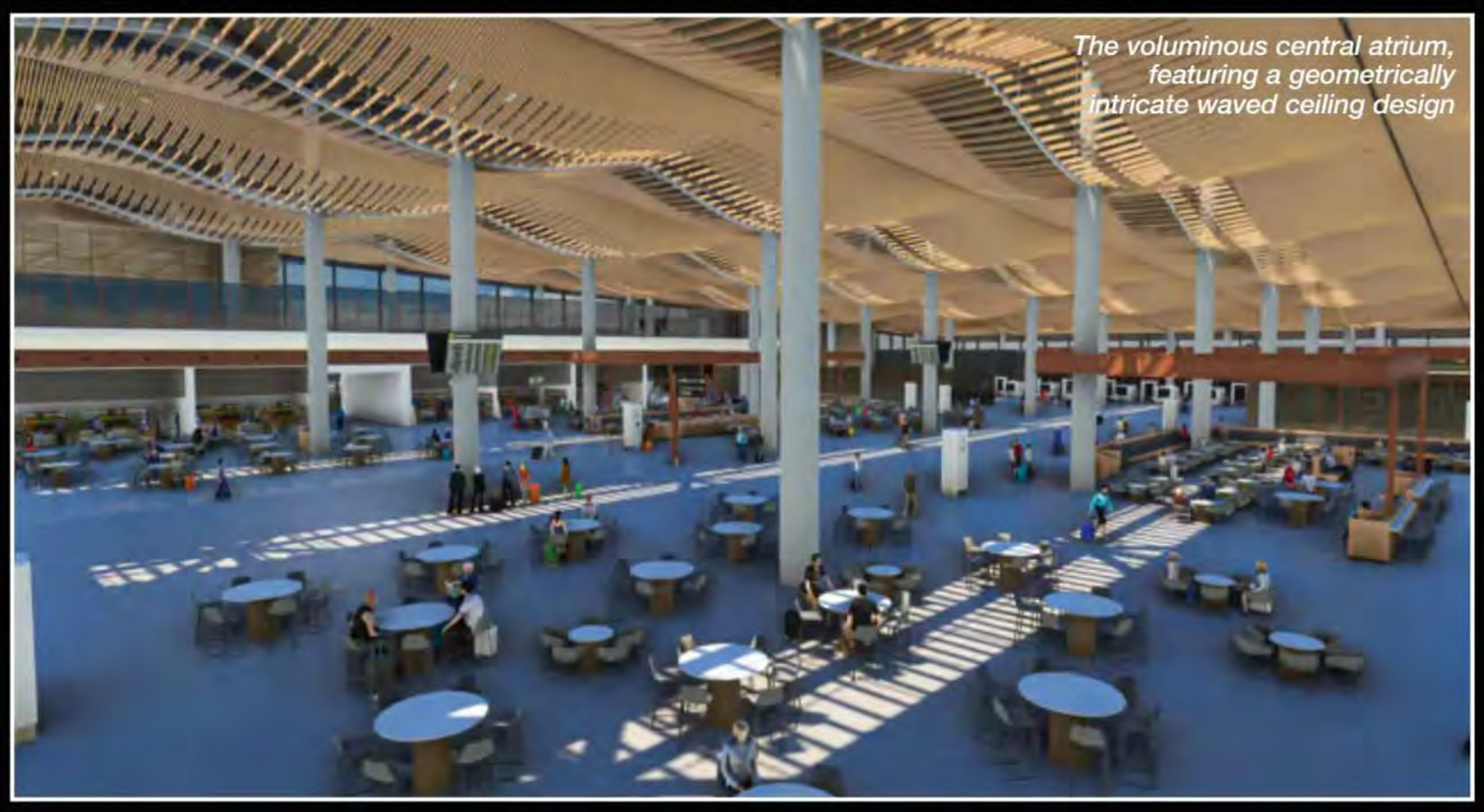
Qantas and Jetstar have publicly committed to serving WSI domestically with routes to Brisbane, Gold Coast, and Melbourne. Air New Zealand and Singapore Airlines have also announced future international services



Airside on the apron, with sharp markings and an immaculate surface conveying that new airport feel



The grand glass façade, landside at the entrance to the passenger terminal



The voluminous central atrium, featuring a geometrically intricate waved ceiling design



Down at the dedicated freight apron, with round-the-clock cargo operations being a major drawcard of WSI

to WSI between Auckland and Singapore Changi respectively.

As it happens, Sydney-Melbourne is historically one of the world's top ten busiest flight routes, with the Trans-Tasman connection between Sydney and New Zealand being heavily competitive too. The arrival into Sydney, regardless of which airport you touch down at, is stunning from the flightdeck on a clear day, with the sea, harbours, cityscape and mountainsides a treat to see after lengthy oceanic or outback desert crossings.

A Unique opportunity for simmers

For the simulation community, Western Sydney International offers something rare, the ability to operate into a major international airport from day one of its real-world life cycle. As navigation data is progressively published and airlines begin scheduling inaugural services, sim pilots equipped with up-to-date AIRAC cycles and a capable AI traffic package such as FSLTL will be able to replicate those same sectors on the very day they launch in reality.

That immediacy is compelling. It allows virtual aviation to mirror real-world developments in real time, something seldom possible due to the nature of major established hubs. That being said, until NavBlue/Jeppesen publish the procedures to be used at WSI, there's nothing to load into one's FMS, making the airport purely visual approach and departure territory for the time being. Likewise, when using accurate real world AI traffic, no aircraft should appear alongside you – fortunately Drzewiecki have included some high-quality static airliners in appropriate liveries on the apron to make it feel a little less lonely!

Verdict

Drzewiecki Design's Western Sydney YSWS is more than simply another airport release. It represents a sneak peek of Australia's newest major aviation gateway before the public even get to see it. And it just so happens to be a meticulously crafted rendition offering countless hours of future enjoyment.

For those with an interest in Australian operations, new long-haul routes, or simply modern airport design, this scenery delivers both technical quality and a sense of participating in aviation history as it unfolds. **By Andrew Underwood**

PCP

Review System

Platform: MSFS 2020 (MSFS 2024 Compatible)
Processor: AMD Ryzen 7 5800X
Graphics: NVIDIA GeForce RTX 4070 (12GB)
RAM: 32GB DDR4 RAM
Hard drive: Samsung 970 EVO 500GB SSD, Crucial BX500 1TB SSD

PC Pilot Verdict

At a glance: A sneak peek at Sydney's brand new international airport
Developer: Drzewiecki Design
Distributor: Contrail, iniBuilds, Orbx, SimMarket, Aerosoft, JustFlight
Price: £15.99
Website: www.drzewiecki-design.net/prodYSWS_MSFS.htm
Score: 80

Airside at the terminal after dark, under the welcoming glow of the terminal lighting stacks



The stairway crew helps me out at Sea-Tac in Washington State

THE EXPANDING World of GSX Pro

With several large updates, Len Hjalmarson talks us through some latest developments to enhance your ground operations

I don't know how long GSX has been integral to the flight sim universe. I only know that anthropologists claim evidence of Nero complaining that passengers were misaligned on a jetway while boarding a flight from Rome to Paris! On a serious note, GSX was very popular for the crowd flying FSX, so it's not surprising that it's equally popular in 2020 and 2024.

I've been running GSX since I began a dedicated interest in the commercial airliners, and in that approximately three years I've seen huge improvements and expansion of the product. Gate operations would not be the same without it, and the immersion provided by detailed pushback procedures, animated passengers on jetways or at walk-in gates, crew who push stairs to aircraft doors, baggage handlers loading suitcases bag by bag, crew animations for fueling operations, de-icing procedures, freight services for the heavies, catering and cleaning, and seated passengers, etc… it just seems to go on and on!

Consider that many of these services come in specific 'flavours' for hundreds of unique operators, and that many of the services have multiple variants (think pushback tugs and stairway types and bus variants for passengers); it's tough not to be impressed. And with recent releases, the GSX Pro world has expanded in important new ways. So, let's talk about these new features and changes.

GSX integrates with a growing list of aircraft and with SimBrief, so be sure you check out



The cleaning crew at work



Bring on those sandwiches!



Loading that freight by night – atmospheric!

your cfg options for your favourite airliner. It will streamline some functions, like freight and fuel and pushback. And GSX will add passengers to almost anything, so if your mount of choice didn't support them natively, you might still be able to add them. The main configuration screen is accessed in game, and you have a number of choices to consider. The timings screen will also need your attention.

GSX works with at least two critical co-ordination points: the gate and jetways and the aircraft. Both points are configurable by you the user, and when you purchase an add-on, whether aircraft or scenery, it will either come with a GSX configuration attached or someone out there will be making one. Or you can build your own, as many of us have done. And the good news is that it just became much easier.

The extensive PDF manual that accompanies GSX Pro dedicates a lot of space to end users and developers. That's been helpful, because there is a LOT you can do with GSX as the user end. But the interface was kludgy and awkward, until a new interface arrived that makes gate configuration much easier, with visual aids. The GSX world now overlays the airport map, and this suddenly solves all kinds of spatial orientation issues, making placement of service vehicles, customisation of pushback trails and aircraft parking orientation a simple affair. You can even edit operators per gate, so I added WestJet to BIKF now that they fly directly to Iceland. But even for those who will never edit a gate or create a pushback route, the map function has changed GSX forever.

The most common map use will be when you have landed at your destination, and you ask GSX for your gate. Previously you could select your gate from a list, but with no idea where that gate was located on the airport. Now, you can select Additional Services on the menu and then pull up a map that shows the entire airport, indicating exactly which gates will fit your aircraft. If you are running a traffic manager like FST or BATC, you will even see which gates are currently occupied or empty. Then you can choose from a larger list of options and turn on Progressive Taxi, call a FollowMe vehicle, or simply warp to the parking spot. AI already occupying your spot? Click the option to remove it. Then follow that wildly painted truck to your assigned gate. The FollowMe function works well, and there are some configuration options you can select in the Setup. If you have dual monitors, you can run the map on your second display. Put it next to the Beyond ATC interface, that will work!

That's still not the limit. You can overlay OpenStreet, Google Maps, Bing Maps, or Navigraph if you have a subscription. I added Google Maps with the API key, a process that GSX makes quite easy. So now my airport map is situated in the real FS world. And you can view the map in-flight and change your gate assignment if needed, so GSX is ready to go when you arrive.

I admit to being bothered about seeing stairs wheel themselves to my A330 rear door, and a recent update solved that one by adding a well-paid, well-dressed agent to handle the grunt work. What surprised me was how detailed the animation was. These bots use their phones, sit, stand, walk around, call their girlfriends, gawk at the aircraft entering the near gate and who knows what else? They are very life-like – and this brings me to a broader appreciation of GSX Pro in that it feels very artistic. Take a closer look at the baggage train, the luggage, the catering truck, the pushback tugs and the fuel truck. Watch your Fedex flight loading at dusk, with the rotating



Push-me-pull-you and get me on the taxiway. Plenty of detail here



Follow me and I'll get you to that gate



I'll take 1,000 gallons of super please



Details, details one bag at a time will do it



Aegean all aboard at EGLC



Adding a new pushback



Driverless tug

clearance lights flashing across the aircraft and loader. Notice those folding doors on the passenger bus. Check out the cost of the fuel you just loaded on the fuel truck pump, or watch the passengers leave the terminal and follow the painted route to the stairs. Notice their variety: the ages, the clothing, the variation in gait. Imagine how many hours went into this obsession with detail. You have to hand it to them: GSX adds a whole world of detail to MSFS and it's tough to imagine an on the ground airport experience without it.

The other big change to GSX was the addition of a cleaning crew. It wasn't exactly an addition I was waiting for, but it was well executed, as are all the additional services in the GSX library. The crew varies in sizes depending on the aircraft you are piloting, and they are nicely animated and seem efficient in their tasks. Feel free to watch them while you eat your sandwich, assuming you are finished programming the flight computer and checking the METAR. And don't worry, if your gate has a jetway, the cleaners will arrive by van and use the rear stairs.

The final new item is the new Mototok driverless tug. The airport profile must include



Don't forget GSX configuration

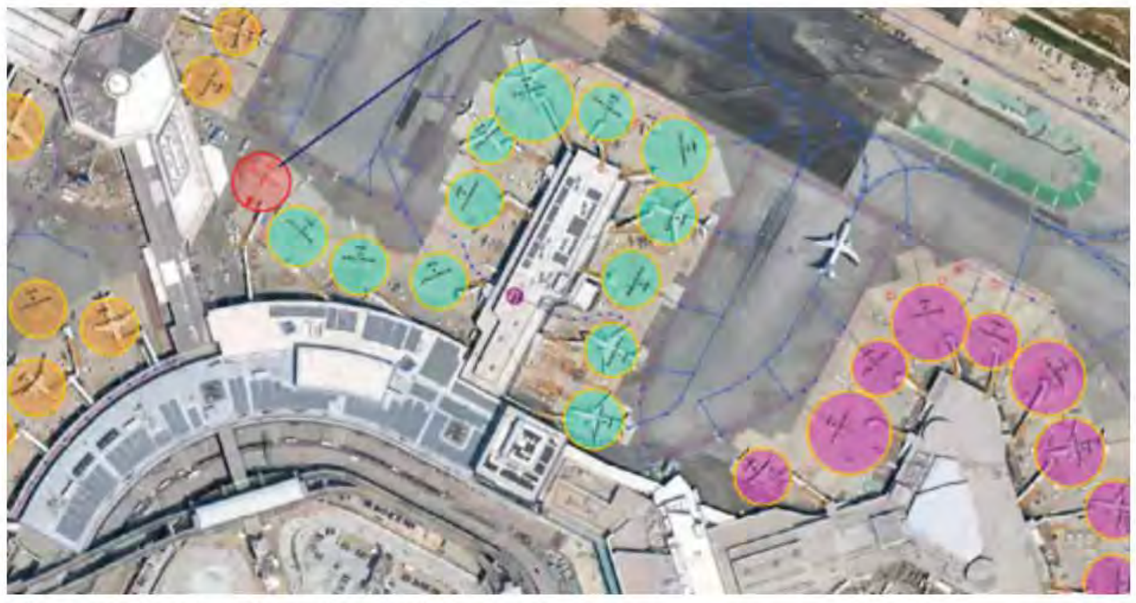
this option in order for it to appear, but as usual with GSX you can add it to any gate you choose. So, if it happens to be missing at an airport where it should be an option, you can always add it with the profile editor. I've created many airport profiles as I like to see an orderly arrangement of service vehicles at the gate, and I like to see walkers through the glass while I'm sitting in the cockpit – easy to add with the parking editor. With the new editing options, all this work just became much easier, so expect to see more and better profiles for download in the future.

Do I still have quibbles about GSX? I have a few. I wish the rear luggage train wouldn't drive through the front one! It doesn't happen every time but it's distracting when it does. The FollowMe vehicle seems to arrive at 80kmh and sometimes takes corners like an alien object. Tugs and other vehicles sometimes appear to struggle to find a path and then do odd, jerky, jazzy motions to get oriented. But overall, GSX remains one of those must-have add-ons, like Beyond ATC has become for me too.

Any expansion of this breadth and complexity will find something to criticise. There appears to be a handful of pilots who continue to struggle with GSX Pro. Sometimes I just set things in motion and sit in a drone view watching the gate operations, marveling at the state of the MSFS world with GSX doing its thing. I'd be struggling without it. GSX keeps on getting better and is worth the investment. If you've been hanging back waiting for that perfect time to try it out, I think fate has caught up with you and the latest updates have improved it dramatically. Boarding in 20 minutes. Happy flying!

By Len 'Flightdoc' Hjalmarson

PCP


The new map in GSX with Google Maps overlays



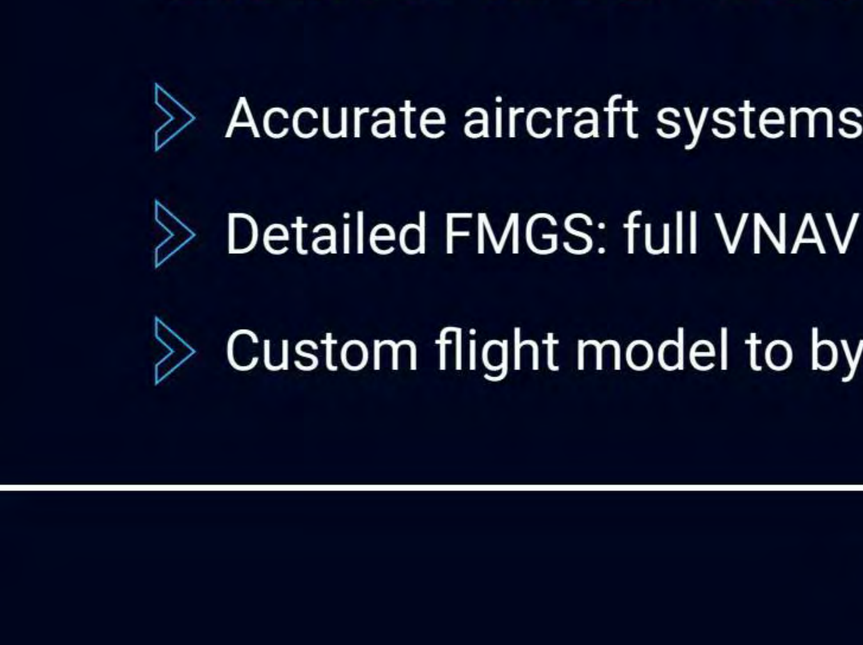
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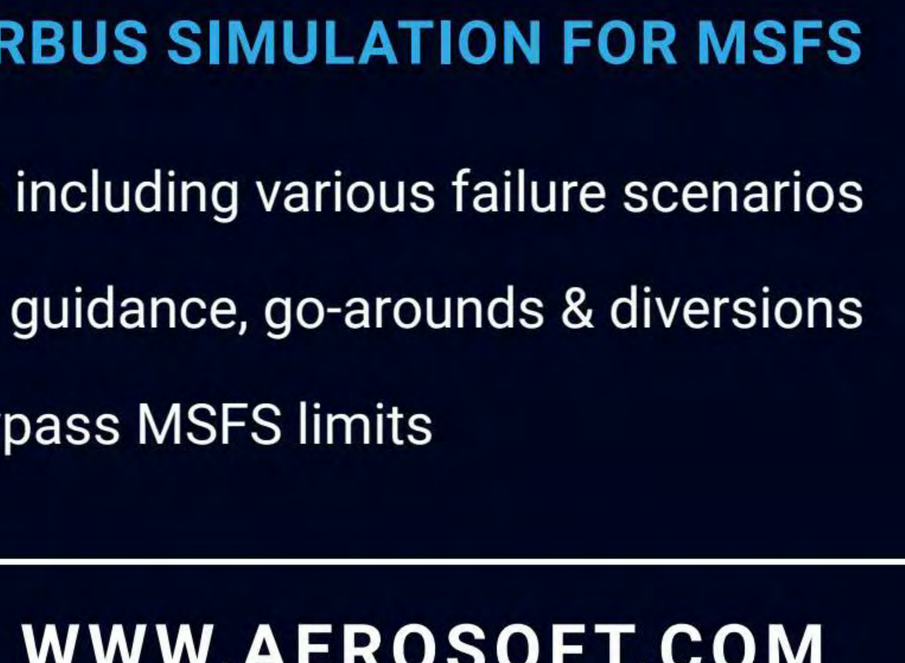
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Departing from SARP

VFR SCENIC FLIGHT:
Following Paraná River to Iguazú Falls

Continuing our series of magnificent landscapes to explore in far-flung parts of the world

There's something magnificent about following a river to one of nature's greatest spectacles. VFR Scenic Flights continues its journey across breathtaking landscapes, and this second article takes you along Argentina's Paraná River corridor to Iguazú Falls — 275 waterfalls thundering at the junction of Paraguay, Argentina and Brazil.

The Misiones Province Route

This article covers the 103nm flight from Posadas to Cataratas del Iguazú following the Paraná River through subtropical rainforest. Flying VFR throughout, you'll sharpen pilot skills while navigating towards one of the most beautiful falls in the world.

This route flies through Argentina's most fascinating cultural melting pot. Misiones Province takes its name from the Jesuit missions. After the Jesuits' 1767 expulsion, the region remained sparsely populated until late 19th-century immigration brought waves of Poles, Ukrainians, Germans, Swiss, Swedes, and others seeking agricultural land.

Today, Misiones produces 90% of Argentina's yerba mate (Paraguayan tea) and extensive forestry products. The provincial motto *Argentina diferente* (Argentina different) reflects unique cultural identity — more in common with southern Brazil and Paraguay than with Buenos Aires 1,100km south.

Iguazú Falls gained international fame gradually. Spanish conquistador Álvar Núñez Cabeza de Vaca became the first European to document them in 1541, describing "a waterfall terrible to behold". The area remained largely inaccessible until the early 20th century. Argentina established Iguazú National Park in 1934; Brazil created Iguaçu National Park in 1939. UNESCO designated both World Heritage Sites — Argentina in 1984 and Brazil in 1986 — recognising not only the falls but also surrounding Atlantic Forest biodiversity. Today, approximately 1.5 million tourists visit annually, roughly equally split between Argentine and Brazilian sides.

Pre-planning

As any good virtual pilot knows, successful flights begin on the ground. Load Microsoft Flight Simulator (MSFS) built-in VFR map or LittleNavMap for detailed planning. Posadas Airport (SARP) operates within a Controlled Zone (CTR), requiring contact with Posadas Tower for taxi and departure. As you head north, you will mostly fly through uncontrolled Class G airspace over the Misiones rainforest, where you are responsible for your own separation. Finally, as you approach the falls, you will enter the Iguazú Terminal Control Area (TMA), transitioning back into controlled Class D airspace for your arrival at Cataratas del Iguazú (SARI).

Posadas to San Ignacio measures 036° true. Apply magnetic variation (approximately 14° west in MSFS 2020), giving 050° magnetic. Don't forget wind correction: with winds 090° at 10kts and 110kts true airspeed in a single engine aircraft, you'll need roughly 3° left correction (047° heading) with groundspeed increasing to 116kts.



Lago Urugua_i


Eldorado


Landscape

Distance and times:

- Posadas to San Ignacio: 24nm at 116kts = 12 minutes
- San Ignacio to Eldorado: 50nm at 116kts = 26 minutes
- Eldorado to Wanda: 10nm at 116kts = 5 minutes
- Wanda to Devil's Throat: 16nm at 116kts = 8 minutes
- Devil's Throat to SARI: 3nm at 116kts = 2 minutes
- Total distance: 103nm with estimated flight time of 54 minutes cruising

At 9 gallons per hour, budget 8 gallons for flight plus 5 gallons reserve, total 13 gallons in a Cessna 172 Skyhawk.

Departure from Posadas (SARP)

Libertador General José de San Martín Airport sits 7.5km southwest of Posadas city centre in Misiones Province. The airport features a single asphalt runway, 02/20, measuring 2,600m (8,530ft), comfortably handling regional jets. At just 428ft elevation, performance is excellent even on warm subtropical days. Check Automatic Terminal Information Service (ATIS) (if available) or estimate winds from the windsock near the terminal. There is custom scenery available: check the addon 'SARP Aeropuerto de Posadas Libertador General José de San Martín' in flightsim.to

After departure from runway 02, maintain heading and climb to 2,500ft. The mighty Paraná River dominates the landscape ahead — one of South America's greatest waterways, flowing 4,880km from Brazil to the Río de la Plata.

In MSFS, terrain appears a distinctive reddish-brown colour cutting through dense green forest which is unmistakable even from altitude.

Note your departure time (say 0915hrs). The Paraná River becomes your primary navigation reference — it flows northeast precisely along your route to Iguazú. Following rivers is pilotage at its finest: nature provides a chart you cannot misread.

San Ignacio

At 12 minutes (0927hrs), San Ignacio appears, a small town distinguished by its geometrically precise Jesuit mission ruins. Founded originally in 1610, relocated in 1632, and settled at its current location in 1696, San Ignacio was one of 30 Jesuit missions established to protect Guaraní indigenous peoples from slave raiders. At its peak around 1715, 3,000-4,000 Guaraní lived here under Jesuit guidance, creating a sophisticated society blending European and indigenous cultures.

Today, UNESCO-listed San Ignacio city features remarkably preserved red sandstone walls, visible as a distinct geometric pattern against the forest. MSFS 2020's photogrammetry captures the layout beautifully.

If San Ignacio appeared on schedule, your navigation is accurate. If early or late, adjust groundspeed calculations for subsequent legs. The town sits on slightly higher ground with the mission ruins forming a clear rectangular outline just west of centre. If the Paraná River flows 1km west, you're perfectly positioned.


Default scenery


Posadas, Argentina


Passing SARI heading to Iguazu


Paraná River as companion


Turning Base to Rnw 13

Eldorado

From San Ignacio, Eldorado appears 50nm northeast at 046°true, 060°magnetic — 26 minutes, arriving 09:53. This city is substantially larger than the previous town — population approximately 70,000 for the department — appearing as an extensive urban area beside the Paraná River. The town spreads inland from the river, with Route 12 cutting through its centre.

Eldorado handles much of Argentina's timber and yerba mate production. From altitude, you would spot extensive mate plantations — neat rows of shrubs creating geometric patterns across cleared forest. These contrast sharply with the chaotic natural rainforest.

Below you observe the Paranaense rainforest, part of the Atlantic Forest ecoregion. Once covering Brazil's entire coast and northeastern Argentina, less than 7% survives. In MSFS 2020, the canopy appears as an unbroken green expanse punctuated only by rivers, settlements, and occasional clearings. Real-world pilots may sight stunning biological diversity. The area boasts 450 bird species, jaguars, pumas, tapirs, and thousands of plant species. You're flying over one of Earth's biodiversity hotspots.

At Eldorado, you're approximately halfway. Review your fuel: you should have used about 4 gallons, leaving 9 in the tanks. Groundspeed holding steady at 116kts? Adjust if needed.

Continue following the Paraná river from Eldorado. Wanda lies 10nm ahead — 5 minutes, arriving 0958hrs. Use 046°true, 060°magnetic heading to keep the river at your left. The name Wanda comes from a Polish princess in local legend, and the region is known for amethyst and agate mines. The town appears as a small settlement beside Route 12 (the main road paralleling your course).

Approaching the falls: Devil's Throat

As you follow the river, the terrain begins changing. The forest-covered landscape gives way to increasing mist, the first sign of the falls ahead. From 20km away, pilots spot a permanent cloud of mist rising from Devil's Throat (*Garganta del Diablo*). On clear days, this vapour extends 150m into the air, visible as a distinct white column against the green canopy. Sadly, this is not simulated in the virtual world.

Iguazú falls comprises approximately 275 individual waterfalls stretching 2.7km along the river. The number fluctuates between 150 and 300 depending on water levels — during the rainy season (November-March), separate cascades merge into continuous curtains.

The falls vary in height from 60 to 82m. Most plunge into a canyon system carved through layers of basalt deposited 130 million years ago during the breakup of the supercontinent Gondwana. This ancient volcanic activity created the resistant plateau through which the Iguazú gradually eroded its spectacular course.

Devil's Throat is a U-shaped chasm 80-90m wide, around 700m long, and 82m deep that receives approximately half the river's flow. From 2,500ft, the horseshoe shape is clearly visible and the river literally disappears into a churning abyss. Unfortunately, the MSFS version doesn't show all its beauty. But you can download its scenery in flightsim.to: 'Itaipu Binacional and Iguaçu Falls — Foz do Iguaçu — PR' to enhance it.

In June 2014, Devil's Throat discharged 45,700 cubic metres per second — equivalent to 200,000 bathtubs emptying every second. Normal flow averages 1,746 cubic metres per second, still six times greater than Niagara Falls. Upon visiting in 1944, US First Lady Eleanor Roosevelt reportedly exclaimed "Poor Niagara!" — a comparison that has defined Iguazú's reputation ever since.

Devil's Throat marks the border between Argentina (which possesses 80% of the falls) and Brazil. The international boundary runs directly through the chasm. At coordinates 25°41'43"S, 54°26'24"W, note your time overhead (1007hrs). You're 2 minutes ahead of the pre-flight plan — excellent navigation! It is fascinating to think that the falls have been retreating upstream at approximately 3cm per year for 20,000 years. Devil's Throat represents the current head of this erosion.


Passing on Devils throat


Puerto Rico


Puerto Esperanza


Approaching Devils Throat from the south


Iguazu Falls

Eventually (in geological time), the falls will retreat all the way to the Paraná confluence.

The airport approach: SARI

From Devil's Throat, Cataratas del Iguazú International Airport (SARI) lies 3nm (6km) south. The distinctive long runway (3,300m) appears clearly against the surrounding forest. Join a left downwind for runway 13 (prevailing wind direction) at 1,500ft. The airport sits at 916ft elevation with excellent visual contact — no terrain obstacles.

In MSFS 2020, SARI features detailed terminal buildings and realistic ground textures. The airport handles approximately 1 million passengers annually — mostly tourists visiting the falls. You will find an addon in flightsim.to: Aeropuerto Internacional Cataratas del Iguazú (SARI).

After landing and taxi to parking, you've completed a beautiful journey following one of South America's great waterways to one of its greatest natural spectacles.

After shutdown, compare planned versus actual times. Where did you gain or lose time? Were wind calculations accurate? These refinements transform adequate navigation into precise flying.

Final thoughts

Posadas to Iguazú delivers everything a VFR scenic flight should: dramatic rainforests, clear navigation references, fascinating cultural history, and a destination ranked among Earth's great natural wonders.

In 54 minutes, you followed one of South America's mightiest rivers through subtropical rainforest, overflew UNESCO-listed Jesuit missions and arrived at a waterfall system discharging enough water to fill an Olympic swimming pool every two seconds.

The route teaches fundamental VFR skills — pilotage using prominent landmarks (rivers especially), dead reckoning with systematic time-distance calculations, chart reading to identify features before arrival, and weather awareness in subtropical conditions where afternoon thunderstorms develop rapidly.

Whether building towards longer cross-countries or simply seeking spectacular routes, the Paraná corridor to Iguazú Falls earns its place in any virtual logbook. The thunder of Devil's Throat awaits.

Happy flying and see you on the next skyward adventure! **By Samuel Alves** PCP


Final Rnw 13

Note: *This article is designed exclusively for flight simulation purposes, blending practical VFR instruction with historical and cultural insights to enrich the virtual flying experience.*


Wing view


Landed on SARI


Iguazu Falls default scenery


Devils Throat


View on Devils Throat



Airborne with Delta

iniBuilds

Lockheed L-1011 Preview

PCP meets the team at iniBuilds to find out more about the development of this unique, groundbreaking classic jetliner

The Lockheed L-1011 TriStar was the result of bold engineering ambition during a fiercely competitive era of jet development. It combined advanced automation and design characteristics to earn a reputation among crews and passengers as one of the most refined airliners of its generation.

Now, iniBuilds is bringing the TriStar to Microsoft Flight Simulator 2024, promising a detailed recreation that captures its technical sophistication and unique personality.

In this exclusive Q&A, the iniBuilds team takes us behind the scenes of development, from real-world research and system modelling to the challenge of recreating what made the TriStar feel so special.



The famous lounge

Why the TriStar and why now?

The Lockheed L-1011 TriStar is one of the most iconic widebody aircraft of its era, but it's also one that hasn't been widely represented in modern flight simulation. It was an aircraft that pushed engineering forward in the 1970s, introducing highly advanced automation for its time, along with sophisticated flight controls and performance management systems. For us, it felt like the right moment to bring the TriStar to life properly within MSFS 2024. The platform allows us to simulate aircraft systems, aerodynamics and environments at a level that lets us do justice to a complex aircraft like this.

We're building the aircraft from the ground up specifically for MSFS 2024, with the initial focus on the L-1011-500 variant. The TriStar represents a fascinating bridge between traditional analogue airliners and the more automated aircraft that followed, which makes it particularly interesting to recreate in a modern simulator.

How did real-world research shape the project?

Real-world research was absolutely fundamental to the project. As the TriStar is an older aircraft that is no longer in wide commercial service, documentation alone only goes so far. We gathered original manuals, engineering notes and operational procedures to form the technical foundation of the simulation.



TWA flying into the sunset



A complex engineers panel

Beyond that, we worked closely with Echo19 to capture authentic audio from a real L-1011 at the TriStar Experience in Kansas City. This allowed us to record the distinctive Rolls-Royce RB211 engines and the wider cockpit and cabin sound environment, which plays a huge role in bringing the aircraft to life. Our team also visited several preserved aircraft to collect extensive photographic references, measurements and video material. Alongside this, conversations with pilots, engineers and enthusiasts who operated the TriStar helped us understand the smaller details that often don't appear in manuals – from cockpit ergonomics to the quirks of day-to-day operations. Together, these sources help ensure the aircraft feels authentic both visually and operationally in the simulator.

One of the aircraft we visited was at an aviation museum in Riyadh, Saudi Arabia. These types of visits allow us to examine the TriStar at a true one-to-one scale, capturing hundreds of reference photos, measurements and video of areas that are rarely documented in manuals or publicly available archives. Being able to study the aircraft in person meant we could observe the finer details that give the TriStar its character, from landing gear assemblies and wheel hardware to cable routing, panel fasteners and the distinctive patterns of rivets across the airframe.

The TriStar was unique to fly. How did the team go about validating that the aircraft 'felt' right?

Capturing the 'feel' of an aircraft is always a balance between performance data and iterative testing. We began with real-world performance manuals and aerodynamic data to build the core flight model and engine behaviour. Particular attention was also given to the behaviour of the TriStar's three Rolls-Royce RB211-524 engines. Thrust generation is driven by authentic EPR logic, with carefully tuned spool characteristics and engine inertia that reflect the RB211's distinctive response profile. This ensures that power changes, acceleration limits and transient behaviour feel consistent with the deliberate and smooth engine response described in real-world documentation.

The TriStar has several unique aerodynamic and operational characteristics, such as its Direct Lift Control (DLC) system and highly integrated automation. The DLC system is fully simulated, coupling spoiler deployment with pitch behaviour to allow fine glidepath adjustments without large attitude changes. This feature was one of the TriStar's defining handling characteristics and was widely praised by pilots for the precise control it offered during approach. Recreating these unique characteristics correctly was key to making the aircraft feel authentic. We also incorporated the hydraulic systems and redundancy into the aircraft flight controls to give you that 'heavier' feel when pressure is lost.

From there it becomes an iterative process of validation – comparing simulated performance against real-world profiles and refining the behaviour until it aligns with the available data and reference material. The goal is to recreate the smooth, stable flying qualities that the TriStar became known for.

How do you balance historical accuracy with usability for pilots?

Aircraft from this era can initially seem intimidating, especially with a traditional three-crew cockpit that includes a dedicated flight engineer station. However, the TriStar was actually very advanced for its time. Systems like the Performance Management System, integrated with the autopilot and autothrottle, allowed the aircraft to manage climb, cruise and descent profiles efficiently with relatively little crew workload. The aircraft's Automatic Flight Control System has been recreated with its full automation philosophy, including


The iconic trijet

lateral and vertical capture logic, realistic mode behaviour and the ability to perform full CAT IIIB autoland operations with accurate flare and rollout behaviour.

Our goal is to represent these systems as authentically as possible while still making the aircraft approachable for modern sim pilots. The flight engineer panel is fully modelled and can be operated manually, but the aircraft also supports the automated workflows that were used in real operations.

In addition, we're providing multiple navigation configurations, from classic analogue radio navigation to the full triple-INS set-up. These configurations can be selected through the aircraft's Paper Flight Bag interface, allowing pilots to tailor the aircraft's navigation philosophy to their preferred level of realism. Options range from pure radio navigation and classic INS operations through to GPS-assisted workflows, all while preserving the authentic cockpit layout and procedures.

What surprised the team during development?

One of the biggest surprises was just how advanced the TriStar was in several areas. Systems such as the Performance Management System and its integration with the aircraft's automation show how forward-thinking Lockheed's design really was. The DLC is another fascinating feature and a clever solution designed to increase passenger comfort and keep a steady thrust for noise abatement.



Advanced automation for its time



Real world Saudi case study



Plenty of images were taken of a real life TriStar to inform the aircraft's development



The real-world TriStar from Saudia has been sat on display for the best part of 30 years



A beautiful image of the iconic S duct

The depth of the aircraft's engineering also stands out. Modelling the aircraft's hydraulic, electrical and pneumatic systems in full quickly revealed just how interconnected the TriStar's design was. The aircraft features multiple layers of redundancy across its three hydraulic circuits, complex electrical power distribution and detailed environmental control systems, all of which had to be recreated to reflect real-world behaviour. The level of redundancy and system interconnection becomes very apparent when modelling the electrical, hydraulic and environmental systems in detail. It's an aircraft that reveals more complexity the deeper you go into it.

What are you most excited for sim pilots to experience?

For many sim pilots, this will likely be their first opportunity to experience the TriStar in a modern simulator with a high level of fidelity. The cockpit itself is something special. The combination of classic analogue instrumentation, the flight engineer panel and the aircraft's unique automation systems create a very different experience compared to both earlier classic airliners and modern glass-cockpit aircraft.

We're also excited for people to explore some of the more unique aspects of the aircraft – from the INS-based navigation workflows to the aircraft's distinctive systems logic and automation. To help bridge the gap between realism and accessibility, the aircraft introduces our period-inspired Paper Flight Bag, a vintage-styled interface that provides modern tools such as performance calculations, configuration options and navigation management while maintaining the analogue atmosphere of the TriStar cockpit.

Of course, there are also some fun historical touches included, such as the optional lower deck lounge configuration, which reflects one of the more iconic features associated with the TriStar's passenger experience.

Conclusion

Thank you to everyone at iniBuilds for answering our questions. What's emerged from this Q&A is that this is a careful restoration of a pivotal moment in aviation design. The TriStar sits at a crossroads between analogue heritage and the automated future, and iniBuilds' approach reflects that balance, blending deep system fidelity with thoughtful accessibility for today's sim pilots. If the ambition outlined here translates into the final release, the L-1011 could become one of the most distinctive and rewarding widebody aircraft experiences in MSFS 2024. For those drawn to classic widebodies – and for anyone curious about an aircraft that quietly redefined what airliners could be – the TriStar is set to be something special. We'll bring you a full review as soon as we can. PCP



Night lighting effects



Several liveries will be included



HZ-AZP was retired in the late 1990s and is now on display

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City Update 13: California

Explore the Golden State



Asobo recently released their first City Update for MSFS 2024, focusing on the Golden State of California. While it isn't a full World Update, it covers a vast area with spectacular scenery, yet is lacking in my particular passion: handcrafted Points of Interest (POIs). I've always felt that POIs showcase the incredible 3D modelling skills of the artists behind the scenes. While these designers are rarely credited individually, their work on these landmarks provides the essential 'eye candy' that makes VFR flying so rewarding.

Before diving in, I had to catch up on a few missed regional updates, which together added more than 60GB to my MSFS drive. It's worth noting that installation isn't automatic – you must head to the Marketplace, filter by 'Free' and select 'City Update 13: California' to add it to your library. From there, you can choose whether to install the data locally or stream it.

About the update.

As this is a City Update rather than a World Update, it skips some of the usual extras like handcrafted airports and bush trips, with very few POIs or discovery flights. Instead, it focuses on localised realism. While the photogrammetry at very low altitudes can still suffer from the occasional 'melted' building or 'cotton ball' trees, the urban sprawl looks significantly better at regulation heights than the previous generic autogen landscapes.

Now that we've touched on what the update lacks, let's take a more positive look at what it includes, starting with some of the larger cities and the notable features found within them. There are 18 urban areas included, each of them enhanced with TIN (triangulated irregular network) surface texturing. This is basically a digital data structure used in 3D modelling, designed to represent physical terrain or 3D surfaces, which are far more realistic than textures laid over a flat surface.

The cities I've highlighted below are just a few of those included in this update. There are 18 in all but I'm not going to simply list them all here. I'll let you discover them for yourselves. While California is quite a vast area, you don't need to fly very far to find signs of habitation, even in the mountainous areas.

Sacramento

One of the reasons I enjoy writing these reviews is the opportunity to experience places I may never get to visit in the real world. In fact, some have already inspired trips to a few locations I hadn't planned to visit. During my research I often uncover facts I was unaware of – for instance, I learned that Sacramento is the capital of California, while I had always assumed it was Los Angeles.

While the Sacramento scenery doesn't feature specifically handcrafted buildings or unique Points of Interest (POIs), the overall depiction of the city is solid provided you don't look too closely. All the major landmarks are present and easily recognisable, including the Tower Bridge spanning the Sacramento River. Nearby on the west side sits the iconic, pyramid-shaped Ziggurat building, while to the east you'll find the equally distinctive Golden 1 Center, which I later discovered to be a high-tech indoor arena. Three blocks away is the Robert T Matsui United States Courthouse, a beautiful architectural study dwarfed by the neighboring 30-storey Wells Fargo Center and the 25-stor-y US Bank Tower.

Sacramento International Airport lies to the north and is the largest of the three airports within the metropolitan area. Any of these fields would serve as an ideal base for exploring this region.



Tower Bridge – not London, Sacramento!

PC System used for review

Intel i7 9700K 3.60 GHz processor with Corsair Liquid Cooler
32 GB DDR4 3200 MHz RAM
Gigabyte RTX 4070Ti, 12 GB GDDR5 video card
1 x 1 TB Crucial NVMe M.2 SSD
1 x 6 Terrabyte Samsung hard drive
32 inch 4K iiyama monitor

Sacramento shows an improvement in the resolution of the photogrammetry

Los Angeles

The largest city featured in the update is undoubtedly Los Angeles, covering a vast 469 square miles along the western seaboard. That figure only accounts for the city itself –the Greater Los Angeles metropolitan area spans more than 33,000 square miles, significantly larger than many countries.

It's here more than anywhere that the landscape is noticeably improved, ranging from the San Gabriel Mountains to the east, across the 72 suburbs of the city and eventually to the sea. It all gels together most realistically, with a diversification that can only be created from actual geographic data.

Most of the documented landmarks are situated outside the city limits, yet are well worth the flight time taken to explore them. They include the Getty Museum, one of few



Los Angeles has its own Venice canal district



I've always wanted to see that Hollywood sign!

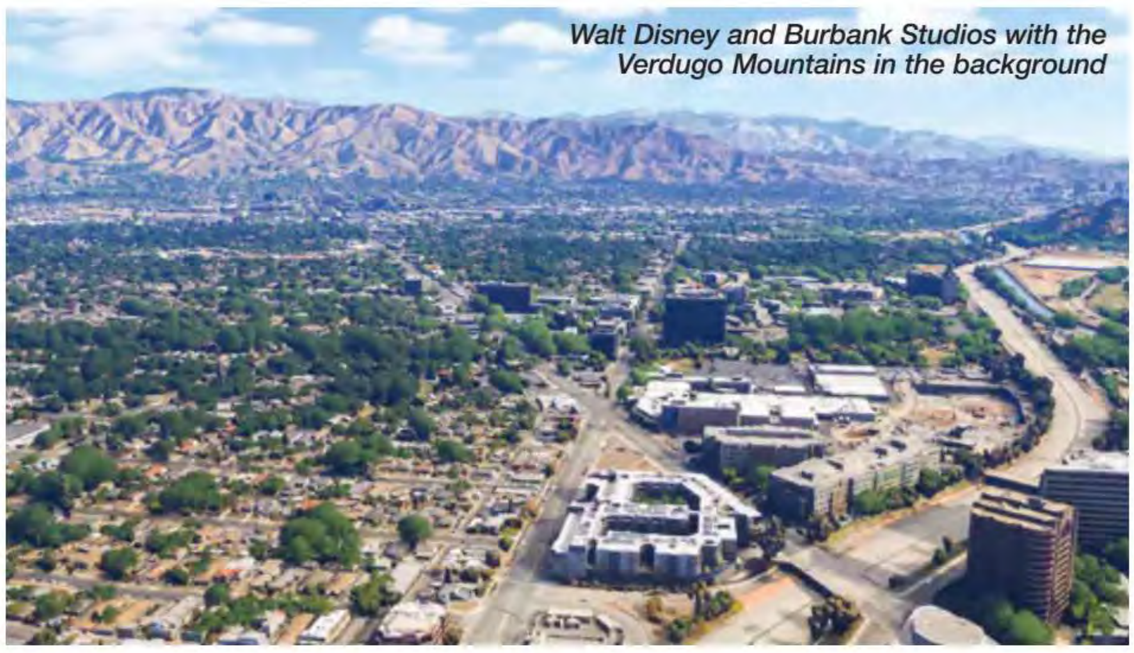


The Getty Museum is one of few handcrafted POI's

SCENERY UPDATE FOR MSFS



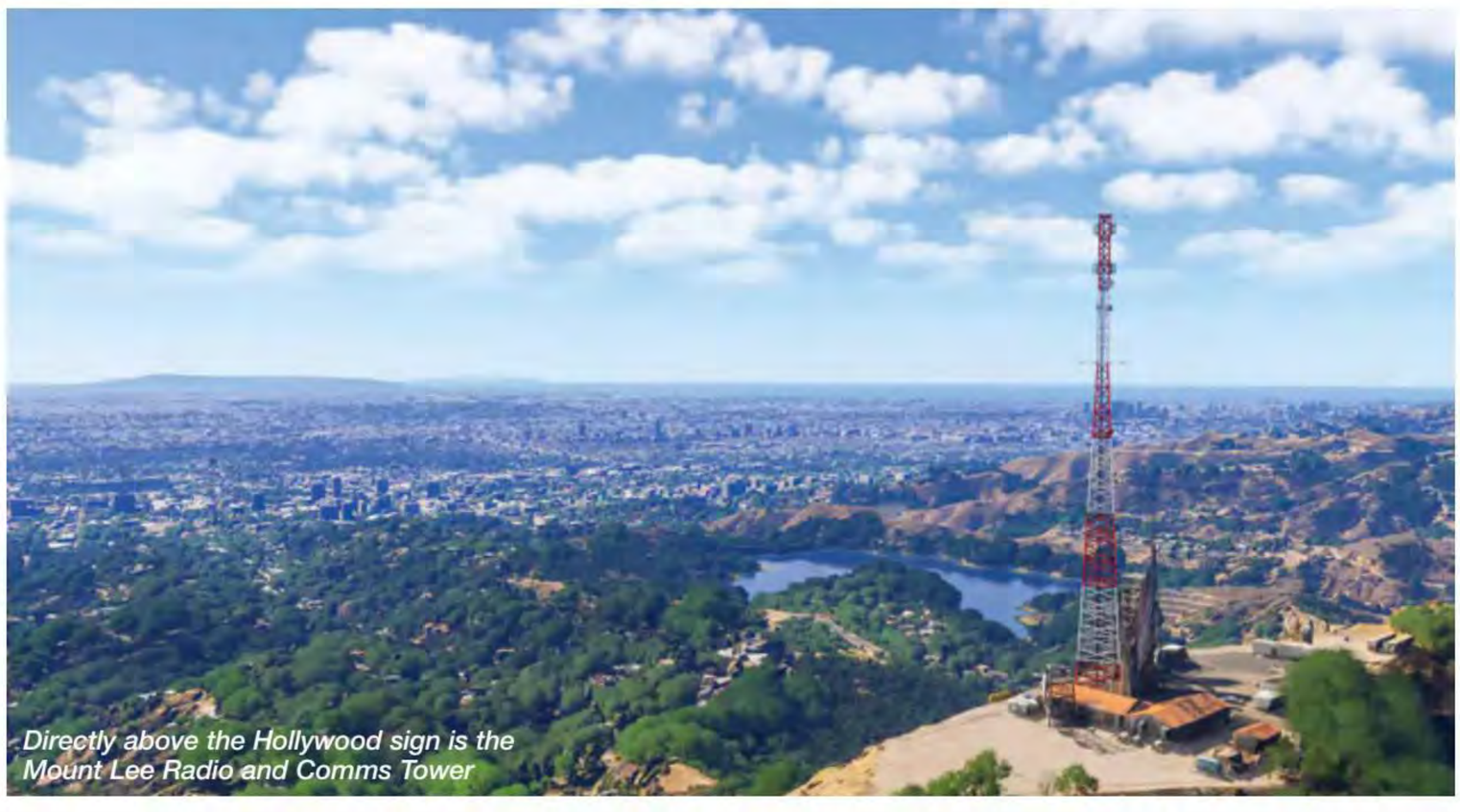
The Washington Memorial and the Forest Lawn Memorial Park



Walt Disney and Burbank Studios with the Verdugo Mountains in the background



Los Angeles (KLAX) is a stunning handcrafted airport



Directly above the Hollywood sign is the Mount Lee Radio and Comms Tower

handcrafted structures situated at the base of the Santa Monica Mountains in Brentwood. Also nearby is the famous Hollywood sign. Flying north of that brings you to the Washington Memorial and the Forest Lawn Memorial Park, which I found is the resting place of many famous celebrities. Beyond that lies the Disney and Burbank Studio buildings.

The centre of the city has been improved, to the point where many of the high-rise buildings that are unique in style are easily recognised. They include the US Bank, Westin Bonaventure Hotel & Suites, the beautiful red brick Biltmore Hotel and PricewaterhouseCoopers. I'm sure that those of you with more knowledge of LA will be able to indentify many more.

San Diego

I was fortunate enough to visit San Diego in 2019 and can highly recommend it as a holiday destination. The city boasts one of the largest zoos in the world, plus the SeaWorld theme park. However, for us simmers, the real draw is the famous Miramar Air Base, home to the US Navy Fighter Weapons School, more famously known as TOPGUN.

Having been there in person, I was keen to check out this area when MSFS 2024 was first released. I must say, there is a definite improvement in the city's depiction, particularly around the bay. That said, the rendition of the USS *Midway* aircraft carrier museum is, frankly, terrible. It lacks any real definition and looks as though it's been mounted on top of a giant concrete plinth. It's a strange omission in quality, especially considering that further down the coast, you'll see the *Star of India* sailing ship moored, looking more like the real vessel.

The bridge running over to Coronado Island is nicely portrayed, as is the beautiful red-roofed Hotel Del Coronado set alongside the Pacific coast. Here again the overall landscape is realistic, with ground levels and textures accurately mimicking the real world.

San Francisco

Famous for its Golden Gate Bridge, San Francisco is quite a small city at only 47 quare miles, but it has some many iconic features, notably the steep hills, eclectic mix of architecture and famous cable cars – not forgetting the infamous Alcatraz Penitentiary,



Overlooking San Diego with the Miramar Air Base in the distance



Coronado Bridge spans San Diego Bay to the beautiful Coronado Island



San Francisco's majestic Golden Gate Bridge

also known as 'The Rock', set in the middle of San Francisco Bay.

Not all the cities feature handcrafted detail, but SF does have a couple. Naturally, the Golden Gate Bridge is one, which is meticulously recreated, as is the Bay Bridge and the winding road leading up to the Sutro TV Tower to the west.

Of course, some of the features I've mentioned during the review were added previously in one of the other US updates, but I think they're still worth a mention here.

Santa Barbara

Santa Barbara is one of two coastal cities that are known for their Mediterranean climate and beautiful beaches. It's also quite different in style and notably lacking in the high-rise buildings seen in LA and San Diego. That's not a negative comment, I think the area looks beautiful and more like the south of France or possibly one of the Costas in Spain. With its red tile roofs, diverse and widespread habitation, it has been added to my bucket list.

Airports

Unfortunately, there are no airport enhancements provided in this update, yet it's worth noting there were already several handcrafted ones included in the 2024 version of the simulator. I should also mention that some of these are not included in the standard version, so you'll need to upgrade to the Deluxe or Premium Deluxe to receive them.

The crown jewel in this area is Los Angeles (KLAX), which was provided by iniBuilds and is simply stunning – it's certainly equal to many payware versions of the airport. San Francisco's (KSFO) airport also stands way above the usual default renditions, again with



Look out for Alcatraz in San Francisco bay!



Beautiful Santa Barbara – what a place to retire!

all the detail and architectural replication we've come to expect.

Performance and overall look and feel

While I encountered no issues with the update, performance is always tethered to the specific hardware and configurations used to run it. The simulator continues to evolve as developers refine the code, squash bugs and, of course, hardware advances that naturally offer a path to better performance.

Having said that, the price of new components is becoming quite prohibitive, with the latest RTX 5090 offerings now topping £3,000. Nevertheless, I'm sure there are those with deep pockets who will be happy to pay whatever it takes to see those silky-smooth frame rates!

Conclusion

To be critical, I would say the entire region suffers from an overabundance of trees, particularly within the cities, where they occasionally swallow whole streets or sprout in places they clearly shouldn't. Nonetheless, as a free update, it has undeniably enhanced the area. The higher-quality textures and updated photogrammetry significantly improves the realism and with it the pure enjoyment of flight.

At one time, flight simulation was merely a pastime for technical enthusiasts. Today, it allows us to fly with the same mindset as real-world pilots: for the sheer pleasure of seeing the world from the air and immersing ourselves in a brilliant simulation of it.

PCP

By Joe Lavery



San Francisco sits right on the waterfront

PC Pilot Verdict

At a glance: This City update covers the state of California. While this is not as inclusive as a world update, it is nonetheless very interesting – and let's not forget, it's free!

Publisher: Microsoft-Asobo
Distributor: Microsoft
Price: Free
Developer: Microsoft, Asobo.
Release date: Out now
Score: 85



KwikFlight

Archangel A-12

At the top of the world...

When I first saw the Archangel A-12, I was convinced I was looking at the SR-71 Blackbird. To my eyes, they looked identical; however, a little research revealed the A-12 to be one of the Blackbird's fascinating predecessors. While they share a lineage, they are in many respects entirely different aircraft.

Both are Mach 3-plus designs from Lockheed's Skunk Works, and both were famously constructed from titanium. Yet, operationally, their roles diverged. The A-12 was a top-secret CIA project designed for over flight missions using high-resolution cameras. In contrast, the later SR-71 was a US Air Force asset equipped with a broader sensor suite, including Side-Looking Airborne Radar (SLAR) and Electronic Intelligence (ELINT) equipment, allowing it to gather data without flying directly over a target.

Nevertheless, the A-12 was actually faster, lighter in weight and could fly higher than the SR-71.

The real Archangel

Following the vulnerability of the U-2 spy plane, the US sought a replacement that was faster, higher-flying, and with more stealth; an aircraft essentially impervious to contemporary interceptors or missiles. During the prototyping phase, designers abandoned aluminium and steel, as neither could withstand the extreme kinetic heating of high-speed flight. It seems that Titanium was the only viable solution for sustained Mach 3 operations.

In a classic Cold War irony, the world's largest supplier of titanium was the USSR. Consequently, the US had to establish several bogus companies to purchase the vast quantities of material needed to build an aircraft specifically designed to spy on the Soviet Union.

KwikFlight's Archangel

I'm told that the aircraft under review here is not considered to be a 'study-level aircraft', meaning that it's somewhat easier to fly and doesn't need the full spectrum of system knowledge to get it airborne. That's not to say it's not accurate, just that the focus is on ease of use, rather than having every switch and button operational.

One small issue worth mentioning: when I installed the aircraft, it didn't appear in the sim. This has happened in the past, where a product had been installed in the LocalCache/Packages folder, but not in the Community folder. If this happens to you, it's simply a matter of dragging the KwikFlight-aircraft-archangel folder into the Community folder and then it will appear in the sim.

Before we get this beast into the air, let's look around the airframe! The Archangel is an imposing sight: a 107ft fuselage standing over 18ft high, powered by two massive Pratt & Whitney J58 engines. These powerplants can propel the aircraft to Mach 3.3 and are far from 'normal' jet engines; at Mach 2, they change configuration in-flight to function essentially as a Turboramjet. While a simplified description, it captures the essence of their operation.



Preparing the Archangel for flight





The windows in the Archangel are solid quartz, 1.25in thick

The engines are equipped with afterburners that project different-coloured flames during each phase of flight. KwikFlight has even included the authentic Triethylborane (TEB) ignition logic, producing the signature green flash during start-up; a feature I'll be checking on later!

The fuselage is finished in a thin skin of black titanium with a metallic sheen that reacts beautifully to changing light, adding significantly to its aggressive appearance. Interestingly, the wings and the underside of the fuselage are ribbed to allow for metal expansion at high speeds. These elements are physically modelled rather than just being part of the textures. Speaking of textures, the model utilises PBR (Physically Based Rendering), which uses light and shadow to create authentic depth and form, avoiding the 'flat' look of older simulations.

Most images show the Archangel in its familiar black livery, but iniBuilds has included four variants here. While they are mostly similar, the 'Fire' livery is a spectacular work of art, although I doubt it was ever used on the real aircraft. When flying at night, the 'fire' elements light up brilliantly; and while that would likely compromise its stealth capabilities in the real world, it looks undeniably cool in the sim.

I was pleased to see the level of detail across the airframe, such as the well-modelled tertiary doors on the sides of the engine nacelles. These doors are vital for

When you initially load the aircraft, you are placed in a 'walk-around' mode allowing you to look at the scale of aircraft alongside its external power, air carts and a set of crew ladders. It allows you to inspect the exterior and cockpit before finally climbing into the pilot's seat.

Onboard

To get on board, you can click on the cockpit canopy, press Shift + C, or use the Left Bumper + B shortcut for Xbox users. This aircraft also features a fully modelled rear cockpit; to swap between the front and back stations, simply use the 'Custom Camera Views' dropdown found in the on-screen toolbar.



Very nicely detailed and realistic panels in the Archangel



The rear pilot has a rather limited view



The Archangel has a phenomenal climb rate



You get four liveries, these are the NASA and Fire Variants

What's immediately noticeable is the dense array of conventional gauges, switches, and mechanical clutter, a sharp contrast to modern glass cockpits. This highlights the era of the design and the distinct lack of MFDs, except for the High-Altitude Camera screen cantered on the console. These instruments are beautifully rendered, featuring realistic 3D depth and smooth needle movements.

The cockpit is well-equipped and includes a rudimentary autopilot with Roll and Pitch controls, though it lacks a dedicated altitude hold. It will, however, follow a flight plan created in the EFB (Electronic Flight Bag). There is also a HSI (Horizontal Situation Indicator) that will track the heading bug when Heading Hold is engaged.

The manual provides a detailed explanation of the startup sequence, which appears to be a somewhat streamlined version of the real-world operation. That isn't a complaint, after all this is a flight simulator, and the primary goal is to get into the air.

Since the aircraft lacks an onboard starting system, external air carts must be used to crank the engines. These carts, along with the crew ladder and ground power unit (GPU), are summoned by pulling the corresponding circuit breakers located in a panel to the right of the pilot's seat.

On top of the world

The manual states that Archangel lacks a traditional parking brake, which initially had me stumped. I should have read the manual more closely, because the developers have repurposed another handle for this function. Once released, you need a surprising amount of thrust to get it rolling, but you must back off immediately as the acceleration picks up pretty rapidly.

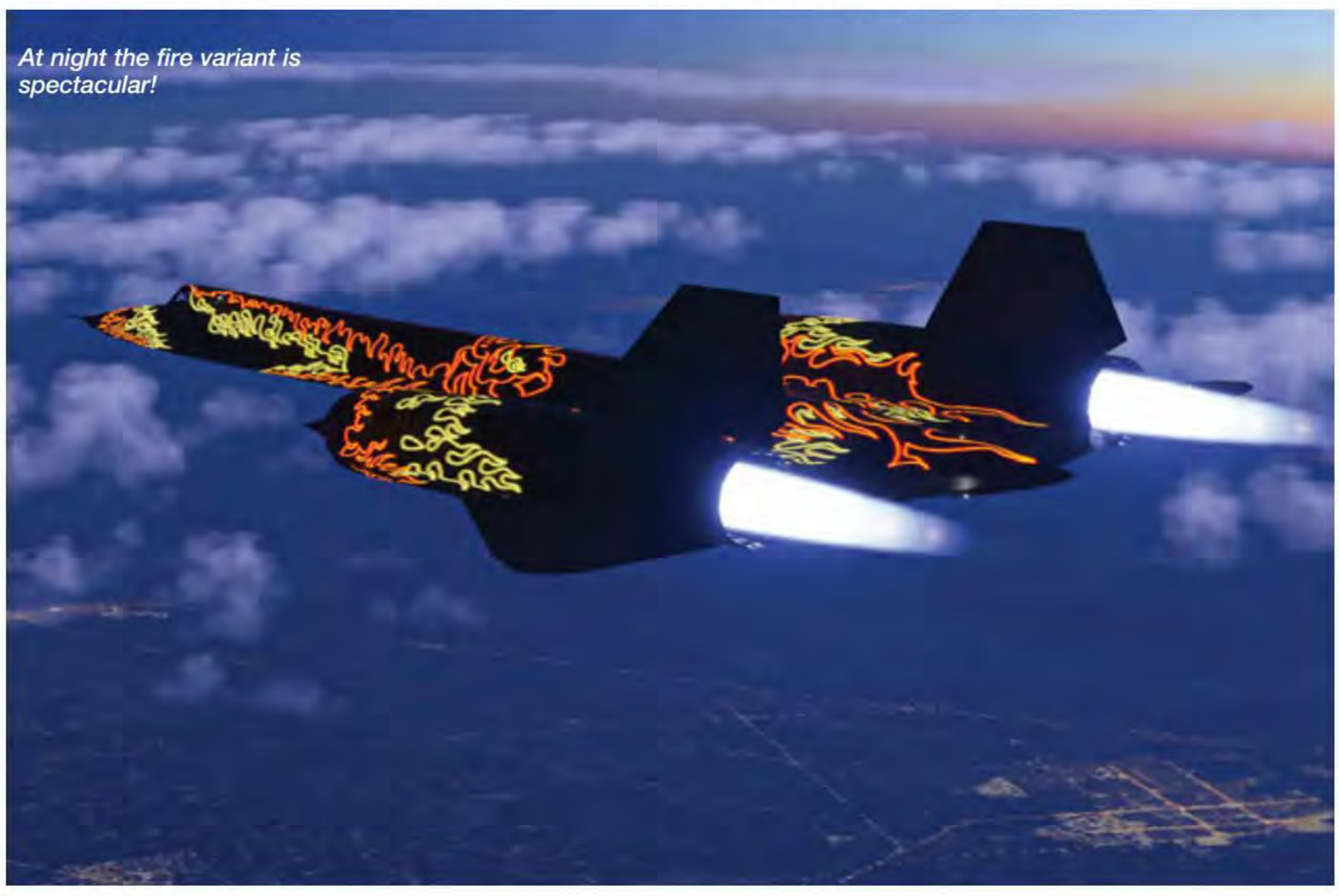
The climb rate is phenomenal, especially once you clear 40,000ft. On my first flight, I shot past the 90,000ft ceiling for a few seconds until I glanced at the altimeter. I also noticed that the handling became quite twitchy at these extreme altitudes, with the aircraft beginning to 'wallow'. While I first assumed this was simply the thin atmosphere, further investigation confirmed I was experiencing the narrow margin where stall speed and maximum speed nearly converge. The original pilots called it rather pointedly, the Coffin Region.

Despite this, the Archangel is a joy to fly. It behaves well even at low altitudes, and while it isn't as nimble as a modern fighter, it's stable on approach if you keep your eyes on the airspeed. It also features a drogue chute to assist with deceleration on rollout, which can be jettisoned with a second click of the handle.

While not all developers provide them, I always appreciate seeing thorough documentation. I'm pleased to report that KwikFlight did not disappoint; they include a 36-page manual packed with illustrations and screenshots. It clearly details the instrumentation and controls, providing more than enough information to get you airborne.

Furthermore, the onboard EFB features comprehensive checklists that do more than just list procedures; they include interactive 'click points' that automatically slew the camera to the relevant control. The EFB also supports SimBrief flight plan integration and can display your Navigraph airport plates as well, provided you have an active account of course.

If you want even more information, I discovered copies of the actual flight manual,



At night the fire variant is spectacular!



Afterburners will get you there quicker, but watch those fuel levels





Flying through the Swiss Alps



There's a drogue chute to slow you down on landing

ground support manual and technical data manual online. Just Google these documents to find them.

Conclusion

I've thoroughly enjoyed the process of learning and flying the Archangel. It is a unique experience in the sim, providing a challenging, rewarding, and a refreshing departure from modern jets. Consequently, I have no reservations in recommending it to anyone looking to add a bit of high-altitude 'black project' challenges to their hangar. **Joe Lavery** PCP

PC Pilot Verdict

At a glance: This is a fine replica of the Archangel II, produced with great attention to detail and designed specifically for MSFS 2024

Distributor: iniBuilds

Price: Archangel II – £20.39 by direct download

Website: www.inibuilds.com

Developer: KwikFlight

Score: 90



The US Airforce variant, parked at Miramar.



Departure as the sun goes down

X-Crafts ERJ Family 2.0

Reviewing a brand new, built from the ground up version of the ERJ regional jets in X-Plane 12



Dirty wheels! *X-Crafts*

Developed by Brazilian manufacturer Embraer in the 1990s, the ERJ series was designed to compete directly with Bombardier's Canadair Regional Jet (CRJ) family, but with a distinct philosophy that catered to its primary use – short haul, ultra-regional services. Where later Embraer E-Jets would lean heavily into automation, the ERJ still feels like a classic airliner of its day, and retained a more traditional, hands-on approach more akin to a business jet or a regional turboprop. With no autothrottle and limited vertical navigation capability, it's a joy to fly but it demands more from the pilot, which means we think it's well suited to the X-Plane philosophy.

X-Crafts has been synonymous with Embraer aircraft in X-Plane for years, and their original ERJ releases helped define a generation of regional jet simulation. With the arrival of X-Plane 12, however, expectations have shifted. Systems depth, visual fidelity and integration are all now held to a higher standard, and it felt time for a full update. Enter the ERJ family 2.0 – not an incremental revision, according to the developer. The aircraft has been rebuilt almost entirely from the ground up, with around '90%' of the product new.

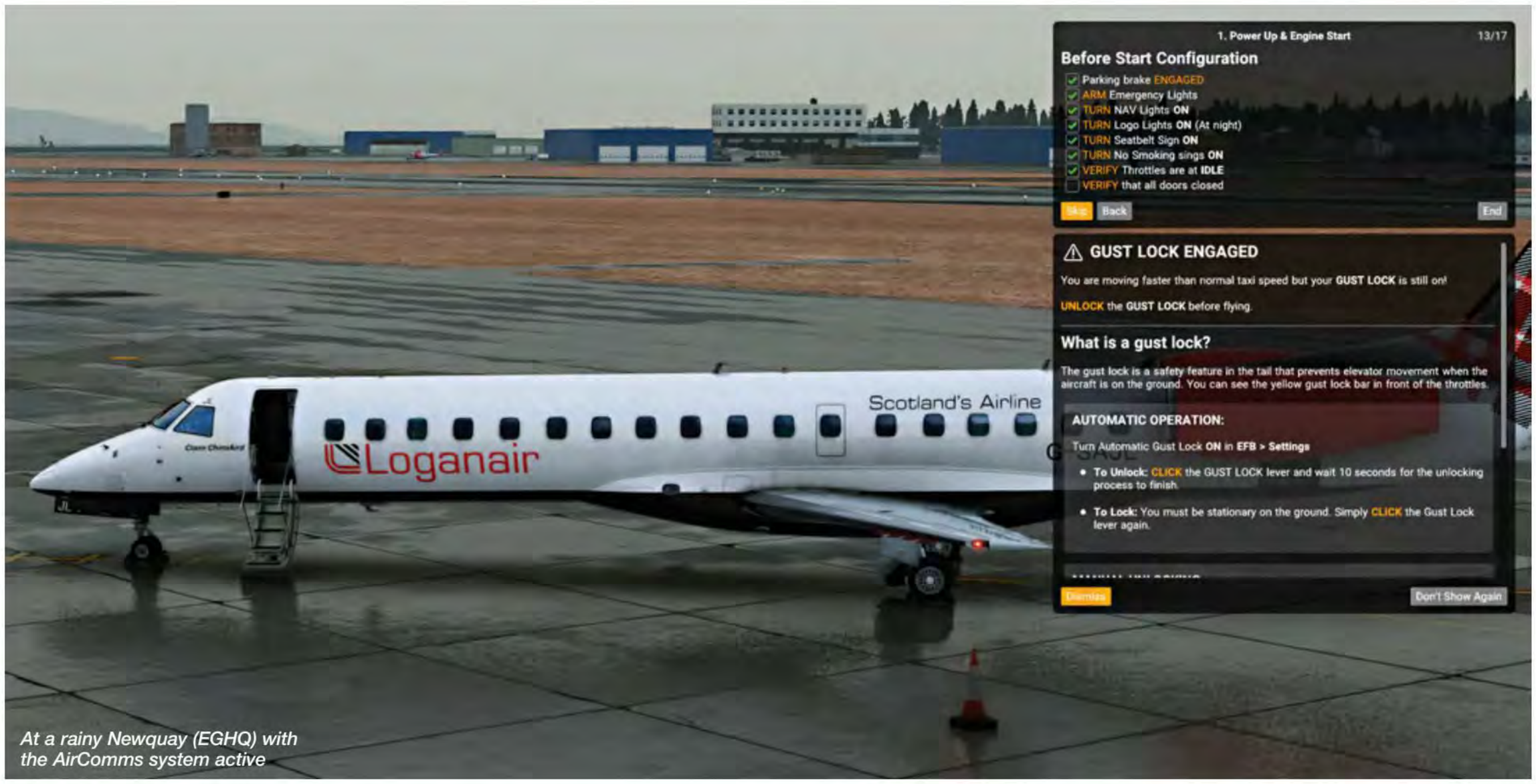
First impressions

This is not a glassy, ultra-modern airliner but a working machine that feels at home across the regional airstrips of Europe and the US. Upon entering the cockpit, it feels compact and perhaps slightly cramped – unmistakably 1990s in its layout with its Honeywell avionics and big, clunky switches.

The way that X-Crafts has developed the aircraft from scratch, using X-Plane 12's unique lighting and environmental engine, means it's a joy to look at. The right proportions in all variants of the aircraft across the family are there, and the lighting, especially in the cockpit modelling, is exemplary. You get an EFB (Electronic Flight Bag) that sits alongside you, and from here



Lots of different liveries are available via a spreadsheet on the X-Crafts website. *X-Crafts*



At a rainy Newquay (EGHQ) with the AirComms system active

you can download payload and fuel data and calculate takeoff data, landing data and run checklists. You're also welcomed, upon entering the flight deck, with a unique notification system developed by X-Crafts to help you mitigate the potential learning curve of managing what is in essence a 'hands-on' machine. The introduction of AirComms, a contextual assistance system that offers guidance during operation and real-life tutorial flows, provides reminders, highlights missed steps and even explains quirks of the ERJ's flight management logic. It provides contextual, educational data and helps you fly smoothly. A nice addition as it never really feels intrusive, but it is there when you need it, and we found it particularly useful when dealing with the ERJ's slightly idiosyncratic FMS behaviour.

Graphical quality

The cockpit textures are among the standout elements. X-Crafts has leaned heavily into subtle wear and tear, so there are scuffed surfaces, worn paint on frequently used controls and minor imperfections across panels. These details give the cockpit an operational feel, and the same can be said for the outside. Streaks along the fuselage, weathering around control surfaces and the detailed, oily landing gear bays all contribute to a convincing representation of a regional workhorse.

Custom cabin lighting is well balanced, and the business jet version also provides lovely in-cabin touchscreens to control lighting and blinds. In this version, you'll also see some nice additions including screens that have custom graphics tracking your direction, speed, altitude and how long you've got until top of descent. You can also choose to show AviTab on these screens too. There does seem to be a bit of a discrepancy between this cabin and the standard passenger variant, and perhaps we'd have liked to have seen the same attention to detail added to the latter, but it's a small gripe and possibly an update will come.

A common family

The package includes multiple variants; the ERJ 135, 140, 145, the extended range 145XR, and the Legacy 650 business jet, all sharing a common systems architecture.



The aircraft is beautifully proportioned and modelled



The EFB provides load and performance data, but currently only in LBS



A unique 2-1 cabin arrangement

At the heart of the experience is a newly developed avionics suite. High-resolution primary flight display (PFD), multi-functional display (MFD) and Engine Indication and Crew Alerting System (EICAS) displays are complemented by a custom navigation map and full system synoptics.

The flight management system is modelled with good depth, based on the Honeywell system in the Citation X, and it supports full procedures to allow convincing routing and performance – make sure you close the flight plan before you enter perf data otherwise it won't recognise your numbers! It behaves as the real system does, with all its quirks and crucially, the limitations of the real aircraft are faithfully represented. The absence of vertical navigation (VNAV) and autothrottle shapes the entire flying experience and each flight we've carried out has needed to be managed through its entire length.

Short haul options

The ERJ family is, by design, a short- to medium-haul aircraft, so it's a great option to fly when you have limited time available.

Seating capacities range from around 37 passengers in the ERJ 135 to approximately 50 in the ERJ 145. In Europe, the ERJ can connect secondary cities and remote rural areas, and in North America, a fertile ground for the ERJ over the years, it excels on routes such as Philadelphia to Wilmington, or similar short sectors to provincial towns.

The short sector lengths, often between 30 minutes and two hours, means you can complete a full gate-to-gate experience in an evening without feeling rushed. With the aircraft's manual nature, it often means there's lots to do as short sectors in busy areas mean frequent climbs, descents and configuration changes, all of which require active management in the ERJ. There is little opportunity to sit back and let automation take over. We found that each flight felt slightly different, all shaped by weather, traffic, online ATC and your own handling choices.

The inclusion of the Legacy 650 also expands the aircraft's versatility. With a significantly extended range; it opens up longer, business-oriented routes and transcontinental flights, offering a different style of operation within the same ecosystem.



The lighting in the cabin is excellent



Reversers deployed!



A unique biz-jet feature – animated and real screens that work!



Lighting touchscreen in the Legacy model



Working flight info in the Legacy 650

Conclusion

The X-Crafts ERJ Family 2.0 is a confident, comprehensive and very satisfying simulation of regional flying. It models not just the aircraft, but a lot of what makes regional and short-haul flying so captivating and that's the manual aspect of decision making and flight planning. It embraces what makes the ERJ unique and it's an aircraft that demands involvement, thinking ahead and managing energy in the same way as a real-world short haul pilot would do.

From a technical perspective, the package is impressively complete, and latest updates have ironed out some bugs and added extra tutorials as part of the AirComms system. We do think it's quite expensive, but you get a lot of aircraft – our suggestion would be to perhaps purchase one aircraft if funds are limited and then you get a discount on the rest.

The aircraft has a clear identity. In an era where many add-ons converge towards similar levels of automation and behaviour, the X-Crafts ERJ stands apart and is one of the most compelling regional jet simulations currently available. **PCP**

PC Pilot Verdict

At a glance: In summary: An engaging simulation of a classic regional jet family, and a big step up from version 1 that combines strong systems depth with a challenging flying experience.

Distributor: X-Plane.org Store
Price: From $59.95 (individual) / $139.95 (full family)
Website: www.xcrafts.com
Developer: X-Crafts
Publisher: X-Crafts
Score: 92



The ERJ is still popular in the USA, but numbers are reducing

PCPilot

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Traffic is available for all major airport add-ons Just Flight

Traffic for Tower Simulator 3

Real world traffic that brings ATC simulation to life

Editor Note

The plans for this article were put in place before the dreadful accident of Air Canada Express Flight 8646. Since March 22nd, the role of airport controllers has been placed sharply into public view. Our thoughts are with everyone affected and the family and friends of Captain Antoine Forest and First Officer Mackenzie Gunther, who tragically lost their lives in the crash.



A busy Frankfurt getting underway Just Flight

For years, air traffic control simulation has existed in a curious niche within the wider flight simulation ecosystem. There have been a few valiant efforts across the decades, and some fun mini games like Endless ATC that allow you to control via a radar screen – but none have tackled the complex subject like airport control (both tower and ground) like Tower Simulator 3 from FeelThere.

With the release and continued development of Tower Simulator 3, the developer has taken significant strides to push this niche into something far more substantial. What was once a somewhat limited, enthusiast-focused experience is rapidly evolving into a genuine platform, and one increasingly supported by third-party developers and meaningful expansion. We'll investigate this in more detail in this feature to mark the arrival of Just Flight's Traffic add-on, a product that fundamentally reshapes how Tower Simulator 3 feels and behaves.

The core experience

In Tower Simulator 3, you take on the role of a tower controller, issuing instructions to aircraft, sequencing departures and arrivals and maintaining order in increasingly complex airspace environments. What accompanies this are good graphics, a well-supported range of add-on airports and well established, accurate and real-world procedures that makes the experience as realistic as possible.

Previous iterations of Tower Simulator often felt constrained and limited by basic visuals and inconsistent traffic systems, but in Tower Simulator 3, FeelThere has addressed many of these limitations. Modernised rendering and improved lighting has improved the look of the sim. The addition of features such as new voice recognition technology, multi-monitor support and refined UI elements creates a far more usable and immersive experience.

There are small features that allow the sim to be more playable. Click on an aircraft label, and it briefly pauses the sim while you select from the menu a command if you're not using voice recognition. The arrow keys allow you to move around the airport as a whole – great for getting shots of landing and departing traffic. The tower radar screens are flight strips are well represented and during our review we were soon getting the hang of 'sorting' our flights out in a logical way using these. A message log is included on a screen in the tower (useful for when you can't remember who just called), and there's an overall cohesiveness that makes the sim very usable when it gets stressful (and it will!)

From product to platform

The biggest shift in Tower Simulator 3's trajectory is its embrace of third-party development. Historically, the sim's expansion relied heavily on airport add-ons, with new locations providing fresh operational challenges. This is still the case, and there are plenty of



Realistic gate placements *Just Flight*

Traffic!

For all its improvements, Tower Simulator 3 launched with one key limitation and that was no realistic traffic. The base simulator lacks real-world airline branding, authentic schedules and the visual fidelity needed to truly sell the illusion of a living airport.

But Just Flight has stepped in. The new Traffic add-on for Tower Simulator 3 is not just an enhancement but a foundational upgrade that future iterations of the platform can build upon. Developed in collaboration with FeelThere, the add-on introduces a comprehensive traffic system built around real-world schedules, high-fidelity aircraft models and global coverage. At its heart there is an extensive database

Lots of new aircraft models are implemented *Just Flight*



both small and large hubs available to purchase, but the scope has widened quite a bit.

Developers such as FlyTampa and Just Flight have begun to support the platform, bringing with them not only high-quality content, but also a signal of confidence in the simulator's long-term viability. According to recent developer interviews, this expansion is very much intentional. FeelThere is actively positioning Tower Simulator 3 as a destination for both commercial and community-driven add-ons, supported by tools such as an aircraft exporter SDK that allows third parties to integrate custom content directly into the sim.

Flight simulation thrives on ecosystems and on the interplay between developers, modders and users. So now, Tower Simulator as a platform begins to look a lot more compelling.

A busy Manchester *Just Flight*





New lighting and rendering make a big difference to aircraft models *Just Flight*



Anchorage operations *Just Flight*

of real-world commercial flight plans and during our tests we loaded up a range of airports to see what kind of difference it made. Rush hour at KLAX, in all honesty, felt at times unmanageable with the sliders set to 100%. Stuttgart during the middle of the day – a bit easier. A sleepier airport (and we'd recommend most users start with the smaller ones) during a late afternoon introduces a level of playability that means there's scalability for would-be expert controllers. Flight data is derived from the same sources used by flight tracking services, so we'd expect future updates to flight plans too.

A living airport

The add-on considers both time and day of the week, meaning traffic patterns shift accordingly. A quiet midweek morning feels very different from a busy Friday evening push, and this introduces a level of variability that significantly enhances replayability. There's also a sense of a living, breathing world with real traffic moving around. The camera system allows you to move with a free camera around the airport, so some genuinely lovely plane spotting moments can be created, enhancing the sense of satisfaction when you execute a successful session.

We also really liked the fact that live METAR data can be downloaded, which changes over time, so not only will you have to adapt to that, it can make for some challenging conditions!

Aircraft fidelity

Beyond schedules, the Traffic add-on introduces a completely new fleet of aircraft. There are 53 model variants in total, each designed specifically for the sim and they're a substantial step up from those included in the base platform. High-resolution textures, improved geometry and refined detailing create aircraft that look far more convincing both on the ground and in motion. A library of over 900 real-world liveries, covering airlines from across the globe, is also included.

Just Flight has also implemented a range of custom animations that bring aircraft behaviour to life. Flaps deploy dynamically depending on flight phase, spoilers and thrust reversers activate on landing, and even landing gear movement is modelled with care. It all works very well.



Airports feels alive *Just Flight*



Turboprobs and smaller airlines are included Just Flight

Of course, increased fidelity often comes at a cost, particularly in a simulator that can quickly become CPU-intensive as traffic density rises. Just Flight has shown a thoughtful approach to optimisation and as you'd expect, aircraft models are built with multiple levels of detail (LOD), allowing the simulator to reduce complexity as objects move further from the camera. This ensures that even at busy airports with dense traffic schedules, performance remains stable. We encountered no issues in this regard.

Conclusion

In practice, Just Flight's Traffic add-on fundamentally reshapes Tower Simulator 3 at its core, and it will be a must-have for ATC-sim fans. What was once a largely procedural exercise, becomes something far more dynamic and demanding, as real-world schedules introduce natural peaks, lulls and pressure points, turning the sim into a much more ambitious platform. From a gameplay perspective in general, it's becoming a very polished product. Aircraft spacing, sequencing and runway management is well implemented; we had no issues using voice commands to control aircraft and there are some nice shortcuts to help you learn how to use the sim in a more professional way. Live METAR data is welcome, and a free look camera is also a nice addition meaning, especially with the new traffic add-on, plane spotting becomes a really enjoyable part of the job! The real liveries also make it feel less like you're controlling individual unrelated aircraft and more like overseeing the rhythm of an entire airport, with correct gate placement and realistic on the ground behaviour.

Overall, recognisable aircraft types and liveries, accurate airline callsigns and believable traffic flows all contribute to a far richer environment. The airport no longer feels generic or abstract and the sim now has a clear sense of place and purpose. Controlling a busy departure wave or handling an inbound rush brings a level of engagement that wasn't present before and it makes every session more involving, more unpredictable and ultimately more rewarding. It's also a sim we found ourselves dipping in and out of. You can pick it up for ten minutes at a time, save your progress, and do something else. There's a playability that's welcome, and in an era when it can sometimes feel like an hour-long operation just getting everything ready for a flight in MSFS, perhaps Tower Simulator 3 can provide an interesting antidote.

More broadly, the add-on represents a turning point for Tower Simulator 3 itself. This is no longer a niche product inching forward with incremental updates, but a platform beginning to find its footing – and hopefully there's more to come. With improved visuals, deeper systems, and meaningful third-party support, it is carving out a distinct identity within the wider sim space.

PCP

PC Pilot Verdict

At a glance
Distributor: FeelThere / Just Flight
Price: Approx. £34.99 (Traffic add-on) / £44.99 (base sim)
Website: feelthere.com / justflight.com
Developer: FeelThere (base sim) / Just Flight (Traffic add-on)
Publisher: FeelThere / Just Flight
Score:
In summary: A significant step forward for ATC simulation. Tower Simulator 3 lays solid foundations, but Just Flight's Traffic add-on is transformative

90



The workstation!



B29 formation in KOREA

IL-2 Korea: Preview

Taking a closer look at IL-2 Korea as the closed beta is released

Once in a while, a reviewer gets to write about a game that is breaking new ground. IL-2 back in 2000 was one such simulation, with graphics, damage and physics models a leap ahead of anything on the market. The Great Battles series saw a continued evolution, but KOREA aims to be revolutionary.

The Korean peninsula was a unique theatre. It was a technological space all its own: with piston engines meeting jets, and the first military use of helicopters. It employed the latest in a new technology called RADAR, although it was still a war fought with dogfights and bombers. And it was a tense moment in history and a unique theatre of war: many feared any escalations could lead to an all-out war with China.

IL2: Korea will launch with eight flyable classic aircraft and include massive formations of AI bombers like the B-29 and Tu-2. Korea will allow the player to command a squadron, including the management tasks that go with that command. For the first time the pilot will be a character and be allowed to interact with his world in various ways. The scene of the pilot opening the canopy, then climbing out of his aircraft and stepping down to the tarmac adds to that sense of connection. The object detail is outstanding, whether machine guns or trains, reflecting meticulous research. When you see the detail going into the ground game, you must suspect there's a lot more to come for Korea in future updates.

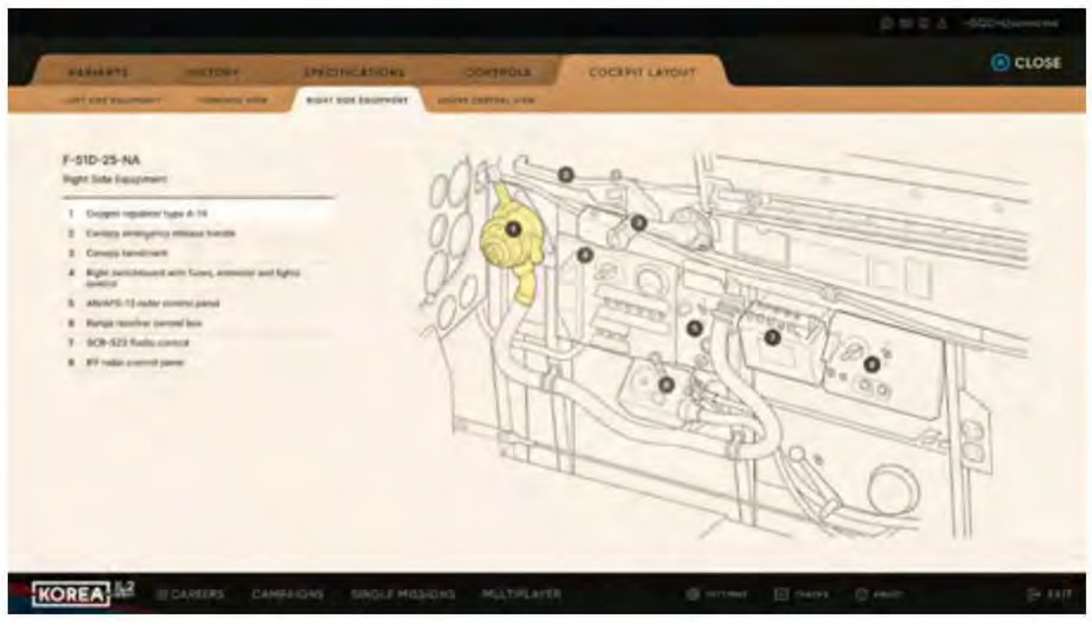
And in fact, Korea will launch in two editions: A Standard version with eight aircraft, and a Founder's Edition that will include additional liveries and a DLC to follow later in the year with five more aircraft, a host of historical paint schemes and new gameplay features. I'm hoping that we might get a flyable bomber or helicopter in the DLC, but nothing has yet been revealed.

Welcome to Korea

1CGS has been able to devote so much effort to Korea because they are not building a single game, but a template they can work with for the next ten years or so. That means a future simulation set in the Pacific Theatre, and who knows what to follow? One of the early concerns voiced in several circles late last year was that terrain detail might not match



Pre-Order Options



In the Museum with the F51



In the Museum with the F-51



In Action with Trains



In Action with Trains



Villages in Korea

the incredible modeling we were seeing for air and ground objects and the beautiful cloud and atmosphere models. From the latest video releases we've seen, I don't think there is anything there to disappoint.

With a new simulation and a new era of conflict modelled, we get some powerful features to help us learn the ropes. A very detailed museum mode is included where players can learn the intricacies of each aircraft, both internal and external. Training missions will be available per aircraft. The museum is expansive. You can pull up a page for Aviation, Ground Vehicles, Armor, Artillery, Railroad, General Equipment and even Ships.

The total size of the detailed map is 500 x 500km (250,000km²). Since the map contains many mountainous and hilly areas, the resolution of the 3D map grid over *Great Battles* has increased by four times. This includes more than 800 settlements, 40 airfields, and many factories, harbours and power plants. It also includes water reservoirs and dams. These are also strategic targets: hydroelectric power was well developed in Korea in the 1950s. The landscape is authentic and it was a huge effort from the team to recreate the terrain of the past, including more than 1,460 bridges.

What 1C are giving us is a simulation plus tactical game with strategic control. Does this sound familiar? It really does recall a much older game called MiG Alley, developed by Rowan Software back in 1999. Curiously enough, that's the same year 1C attended E3 in Los Angeles with a beta of IL-2.

In comparison to *Great tles,* you'll be leading as a regiment (or squadron) commander. That means you'll make decisions about what and where to strike, as well as the composition of the strike force, including its armament. Fuel supplies have gone low? Your strike force will be smaller this time. A supply train was struck yesterday? Better conserve those rockets this time. Failure in a mission will mean less learning and improvement for your pilots. You forgot to order spare parts? Looks like one of your squadrons is grounded a few days. While the campaign is historical and thus scripted, many elements will contribute to make it feel dynamic.

Damage will be persistent and include a variety of types of damage as well as a variety of persistent craters. Damage models exist for everything it seems: tanks and trains and tracks, buildings and vehicles, ships and soldiers. The types of armour and trains and vehicles you see are all historically accurate. There are three distinct types of infantry squads, and for the first time also mortar teams. These teams and squads will move around. Soldiers can be taken out of action individually, and their equipment can be damaged also.

Naturally the most advanced damage models exist for aircraft. IL-2 was the pioneer here, and 1C has continued to improve damage resolution through the Great Battles series. KOREA takes this further, and we will see new kinds of damage and new layers of damage. Break the wing surface in the Mustang and expose the firing mechanism and ammo belt for the .50 calibre guns. Similarly, the engine and hydraulic systems are present in detail in each aircraft. And crashes bring additional kinds of damage, as well as effects not seen before. I watched a



Career Mode for the 'Reds'



Yak9 without Training Wheels



The Ships and Damage Modeling



Cockpit HUD and some Comms



Damn these look good! F-51D



The Boys in the Field

Yak skidding off the runway and generating sparks on the hard surface and then clouds of black earth as the wing contacted the ground.

Similarly, effects have been vastly improved over *Great Battles*. A lot of effort has gone into lighting, and it's immediately noticeable. Guns firing, fires burning, lights shining; even the cockpit gauges all look better. Night lighting is simply outstanding, and especially noticeable around air bases. Smoke trails are more realistic and more persistent. Select different kinds of ammo and you'll see very distinct effects.

Korea will model five types of radar, some of which can track distance and altitude, but some cannot. The player will be able to communicate with these stations to receive target information, fix the player's location, obtain a vector to an airfield or mission target, and more. And radar will operate with realistic limitations – use terrain masking if you don't want to arrive with a welcome party. If your own radar defences are damaged, your own airfields and supplies will be more vulnerable.

Speaking of communications, comms has been expanded in Korea and the interface is more intuitive. With more squadron and group control, there are many more tactical commands available. Similarly, the UI has completely changed. The HUD displays far more information than previously and is more configurable for both placement and detail. Moreover, the player can access a detailed status display for ALL aircraft systems. Gauges provide data but switches are not clickable. These functions are now available on the HUD display.

AI for enemy aircraft and enemy flights has been rewritten for KOREA, since modeling has improved in so many areas and because many of the AI aircraft are jets. But this also means that squadron tactics change, and 1C had to take this into account. As for flight physics, resolution has improved here also.

Asked what difference the player will experience in the F51 compared to the P51 in Great Battles, the reply was: "The same feeling of flight and appropriate aircraft behaviour will be maintained, but we're starting to delve into nuances. Planes have got faster, and the effects of air compression as planes approach the speed of sound are more pronounced. We also model more interesting control effects that impact the handling of the aircraft in certain situations with small inputs, when the stick is moved, when the pedals are pressed, and such nuances."

One of the great features of the IL-2 series has been customisation. There have been a wide variety of historical paint schemes available for various aircraft, and many custom repaints have been added along the way. Korea will be no different, with the exception that these aircraft are significantly beyond those of Great Battles in detail. Most of us will want to personalise our aircraft, and to that end, the numbering system will be even more flexible than in the past. The markings for aerial victories will change dynamically and this will include the multiplayer environment. The emblem system is also extensive, and you can use them on your personal aircraft as well as apply them to AI aircraft in career mode. And that's not all – when the USA transitioned to hard helmets, pilots began to personalise these as well. Yep – you can do this in Korea also!

VR is fully supported. Track IR will be supported but not Tobii. For those who pre-order Korea, three additional (historical) custom liveries will be included: for the MiG 15, the F84-E and the F86-A.

Flyable aircraft in the initial release of KOREA include the following:

F86A-5
F51-D
F80C-10
F84E
MiG15-Bis
IL-10
Yak9-P
LA11

Summary

Ultimately, IL-2 Korea feels less like a continuation and more like a decisive step forward for the series, blending deep simulation with a broader strategic layer in a way that few titles have attempted since the late 1990s. From its richly detailed aircraft and evolving damage modelling to its expansive map and squadron-level decision making, the foundations here suggest a platform with long-term ambition. **By Len Hjalmarson**

PCP



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Aviation Icons: Cessna C310

Peter Stark takes a deep dive into Cessna's second ever twin prop

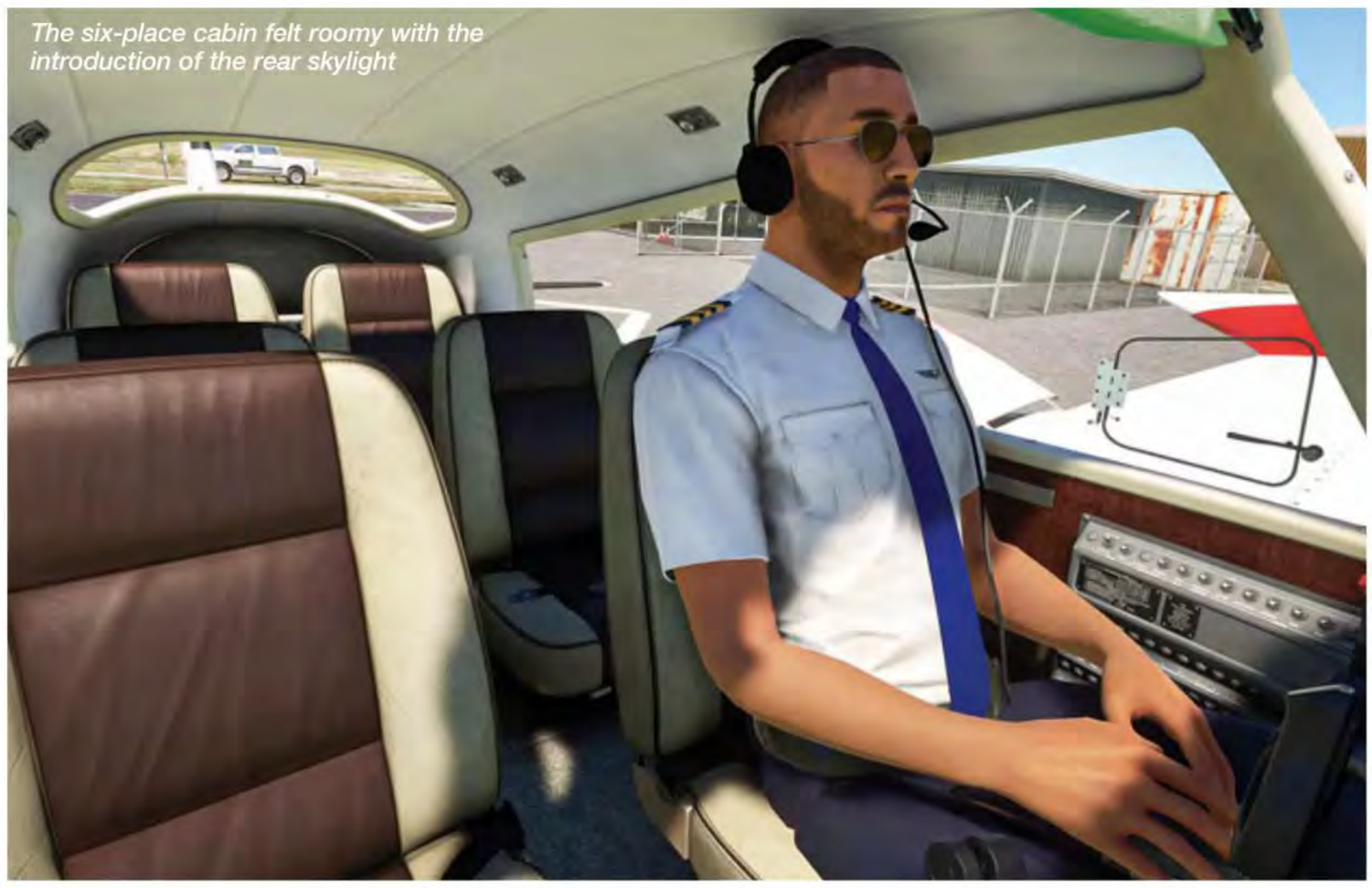
We explore an iconic aircraft produced for over a quarter of a century to primarily serve the general aviation charter market, and which achieved both acclaim and notoriety

Cessna's golden era

Who hasn't heard of the Cessna aircraft company? While we probably immediately think of their single-engined C172 Skyhawk and perhaps their Citation twin bizjet series, this company has built over 200,000 airframes during the life of the company which once peaked at over 5,000 units per year. Financial difficulties were quite common for GA aircraft manufacturers in the late 1990s, resulting in a large number of takeovers and restructures. Cessna was no different and were ultimately bought out by Textron who later also went on to buy Beechcraft and Lycoming, cementing themselves as the main players in the GA industry.

But back in the late 1940s, General Aviation boomed, and Cessna was in a position to capitalise. For the first time, *all* metal designs started to flourish and in the period between 1946 and 1960, they managed to design and build more than 15 types of GA aircraft – an average of one every year.

In that era, engines were certainly not as reliable as they are today, which prompted most GA makers such as Piper and Beechcraft to produce at least one twin-engined aircraft. This allowed aircraft to fly IFR, at night or over hostile terrain with added safety. Cessna's contribution was the development and release of the C310 which first flew in 1953.



The six-place cabin felt roomy with the introduction of the rear skylight





The Cessna C310 was a sizeable twin with later variants having a maximum takeoff weight of 2,500kg (5,500lb)


Just after takeoff was a very critical time for C310 users

design was from the C310G model. They introduced tapered wingtip fuel tanks called stabila-tip tanks. Prior to this model, the tip tanks were massive affairs which earned the nickname of 'tuna tanks' given their rotund appearance. Soon after the model G, fuel tanks were optionally added to the wing nacelles to provide an even greater range.

The major customers were private owners and the charter/feeder airline market. However, they also found a home in the military, with 20 countries using the platform in a variety of roles. For example, the USAF


Perhaps the most recognisable feature are the stabila-tank wing tip fuel tanks

Innovative from the outset

From the very first derivation, the all-metal C310 had one very distinguishing feature – wing tip fuel tanks. In fact, in the earliest models, all of the aircraft's fuel was carried in these tip tanks. It also featured an innovation in that category with over wing engine exhaust thrust augmenter tubes. These tubes used the exhaust gases to create a venturi effect which lowered the ambient air pressure, which in turn provided a more enhanced air flow of cool air through the engine cowling as well as a small boost in lift and thrust. The feature was short-lived however, due to concerns about the engine noise.

Just like Cessna's other aircraft types, they simply added a letter to the aircraft designation each time they made a significant modification. While the C310 design improvements saw extra (and considerably larger) windows, larger engines, raked tail fins, turbocharged engines and more – perhaps the most significant for the aircrafts unique


All production models used radio navigation, but many still flying have been converted to more modern GPS-based avionics



The engine cowl flaps were streamlined to reduce drag and could be left fully open for almost all phases of flight


Later models had huge windows giving all passengers excellent views



The C310 was fully IFR rated with wing icing protection

used them as early as 1957 and dubbed them the L-27 Blue Canoe; they even saw service in the Vietnam War by being used as a courier aircraft between airbases.

Exceptional performance

The C310 has been called, perhaps just a little optimistically, a "Learjet with props!" It certainly had a reputation for being a very good performer and at a cheaper purchase price than its main competitors, the Piper Aztec and the upmarket Beech Baron. A C310 could stretch out to fly as far as 1,400 miles (2,200km), but even at a sprightly 205mph (330kmh) it could manage 1,000 miles (1,600km). Later turbocharged versions could climb to 20,000ft if demanded and a military version even managed over 27,000ft!

Look for a secondhand one today and the chances are it is a C310R as this was the last variant produced until the production run ended in 1980, after seeing more than 6,000 being made in the 26 years. The 'R' variant features what pilots would think of as a typical C310, with a raked tail, three bladed props, rear skylight and of course, those instantly recognisable stabila-tip wing tip fuel tanks.

Pilot beware!

You would think that owning a twin would be just the answer in case you ever had an engine failure, right? Sadly, most light twins of the era did not perform at all well on one engine, and when you combined the complexities of asymmetric handling with general pilot inexperience, it was inevitable that issues arose. In particular, the C310 did have a fearsome reputation should one engine fail soon after takeoff due to a combination of design features, particularly with less experienced pilots. Imagine an engine failure close to the ground soon after lifting off. You would naturally want to raise the gear to minimise drag, manage any adverse yaw towards the dead engine and the associated induced roll of the wings, all while maintaining the best single-engine rate of climb.

The electric gear retraction system was slow, so there was no quick relief from the drag. Those wing tip-mounted fuel tanks had tendency to roll naturally and abruptly in this situation, which could then prompt the pilot to madly over correct with aileron. Sadly, this combination did sometimes result in loss of control.

However, there were some other aerodynamic features that worked nicely in a pilot's favour. Again, imagine you are about to intercept an ILS. Lowering the landing gear would cause the nose to pitch down quite noticeably and could interfere with a smooth transition to the glideslope. Conversely, lowering the first 15° flap could cause quite a pronounced nose up pitch. The solution? Do them together and the pitch movements cancelled each other out!

A peek at the C310 fuel tank/management arrangement had the potential to make grownups cry. While earlier 'tuna tank' models only had fuel in the tip tanks, numerous later models added more wing tanks, and it was possible to have six tanks of varying sizes. Managing cross engine fuel feeds could be confusing and added to the incidence of fuel starvation. Also, given the engines used less fuel than was moved by the fuel pumps, it was possible to dump excess fuel overboard without you being aware until dangerously late.

It also had a relatively high wing loading when compared to its single-engined stable


While commonly seen operating from less prepared airstrips, later gear fatigue issues began to arise



All those sharp edges and lines screamed that the later C310s were built for speed

more powerful and ultimately turbocharged. Accordingly, the climb and cruise performance steadily increased along with the maximum cruise altitude, so it was capable of delivering pilots and passengers quickly, and in a good degree of comfort

Acknowledgments

You can try your hand at this aviation icon using the very realistic Blackbird Simulations C310R for MSFS2020/24, or the Digital Replica C310L for X-Plane 12. Many thanks to Blackbird Simulations and Orbx Simulation Systems for their C310R and UK scenery used this issue. **by Peter Stark**

mates. The C310 could turn from an aircraft to a brick almost instantly, and landings always benefited from holding a little power well into the flare before closing the throttles when over the runway.

But of course, the broad appeal was still enough for the C310 to go down in GA history, with it becoming an immensely popular aircraft with, for many pilots, these idiosyncrasies just being part of the charm of the aircraft and the need for focused airmanship. It was fast, roomy, comfortable and a better financial option for those wanting the security of a twin engine. They are still available on the secondhand market, with many being upgraded to more modern avionics packages and, very importantly for the C310, vortex generators on the wings and tail surfaces. These have helped the flyability of the C310 during that critical phase just after takeoff we saw earlier. As newer models were introduced, the engines became



Born in the analogue era where every switch and button had just one function!



It was important to keep the power up through the flare as the C310 had a tendency to fly like a brick at low speeds

iniBuilds

A brand new representation of Chep Lap Kok for MSFS

Hong Kong (VHHH)

Hong Kong International Airport (VHHH) was built between 1992 and 1996 on an island called Chek Lap Kok in the western waters of Hong Kong's New Territories. Opened in 1998, it replaced the legendary Kai Tak Airport, the latter's dramatic checkerboard approach needing no introduction. The move to Chek Lap Kok marked a fundamental shift in Asian operations to a scale never seen before, designed from the outset as a global superhub capable of handling the immense traffic demands of a rapidly expanding aviation market in Asia.

Today, Hong Kong stands as the busiest international cargo hub on the planet and a major passenger gateway between East and West. Dominated by home carrier Cathay Pacific, the airport has three runways oriented 07 (L/C/R) and 25. Its vast terminal complex was the largest airport building in the world when it was opened. Last year saw over 60 million passenger movements. By any standard, much like iniBuild's Dallas Fort-Worth reviewed last issue, this is an airport of superlatives.



The huge scale of VHHH

The team at iniBuilds have focused their recent scenery output on large international hubs and this release is interesting for its size, the technical challenge and the fact that it's a stern



Construction in progress


Appropriate terminal features


Well modelled terminals and gates

test of how far MSFS 2024's new technology can be pushed in recreating one of the world's most intricate aviation environments.

Size and scale

From the moment you load into VHHH, the footprint of the airport is immediately apparent. This is a sprawling complex of taxiways, aprons, maintenance areas and huge cargo facilities stretching across reclaimed land. As well as the huge terminal building, it's also interesting to see how many remote stands are placed at the western end of the airport, comprising a HAECO maintenance base and the West Cargo Apron.

As you'd expect from a recreation of this space, the taxiway network is comprehensively recreated, the airport boasts an accurate and up to date layout, with signage and ground markings replicating the real-world configuration. Hong Kong International is a place where taxi times can be significant, with long hauls from remote stands to the departure runway being all part of the experience. There's plenty to look at while you're trundling to the active as there are more than 180 handcrafted models featuring custom-made buildings, vehicles and objects across the whole site. The construction of Terminal 2 also features prominently, with cranes and construction vehicles in-situ. In real life, the phased opening of this terminal is due to begin this year.

One of the most impressive aspects is how the scenery maintains visual continuity across such a large area. There are no obvious drop-offs in quality as you move from the main terminal to cargo ramps or maintenance


Nearby points of interest

zones – and the way MSFS 2024's new SDK has been implemented has a limited impact on performance, too. We'll discuss this in a bit more detail later in the review.

Terminal detail

Terminal 1 at Hong Kong is vast and iniBuilds has leaned heavily into recreating both its exterior architecture and interior spaces as a showpiece of the scenery.

Externally, the terminal is sharply modelled, with accurate proportions, glass facades and structural elements that capture the distinctive look and shape of the real building. The gates themselves and associated jetways are intricately detailed and especially pleasing, especially with the integrated GSX profile moving passengers to your aircraft with a sense of immersion and realism that really adds to the experience. For more information about GSX's latest updates that make some of this possible be sure to read Len Hjalmarson's article on page 20.

Switching to a drone camera, the interiors come into view. Detailed terminal layouts have been included, complete with check-in areas, seating zones and populated spaces that bring life to the airport. It's an area where MSFS 2024's improved rendering capabilities begin to shine, with lighting, reflections and depth all contributing to a more convincing sense of space than was possible before. Recent updates have added more passengers in check-in areas, improved signage accuracy (including Cantonese text corrections) and enhanced gate markings.

It's worth noting that the team has not attempted to model every interior space at the expense of performance. Instead, there is a clear prioritisation of visible and meaningful areas, which is nice to see. The inclusion of a future terminal expansion, planned as a free update, also speaks to the developer's intent to keep the scenery aligned with real-world developments as this is an airport that's still evolving.



VHHH is a huge cargo hub

City detail

Take one look at Hong Kong from the air and it's immediately apparent that the approach into VHHH is defined as much by the surrounding cityscape and collection of islands as by the airport environment itself. Recognising this, iniBuilds has bundled a dedicated city scenery package with the airport, significantly enhancing the overall experience. If you purchase the airport, you can add a copy of iniBuilds Hong Kong City Landmarks for free.

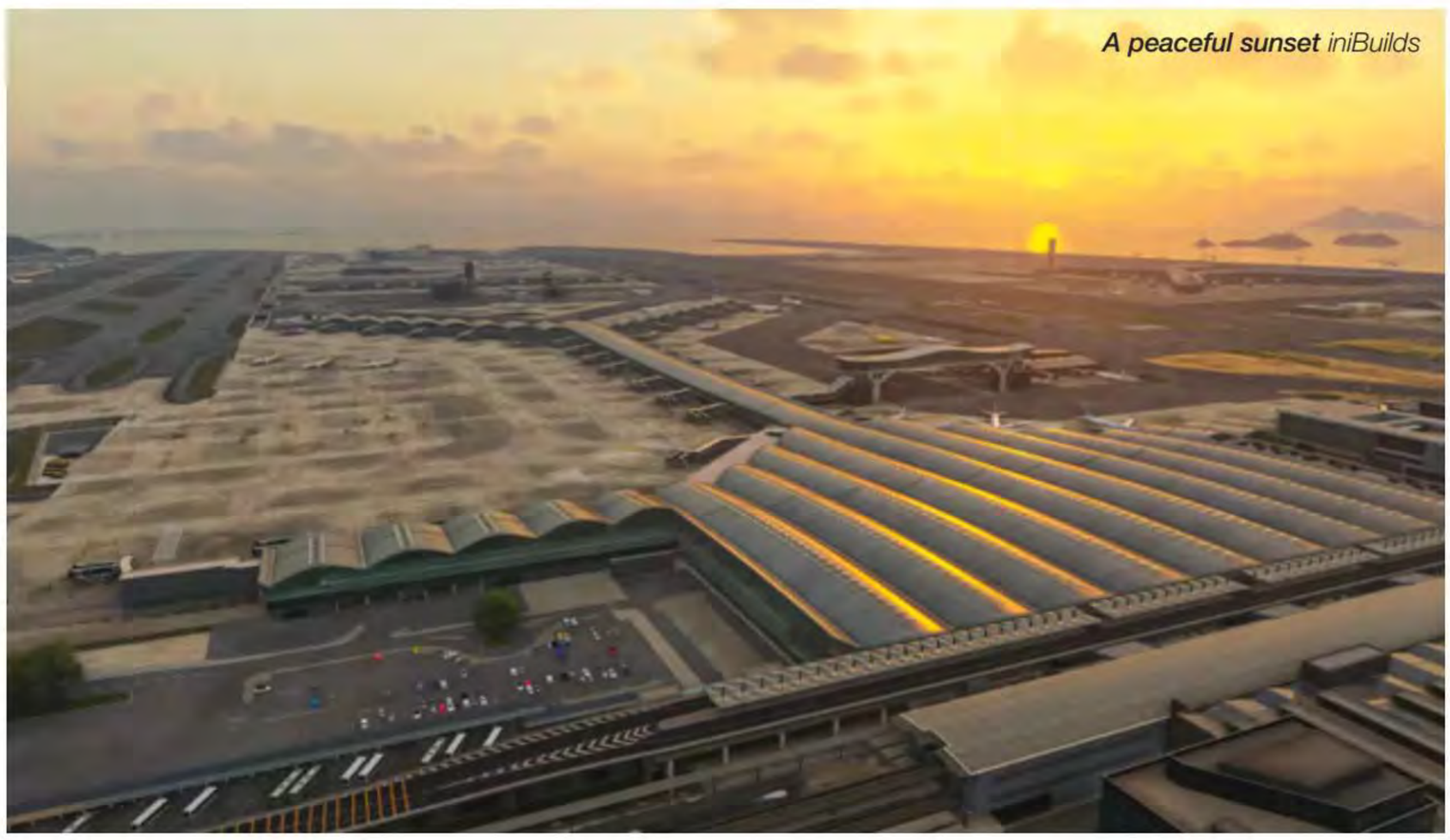
Hong Kong is a city where space is limited and architecture needs to be configured accordingly. The city's skyline is also

AIRPORT ADD-ON FOR MSFS 2024



Cathay Pacific operates a huge cargo centre here


Glittering gold! *iniBuilds*


A peaceful sunset *iniBuilds*

intrinsically linked to the airport experience, and once again it's nice to see a developer understanding that flying to a destination is about a sense of place rather than the airport itself.

Approaches into Runway 25L or 25R are particularly rewarding and, as you descend over the water, the city emerges in layers. This layering effect is something MSFS 2024 handles well and the level of detail as you get closer to the ground is immense. Carefully placed points of interest with consistent model quality, landmarks and waterfront features have all been added, with the skyline especially impressive at night.

As with any large urban add-on, there are areas where default scenery doesn't blend so well with handcrafted elements and the transition is not always seamless, but the inclusion of the city scenery transforms VHHH from a standalone airport into a complete regional experience.

Performance impact and new MSFS 2024 technology

Large-scale scenery has always come with a performance cost. Not long ago, it would have been almost impossible to run an airport like this, with full traffic, on anything other than the most premium system. However, MSFS 2024 and iniBuilds' optimisation efforts begin to make a noticeable difference in this regard.

The scenery has been built using the latest SDK features, with advanced optimised Level of Detail (LOD) systems and improved asset handling. It's still demanding, but the experience is smooth – we didn't experience nearly as many micro-stutters as objects load as we were expecting. As well as testing the system on our high-spec Wired2Fire Valkyrie



Care for a drink?


A very unique location



A convincing sense of place



Looking over the city *iniBuilds*

system, we also installed it on a much more meagre mid-range device that's about five years old. The performance was impressive and there were fps drops in the usual places, but the key point is that these drops were predictable and consistent rather than erratic.

MSFS 2024's improved lighting and atmospheric rendering also play a role here. Night operations in particular benefit from more realistic light spill, reflections and environmental effects. Taxiways glow convincingly and the terminal interiors take on a warm, lived-in appearance.

Of course there are still limitations and it's wise to limit the traffic sliders a little if you can or else fly online where possible, where traffic isn't going to be as full-on as offline systems like BeyondATC.



Coming alive at night

Conclusion

As we continue to review scenery for the MSFS platform, it's quickly becoming apparent that we're not so much reviewing the quality of the scenery itself, but more how in-keeping to the real-world airport it feels. Sense of place is important and we're beginning to see a trend with how developers style their airports, each having a signature 'look' and art direction that captures the essence of a place. There are some designers, creative directors and developers that really are the stars of the show, and iniBuilds are up there with the best and most consistent for the new platform.

With the addition of the landmarks pack and some subtle but highly inventive terminal designs, this is a compelling option for fans of flying in Asia. There's no doubt that this is an ambitious and, in many respects, highly successful recreation of one of the world's most important aviation hubs, available for a relatively affordable price. It captures the defining characteristics of the airport and its scale and complexity. The use of MSFS 2024's new SDK features results in a product that feels modern and as performance-friendly as possible. **PCP**



Some of the key elements of the city are modelled in the landmarks pack

www.Key.Aero

This review was supported by our friends at Wired2Fire, providing the best performance possible for detailed scenery such as this.
AMD Ryzen 7 9800X3D 8-Core Processor (4.7ghz)
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PC Pilot Verdict

At a glance: An impressively scaled recreation of Hong Kong, backed by strong modelling and a welcome city package.
Distributor: iniBuilds
Price: £23.99
Website: www.inibuilds.com
Developer: iniBuilds
Score: 87

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FSWeekend 2026

A round-up of news and key launches at Europe's biggest flight sim show, FSWeekend at Lelystad, in the Netherlands

This a growing annual event, bringing together industry developers, manufacturers, and passionate enthusiasts from around the world for a remarkable two-day experience. With updates and live stage presentations, the March show appeals to all ages, united by a love of flight simulation. This year stood out for its prominent exhibitors, big names, new names, and rising and emerging talents, with a strong focus on European developers showcasing products across nearly every sim platform. Attendees are able to engage with developers and vendors, and even speak with CEOs. What follows is a comprehensive overview of the highlights and latest updates.

FeelThere

Victor Racz, founder of FeelThere, announced that the company will celebrate its 25th anniversary next year, marking the occasion with the planned release of Tower! Simulator 4. Key features will include significantly enhanced AI capabilities for the voice-recognition and command handling,









Moza MCP Panel



Core Flight - New Panels

along with backward compatibility with FeelThere add-ons from Tower! 3. It is being designed as a platform rather than just a simulator, opening the door for developers to enjoy far greater freedom in the content they create.

Moza

This company continues to excel in the race-simulation world and is extending their expertise to make strong strides in aviation, offering an extensive range of hardware peripherals and panels. They revealed two new products: the MX1000 avionics panel, designed as a mirror of the Garmin G1000, and a carefully engineered, true-to-life Airbus MCP panel for Airbus enthusiasts (see photo), introduced under the name MA3F panel.

Core Flight (CFT)

This Turkish flight panels designer and manufacturer surprised with three impressive new mini flight panels; a mini Boeing overhead panel, plus two mini Airbus panels available this year (see photo).

Motosolo Aviation

Launched last year, this new brand focuses on the Airbus A320. They produce mini cockpits for this aircraft model, covering the side stick, overhead panel (see photo), MCP, mini displays such as the PFD, MFD, ECAM display, almost a complete centre pedestal with MCDU, throttles, a solid radio panel, and more.

Navigraph

A bunch of new features under the name Approach Bundle was announced for this must-have platform offering comprehensive navigation, planning, and chart services. The bundle includes an ILS approach feathers and runway-centreline extension, allowing the user to see on the map where the localiser signal begins for a runway —especially useful if you're unfamiliar with the final fix point or need to quickly determine where you can capture the glide slope using limited information, such as NAV frequency and CRS heading. Scratch pad, recently announced but still considered new, was originally planned for release last year. Distance-measuring tool, a ruler-like feature, allows you to measure distances between points on the map, useful for VFR planning. Lastly, SayIntentions.ai integration was introduced. Navigraph Charts includes SayIntentions ATIS integration for improved pre-approach awareness, allowing users to quickly access the latest ATIS information directly from the Flights menu and choose a preferred source in settings.

Just Flight

Just Flight offers interesting, well-designed aircraft for X-Plane and MSFS. Among the new releases was the Fokker 70/100, still in pre-order stage. A generous expo-only discount was offered on most of their aircraft. I recently picked up the PA28-181 Archer III, which comes in two variants: a glass cockpit with G1000 and a beautiful analog cockpit layout.

ExcelAir

One of the new names this year, with a talented team working behind the scenes to produce true-to-life Embraer overhead panels with Swiss-quality craftsmanship for the E-Jets family. The panels are said to be fully plug-and-play for any sim and connect via Ethernet, not USB. Their pricing reflects the premium quality. Unfortunately, no model was available to photograph.


Motosolo Mini Airbus Cockpit



Navigraph Booth



WINCTRL Airbus Tiller



WINCTRL Modular Combat Throttle



Pro Flight Trainer - Full Kit

WINCTRL

A summary of the new products and updates from this company's portfolio of highly detailed gear and peripherals.

New combat throttles quadrant, available in two variants: compact and large (see figure), optionally bundled with a flying stick. It supports key-binding profiles for different assignments, easily switched via a knob during simming, configured through the WINCTRL software.

New Airbus tiller, compact and mount-free (see photo), with handle movement and tension emulating a real tiller, adjustable via a bottom screw.

New Cyber Taurus force feedback rudder pedals, with variants for combat and airliners, models EB 195 and EB 590, offering strong power.

Rudder pedals can be paired for dual cockpits, automatically synced by software.

Airbus rudder trim knob also drives pedal movement.

ViperAce Grip 2 handle with realistic material feel and vibration for throttles.

Airbus overhead panel OVHD 32 SOP, true-to-life size, expected at US FSExpo 2026 for $349.95.

Combat panel MIP UFC.

Flying stick, Fly-by-wire model 3X0, full metal for Airbus with vibration, $69.95.

Boeing yoke Gen2-prototype was showcased, and the official release is planned after Gen3 development, with a moderate force feedback, flexible mounting (release date yet to be announced).

Pro Flight Trainer

A Swiss company with over 20 years' of experience designing flight controls for helicopter simulators and realistic training hardware, using highly detailed components

for immersive experiences. They produce complete sets (see the figures) including the cyclic, collector, and rudder pedals. During this expo, they announced Gen6, a new generation of products supporting helicopters like the Robinson A66, Airbus helis, and Bell. All controls are compatible with major simulators. For more details, see: pro-flight-trainer.com

Expanded Flight Hub

Simulate search and rescue and wild-wwith parameters, inject them into the sim, and use default aircrafts with water-drop capabilities or third-party planes. Available for X-Plane only as perpetual payware. For info, see: expflighthub.com

SayIntentions AI

Not much was shown at this expo, aside from promises to improve live chatter response time for simmers.

Honeycomb

A new mini throttles quadrant is in development, intended as a bundle with the Foxtrot flying stick. The team expects an official release later this year. I tested an early prototype, which still requires refinement before launch. It will be bundled into what's called the Foxtrot Takeoff kit (see figure).

VirtualFly

As expected from VirtualFly, they deliver premium-quality yokes and products that cater to official training simulators as well as



Brunner FFB-G Flying Stick



YOKO Force Neo from VirtualFly

elite home-based flight simming. They are producing their first top-level force feedback yoke, the Yoko Force Neo, featuring 165N pitch axis and 8.5Nm roll axis (see figure). It is expected to be released in Q4 this year, priced at €2,000.

Brunner

A well-known Swiss company renowned for premium force feedback yokes, flying sticks, and rudder pedals. They introduced a new force feedback flying stick base, model FFB-G, compatible with any of Brunner's stick handles, along with the FFB-G rudders (see figure) offering moderate force of 190N, providing an affordable option with reduced power. According to the team, both products can be bundled for approximately €1,000.

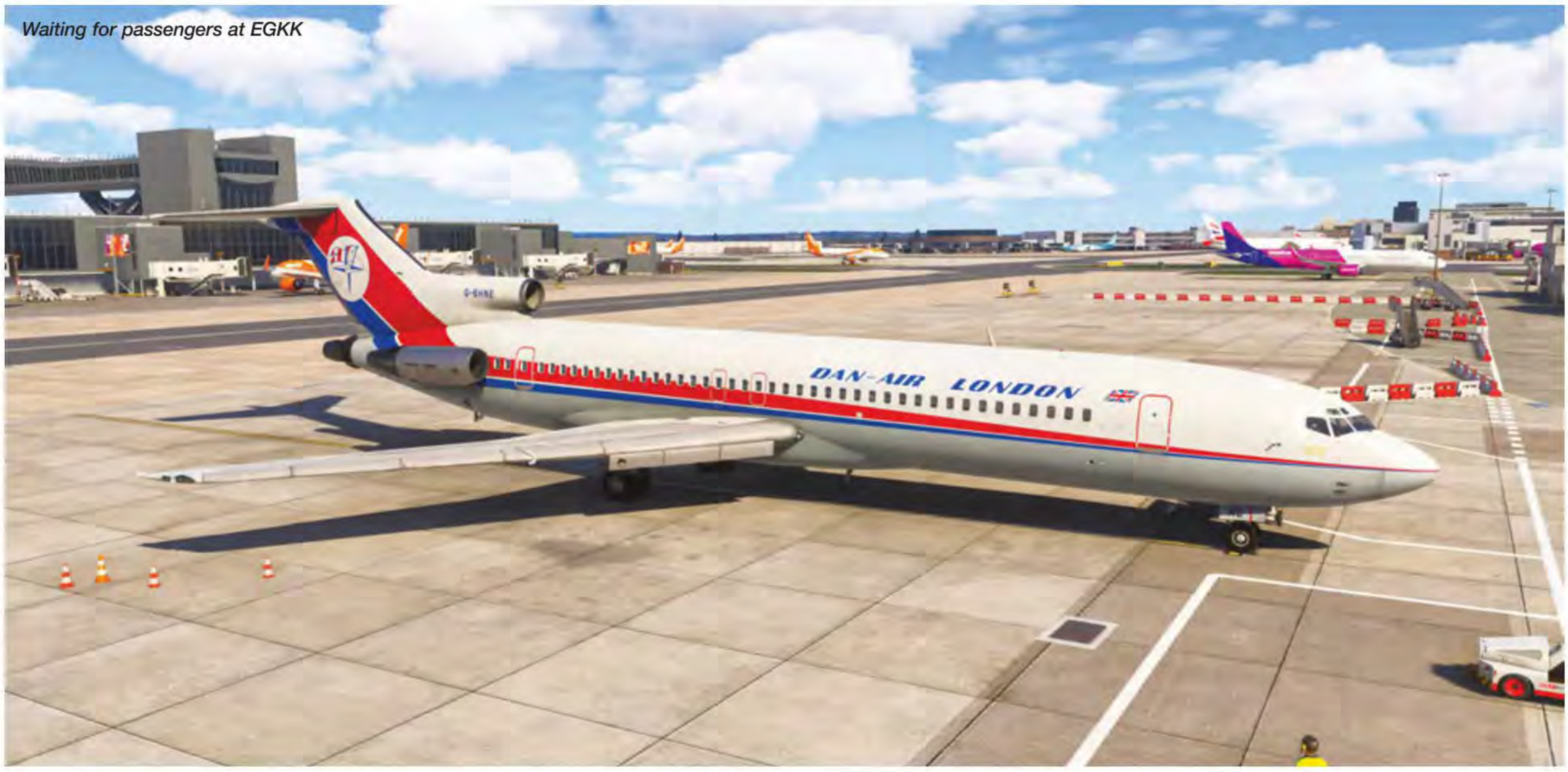
InHolland: FirstSimDelft

A talented team of students from local high school InHolland Delft designed a full-motion cockpit seat on motors. This prototype is intended for study and research purposes and is not for sale (see figure).

As FSWeekend continues to grow, it's clear the show is no longer just a gathering of enthusiasts, but a genuine barometer for where the hobby is heading, much like its US counterpart FSExpo in June. From increasingly sophisticated hardware and deeper platform integration to the rise of new developers alongside established names, the momentum behind flight simulation shows no sign of slowing.

Mohamed Roushdy

PCP



Waiting for passengers at EGKK

Classic Routes: Dan Air – Gatwick to Málaga

In this second instalment of *Classic Routes*, we look at the boom in Spanish charter travel with Dan Air and Flight Sim Studio's 727 passenger variant

A certain generation of British holidaymakers are well-acquainted with Dan Air. The carrier helped pioneer a very particular rhythm to charter air travel: early morning check-ins, handwritten luggage tags, the hum of a busy terminal and the promise of a warmer climate a few hours away. Waiting at the gate, a rear-engined trijet ready to carry them south. In the 1970s and 1980s, few aircraft captured that experience better than the Boeing 727 and few airlines embodied it quite like Dan Air.

For this second instalment of *Classic Routes*, we're leaving behind the widebody efficiency of Eastern's A300 and stepping into something altogether more down to earth. The route is London Gatwick to Málaga, gateway to the Costa del Sol and a defining corridor of Europe's emerging leisure travel boom in the latter half the 20th Century. The aircraft is Flight Sim Studio's excellent 727 passenger variant, recently released as an addition to their freighter model we reviewed in *PC Pilot* in late 2024.

Dan Air

Dan Air was never a flag carrier, but looking back at its scale now, it's easy to forget just how ubiquitous its jets were across the UK. Founded in 1953, it built its reputation on a pragmatic attitude to travel: affordable flying for large numbers of people and getting families on holiday and to where they wanted to go safely and cheaply. Largely, this meant charter flying.

Operating on behalf of tour operators, Dan Air became the central airline in Britain's package holiday revolution. Before tour operators started their own operations and airlines, Dan Air carried thousands of passengers from largely regional airports to destinations across Spain, Greece and beyond. The experience was simple and there was little glamour in the operation, but there was immense character.

The variants they flew were idiosyncratic and wide-ranging. They were the largest De Havilland Comet operator (and the last to fly the aircraft, retiring the final example in 1980). They were the launch customer for the BAe 146 and they also flew plenty of examples of the BAC One Eleven, the Boeing 707 and the Hawker Siddley 748. Later, in keeping with the period of this classic route, they flew the 737-200 and 727-200.

Aircraft were often acquired secondhand, interiors varied and liveries evolved over time. Dan Air was approachable, human and an airline that worked hard and became deeply woven into the fabric of leisure travel. Sadly, by the time the 1990s had arrived, Airbus and Boeing had dominated the medium-haul market with more efficient variants of their aircraft and tour operators had set up their own airlines. This meant Dan Air was hamstrung by an inefficient, noisy, ageing fleet and couldn't keep up with the evolution


Starting the pre-flight flows


A busy engineer's panel

of package travel. It was sold for a nominal £1 to British Airways in 1992.

Boeing 727-200

The 727 was designed for short-to-medium sectors and is often referred to as the 'DC-3 of the Jet Age'. In many ways, it was the 737-800 of its day, seen flying all over the world and helping to popularise domestic flying and intercontinental travel. It was developed by Boeing to address a direct need for an alternative to the large, long-range 707, and it sold in huge numbers. Excellent field performance and the ability to operate from shorter runways helped, while its three-engine layout gave it a distinctive character.

By the time Dan Air operated the 727-200, a stretched version of the original jet, the type in all its variants had been a staple of global airline fleets for decades and it was beginning to be acquired in large numbers on the secondhand market. For charter work, it was ideal, as it could carry a significant number of passengers, operate multiple sectors per day and handle the varied infrastructure of European holiday destinations, many of which were still developing their airport operations.

For this flight, we're operating Boeing 727 G-BHNE. It represents Dan Air's later 727 operations in the 1980s and would have spent its days flying exactly the kind of route we're flying today. Sadly, the 727's operation at Dan Air was marred by the tragic crash of Flight 1008 from Manchester to Tenerife, a controlled flight into terrain that resulted in the deaths of 146 people. It was one of the worst aviation disasters involving a British airline at the time and contributed to the 727's limited success at the airline. For more about this, there's an excellent BBC *Panorama* progamme outlining the causes of the crash available on YouTube.



Excited holidaymakers boarding

In the 1970s and 1980s, Málaga in Spain was one of Europe's fastest-growing leisure destinations. The Costa del Sol offered sun, beaches, a warm climate and a sense of escape that drew millions of British travellers each year. Gatwick had become the UK's primary charter hub and had grown significantly.

Departure from Gatwick

On stand at Gatwick, we're preparing the aircraft by using Flight Sim Studio's excellent automated flight engineering device. It will run through the start-up flows for you, get the APU running, test the systems and get the aircraft powered up. As this is happening, we're starting the GSX boarding and watching excited families armed with holiday paraphernalia climb the stairs to board, including up the unique rear stairs into the aft galley of the plane.

The FSS 727's passenger cabin is well modelled and exactly what you'd expect to see from a charter airline in the 1980s. Large, comfortable padded seats, antiquated vents and passenger signs and a small galley with period correct coffeepots! The design on the seats is also peak 1980s. As this flight represents Dan Air's later operating days, we're also flying in a two-class configuration, with a curtain between the two cabins.

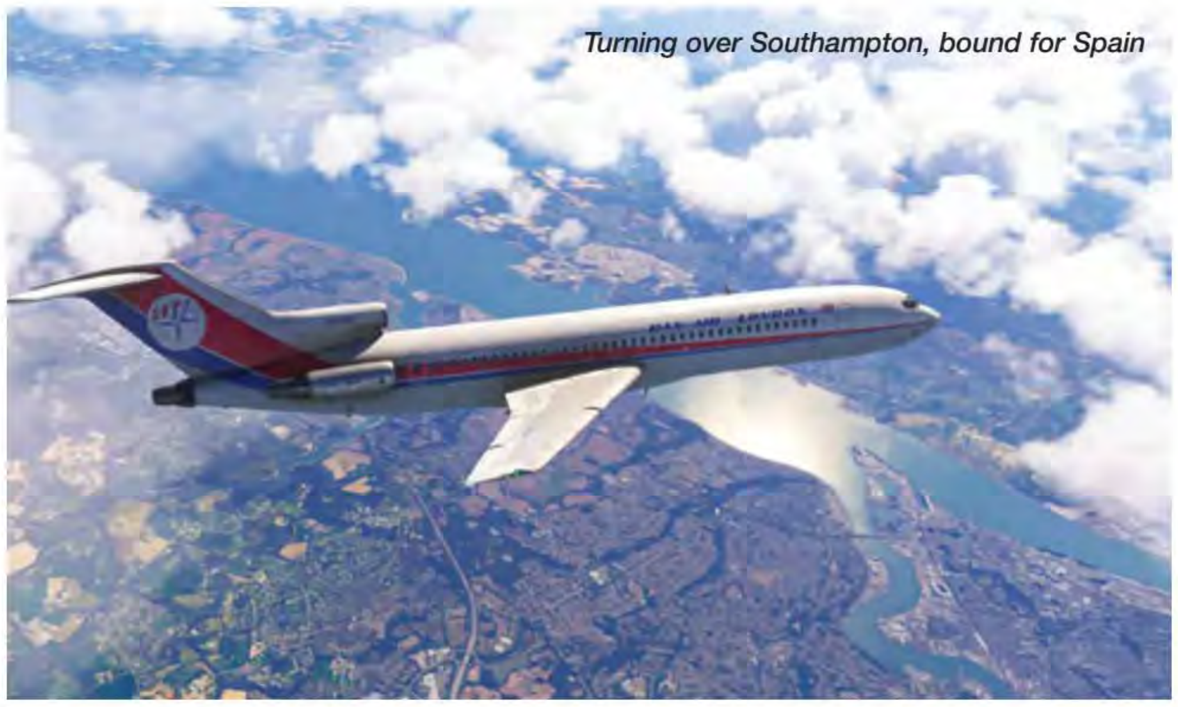
As the engineer is running through the checks, we check the aircraft's weight and balance using a period-correct clipboard. GSX integration works well and we input the data and find our N1, EPR and trim settings for take-off. No FMS here – you can choose between a bolt-on default GPS, a basic GNS-XLS with a moving map or a more classic INS module that supports SimBrief flight plans with up to 10 waypoints (additional points need to be added manually). If you have it, you can also install the GTN 750 or GTN Xi.


The rear stairs in use


A distinctly 1980s cabin


Climb out from 26L


Seatbelt signs off


Turning over Southampton, bound for Spain


Lots of calculations to do in the cruise, if you so desire

Soon we're pushing back and taxiing out to 26L. The engineer runs through the taxi and before take-off checks, flaps are lowered, landing lights are switched on and we line up. The 727's take-off is unmistakably of its era. Acceleration builds steadily with the accompaniment of an excellent sound package and, once airborne, the aircraft requires careful speed management when relatively heavy, as it lumbers away with trademark smoke billowing out the back. There's no one button autopilot here, and we fly the SID manually towards the south coast before turning on the LOC mode. For a slightly lower workload, we've also switched on the optional autothrottle (a real-life add on offered), which means we can focus on the right profile towards our flight levels.

En route

As we emerge over the south coast of England, past Southampton, across the Channel and out over Brest to the Bay of Biscay, the engine noise dies down a little and the 727 settles into a very comfortable, capable cruiser. Passenger announcements are included in the FSS 727, so as the cabin service gets underway, we settle into our seats and watch the clouds roll underneath us.

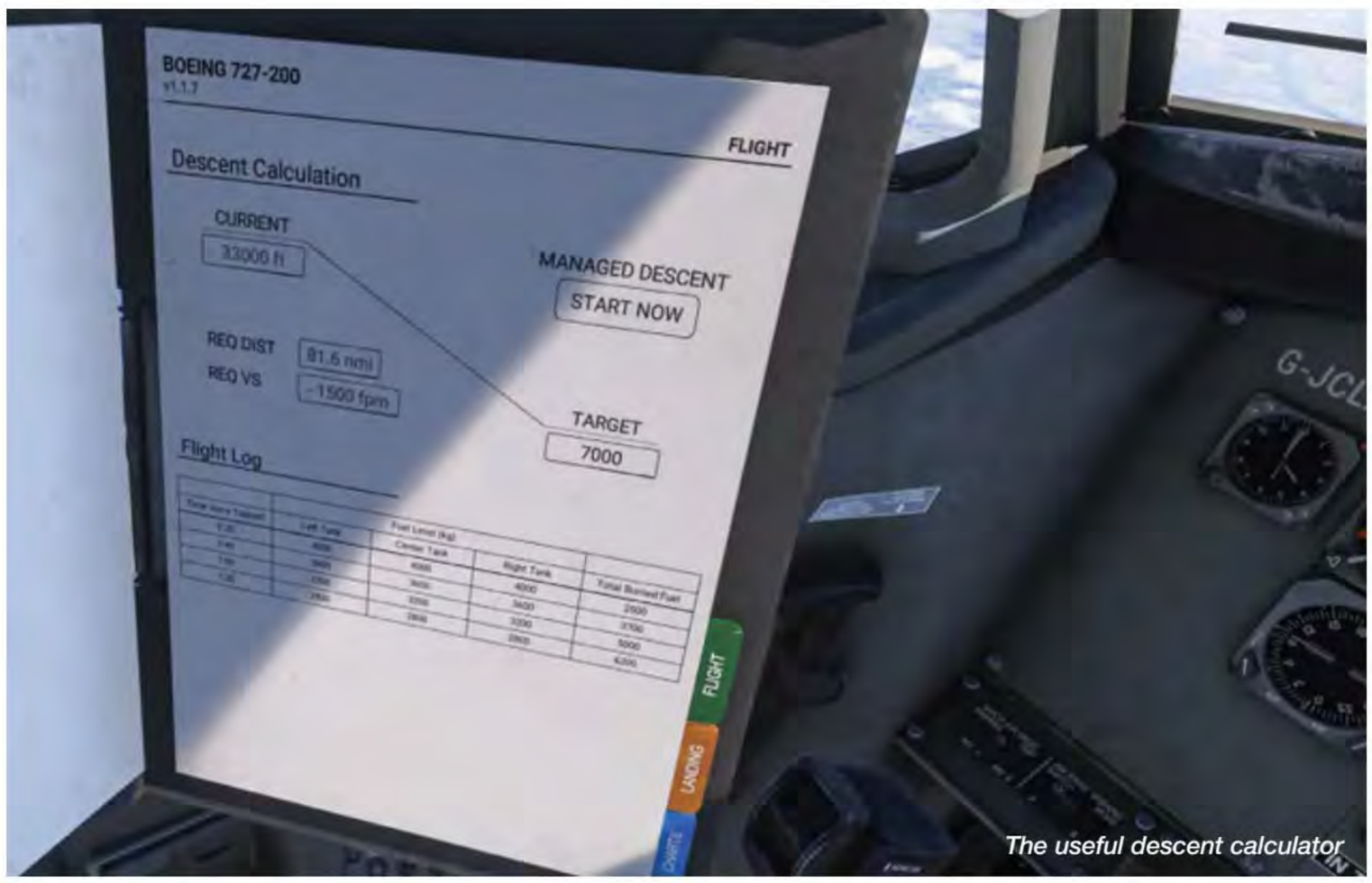
That said, cruising in the 727 is not a passive experience. Engine management, fuel balancing and navigation all require input, and although this is somewhat circumvented and made easier by an automated flight engineer process, there is no modern VNAV quietly handling vertical profiles in the background. Instead, we're already thinking ahead, planning descent points, checking the weather, briefing our plan of action if we have to divert and ensuring that we're able to manage the energy of the aircraft as we head 'downhill' into Malaga.

The Arrival

Anticipation builds in the cabin as the vast plains of central Spain and Andalucía make way for the sun-drenched beaches of the Costa-del-Sol. As activity builds in the airport and package operators are parking their coaches ready to receive the 162 passengers and cart them off to various hotels along the coast, we're planning our approach.

Arriving into Malaga, particularly in the afternoon, introduces thermal activity and weather to consider, as well as nearby terrain and an influx of traffic from all across Europe, particularly during the summer months.

Arriving high and fast is always a possibility in the 727, and although we're following our STAR procedure carefully, an unexpected 'direct-to' request from ATC means we're above the vertical path. Handily, Flight Sim Studios have included a rudimentary descent calculator in the flight bag. Enter the desired target altitude, the current altitude and the speed and you'll get a rough vertical speed needed to stay on track. This is especially



The useful descent calculator



Landing configuration

useful during aforementioned route changes, but obviously altitude is traded for speed, so wasn't uncommon during regular operation of the 727 to see regular and judicious use of the speedbrakes during descent. On final approach, autopilot is disconnected as soon as established and we fly by hand straight down the glide – a fantastic experience!

By the time the wheels touch down we've been fully engaged from start to finish, which is one of the reasons this passenger variant of the FSS 727 is so appealing as an option in the hangar. With excited travellers onboard excited to start their holidays, arriving into Málaga in the 1980s carried a sense of occasion, and after departing the often overcast skies of the UK, the descent into southern Spain revealed a very different landscape that was bright, sunlit and expansive.

On the ground, Málaga reflected the rapid growth of tourism. Terminals were busy, aprons filled with charter aircraft, and the atmosphere was distinctly different from the structured environment of Gatwick. For passengers, it marked the beginning of a holiday. For crews, it was another quick turnaround before heading back home.

Recreate the experience

Gatwick to Málaga in the Boeing 727 represents a style of airline operation that has disappeared. It was defined by high-density leisure travel, analogue cockpits and aircraft that demanded constant crew input. Although airline economics now favour quieter, more efficient aircraft, planes like the 727 paved the way for the operations of today – high turnaround, regularly employed workhorses that allowed people to see parts of the world that they wouldn't normally have got the opportunity to.

The Flight Sim Studios 727 passenger variant is the perfect accompaniment to medium-haul flying in MSFS and is a well-developed, intricate recreation of the 727, with enough assists and automation (should you choose to use them) to make it accessible for the vast majority of simmers. There's fantastic online documentary and quick access guides, too. The cabins are well modelled, the sound effects are excellent and it'll be part of our regular hangar for many more flights to come. **PCP**


Whizzing past on short final!


Speedbrakes up

Aircraft: Flight Sim Studio 727-200 Passenger
Website: www.flightsim-studio.com/727
Price: 40.29 EUR (34.81 GBP)

Moza AB9 Base and MH16 Flight Stick

The ultimate force feedback system for today's sims?



Unboxing

Force feedback has long been the missing piece for many of us using mainstream flight simulation hardware. While high-end solutions have existed for years, they've often been prohibitively expensive, limited in availability or require extensive cockpit set-ups to really get the best out of them. Enter MOZA Racing, a celebrated racing sim manufacturer, with the AB9 base and MH16 flight stick. We've covered their AY210 Yoke Bundle in a previous issue, but if military sims, helicopters or modern prop flying is more your thing, this is a joystick pairing that promises to bring true force feedback into the enthusiast mainstream.

Unboxing

MOZA clearly understands that first impressions matter and that if you're spending a decent amount of money on a flight sim control solution, you're investing in the brand on a personal level. Both the AB9 base and MH16 stick arrive in packaging that feels far more premium than many competitors, with everything tightly secured and neatly arranged. Included in both boxes are hex keys, spare fittings and screws, reinforcing the impression that this is a serious piece of hardware that is well suited to more complex set-ups.

The AB9 base is quite imposing straight out of the box. As their most premium control unit, it's made of aviation-grade aluminium alloy and it's a dense, weighty unit. There's a reassuring sense that this is hardware that's designed to be bolted down and used hard.

Setting up

Initial se-tup is where the AB9 begins to show its ambition. You plug in the power adapter and connect the USB cable to the back of the base. It's straightforward to attach the flight stick with a screw-down mount (the attachment of the yoke we reviewed previously was also a clever design) and then start programming and calibrating the device.

The system relies on MOZA's Cockpit Control software, which acts as the central hub for firmware updates, calibration and force feedback tuning. It's a powerful piece



The ecosystem



Out the box


Flight stick attachments


Up close to the stick

of software and we're fairly sure we've only just scratched the surface of it for this review. It offers deep levels of customisation, including telemetry-driven force feedback and per-aircraft profiles. On Moza's Discord server you can download community-made profiles that can be imported and tune the stick's feel to individual aircraft. There's also an auto key mapping solution per flight sim, so it's as ready to go out the box as possible. As we pointed out in the AY210 Yoke review, a lot of thought has gone into the Cockpit Control software – it's a great piece of kit that works well.

However, it's worth noting that it is not a plug-and-play experience in the traditional sense. While the hardware itself connects easily, getting the most out of the system requires time and understanding. Calibration must be done carefully, and tuning force feedback curves is essential to achieving a natural feel. For many experienced simmers though, this level of control is welcome.

Build quality

This is arguably where the MOZA system excels and there's a lot of tech in the AB9 box. A fanless structure minimises noise and a sealed design not only reduces dust and particulate ingress but also extends the device's lifespan. The dual servo motors deliver up to 12Nm of torque

The MH16 stick continues this theme, with an all-metal construction inspired by modern fighter jet controls. It feels substantial in the hand without being overly heavy, and certain aspects are modular, allowing an easy change of configuration using 'pogo pins' to attach a range of switches. We were a bit disappointed to see no Z-axis for rudder shipping with the unit, but this is an additional module that you can apply to the base for a cost. There are 30 input signals, so there's lots of flexibility when it comes to mapping.

Installation

There's no getting around the fact that the AB9 base and MH16 stick together makes for an imposing unit. Installation is flexible, though it does demand a degree of planning. This is not a stick that you can just put on top of your desk and find it easy to work around, especially if, like most of us, your flight sim set-up also has to operate as the work or family computer.

The AB9 base supports multiple mounting options, from desk clamps to full cockpit integrations (clamps are sold separately), and given its weight and size, a solid mounting position is important – underneath the desk is the best option, or else directly in front of your gaming chair, between your legs, like you'd find in a real fighter jet. If mounted on top of a desk, as I'm sure the pictures demonstrate, you'll need to raise your screen up so high that it becomes somewhat unmanageable.

This is hardware that rewards a proper set-up. Mounted correctly, it becomes an integral part of your cockpit rather than just another peripheral.

Flight feel

Force feedback fundamentally changes the way you interact with an aircraft in the simulator. Rather than relying on visual cues or muscle memory, it's a totally different experience and the 12Nm torque output allows it to replicate a wide range of forces, from subtle trim changes to heavy control loading at high speeds. It's a joy to feel turbulence, ground roll and aerodynamic resistance in real-time, as you're watching what's happening on the screen, and these are all conveyed through the stick in a way that traditional systems can't match. If you're pairing this system with a widescreen cockpit set-up or VR, there aren't many control solutions that can replicate the feel of flying.

In combat simulations like DCS, which is what the MH16 flight stick was designed for, the effect is even more pronounced and impressive. Weapon recoil, airframe stress and high-G manoeuvres all feed back through the stick, creating a tactile connection to the aircraft that is difficult to overstate.

The AB9 system excels in dynamic control response – as speed increases, resistance



In a small set-up at home, it's an imposing device



Multiple mounting options for the base

The MH16 fighter inspired stick





The stick features 30 programmable buttons

builds naturally, and as trim changes, the neutral position shifts accordingly. These subtle behaviours elevate the experience from a simulation to something approaching authentic flying.

The stick is compatible with other bases





A lot of buttons!

Handling

Precision is just as important as immersion and we were really impressed with the subtle details that enabled us to hand-fly a variety of aircraft with more accuracy than ever before. The high-resolution encoder ensures that inputs are smooth and consistent, and consistency is really key here. It's easy to hold a banked turn or certain pitch profiles with limited input, much like in a real aircraft, with the force feedback ensuring you feel, not just see, what the aircraft is doing. There's no noticeable dead zones or jitter and fine adjustments are handled with confidence.

The MH16 offers an extensive array of inputs, with around 27–30 programmable controls depending on configuration. This makes it particularly well suited to complex aircraft, where quick access to multiple systems is essential.

Ergonomically, the stick is comfortable for extended sessions, with a layout that feels familiar to those used to modern HOTAS systems, but there's a lot of buttons and a fair degree of contortion needed to find the switches you need at the right time. We'd have liked to have tested a left-handed option, but if you're committed to flying from the left seat of an airliner, the brand's MA3X Side Stick might be your best option.

Conclusion

The MOZA AB9 Flight Base and MH16 Flight Stick represent a significant step forward for consumer flight simulation hardware, at a price point accessible to more people and without the need for large custom-made cockpits. But this is not an entry-level product. To get the best out of it demands investment and a short test flight can't fully appraise the hardware. Perhaps we'll give an update in the future to see how we're getting on, but we're sure that time spent configuring and understanding the hardware's capabilities will be beneficial. Luckily, the Moza Cockpit Control software makes this a lot easier.

Force feedback transforms the flying experience in a way that is difficult to appreciate until you've used it. It adds a layer of communication between pilot and aircraft that simply doesn't exist with traditional systems, and the AB9 delivers this with authority so long as you're prepared to spend some time downloading the right profiles and tweaking your set-up. The MH16 stick complements it well and is a capable and impressive military-quality unit, with a good feel in the hand thanks to its pleasing premium metal construction. If we were to be picky, we'd like to have seen gated hat switches, a Z-axis option out the box and slightly better responses on the trigger switches. If airliners are more your thing, you have the option of the MA3X sidestick or the slightly more affordable MHG stick. PCP

PC Pilot Verdict

At a glance: A transformative force feedback system that brings a new level of immersion and realism to flight simulation, but best suited to dedicated desks and those with space to use it to its full potential.
Distributor: Various (direct & specialist retailers)
Price: £549 (base) / £169 (stick) Special offers often available
Website: mozaracing.com
Developer: MOZA Racing
Publisher: N/A
Score: 89



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1088/25

Aerodynamics – High Speed/High Altitude Flight

Michael Townsend continues his teachings on aerodynamics by looking at high-altitude, high-speed flight

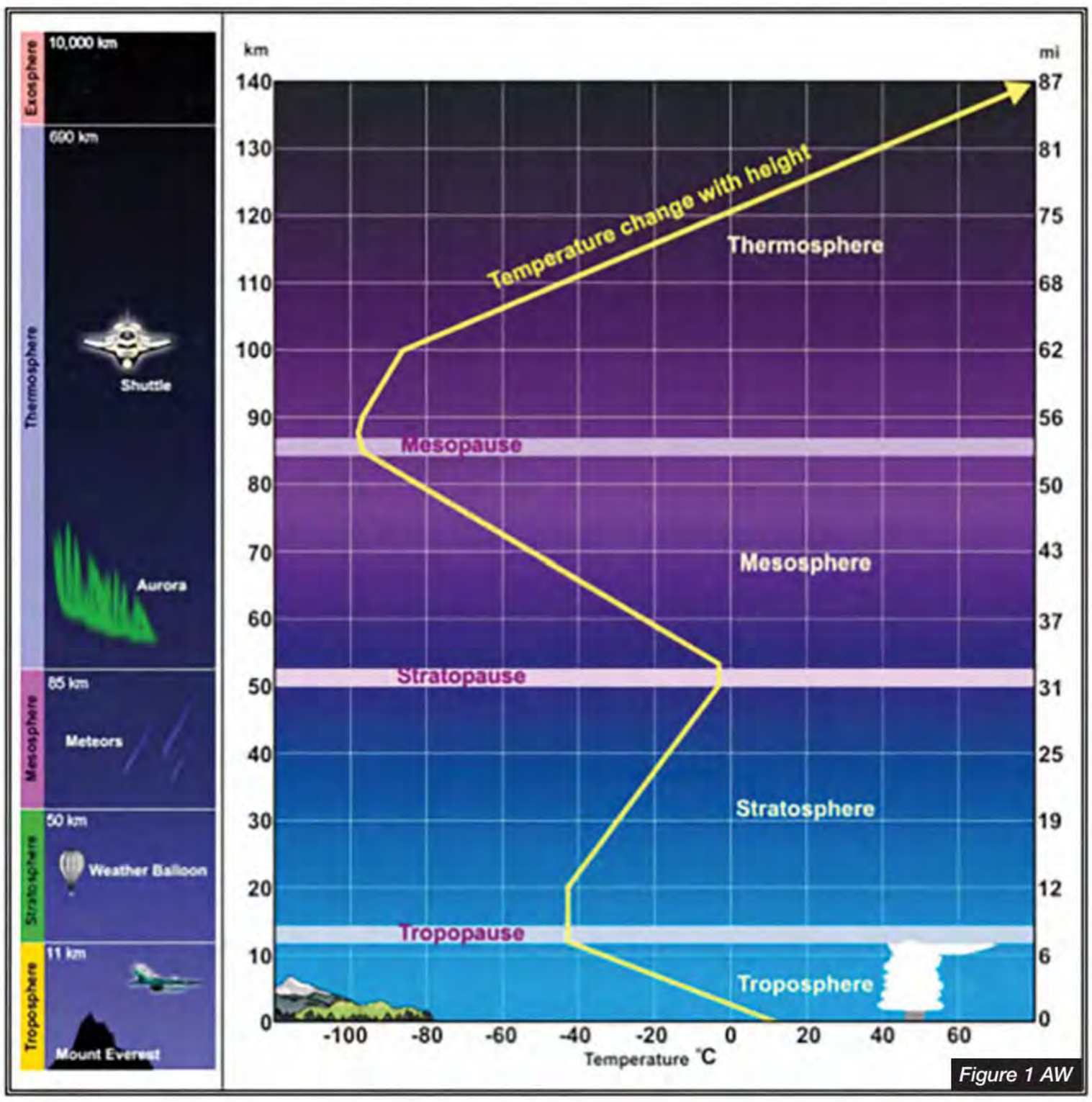


Figure 1 AW

Austrian physicist Ernst Mach (1838-1916) discovered the speed of sound by measuring shock waves. The notation Mach 1.0 for the speed of sound at sea level is named in honour of this discovery. Aircraft speed is categorised into four subsets of the percent of Mach 1.0: Subsonic is 0.75 and lower; Transonic is 0.75 to 1.20 and Supersonic is 1.20 to 5.00. Hypersonic is 5.00 and higher.

These speeds vary with altitude and temperature variations. At standard temperature at sea level the speed of sound, Mach 1.0, is 661.7kts and from 40,000-60,000ft, Mach 1.0 is 573.8kts. Most turbine powered aircraft operate in the high subsonic range and of these the Boeing 747-8i is the fastest production airliner at 613kts or Mach 0.952, the A350 is next at 593 or Mach 0.921. Several Business jets like the Cessna Citation X, Gulfstream series and Falcon Jets operate in the 0.92-0.98 speeds. The military of course has some exceptionally fast aircraft, the F-4 Phantom is 1,277kts or Mach 2.23 and the F-14 Tomcat a bit faster at 1,342kts of Mach 2.34. Most medium and small airliners operate in the mid-range speeds of 475-550kts, about Mach 0.738-0.854 at FL 350.

This article will discuss Subsonic, Transonic and Supersonic flight.

High altitude flight

High altitude is defined as flight above 25,000ft or FL 250. The atmosphere consists of several layers, **Figure 1.**

The first is the Troposphere which extends from the surface to 20,000ft at the poles to 48,000ft at the equator. The Tropopause is a thin layer of stable air that is a boundary between the lower atmosphere and the Stratosphere, which extends up to 160,000ft. Another boundary layer, the Stratopause, separates the Mesosphere above it and finally the Thermosphere completes the atmosphere. The higher an aircraft flies the less dense the air mass becomes, which allows higher speed due to the decrease in friction and other factors.

Other factors for flying at higher altitudes

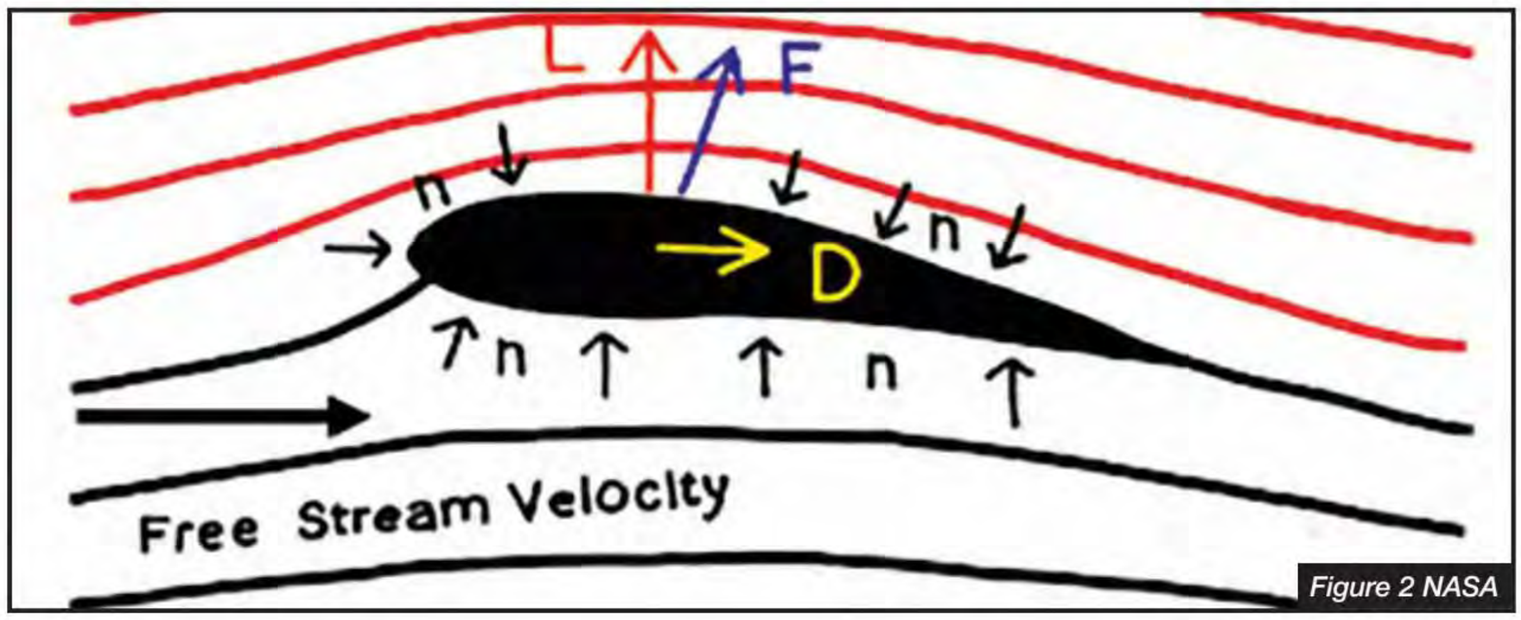


Figure 2 NASA

Figure 3 NASA

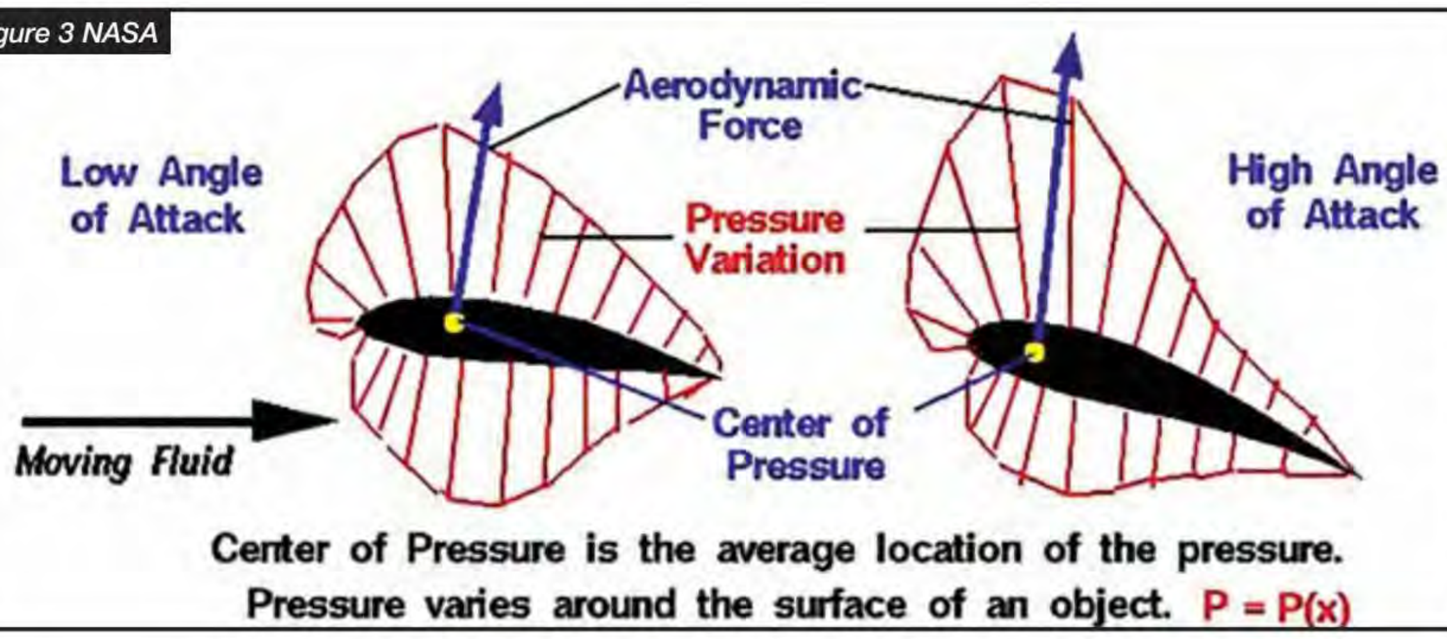
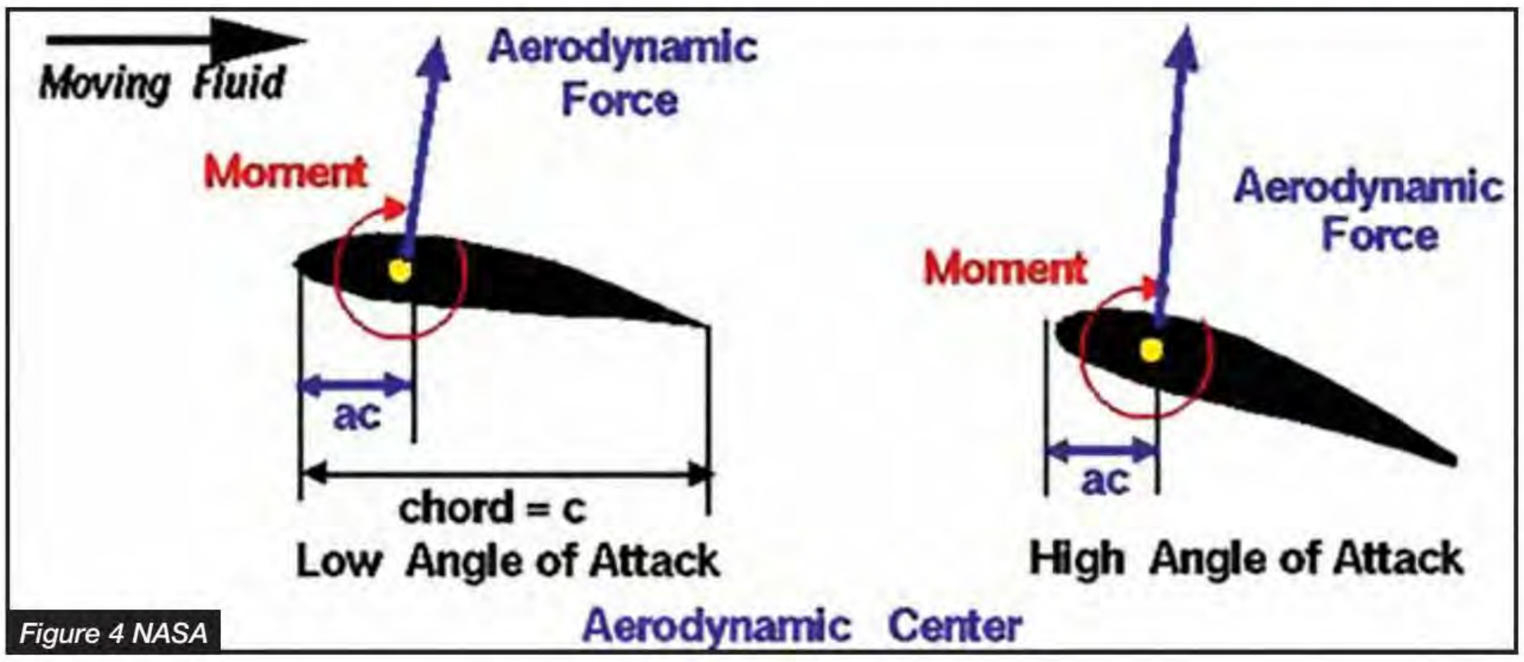


Figure 4 NASA

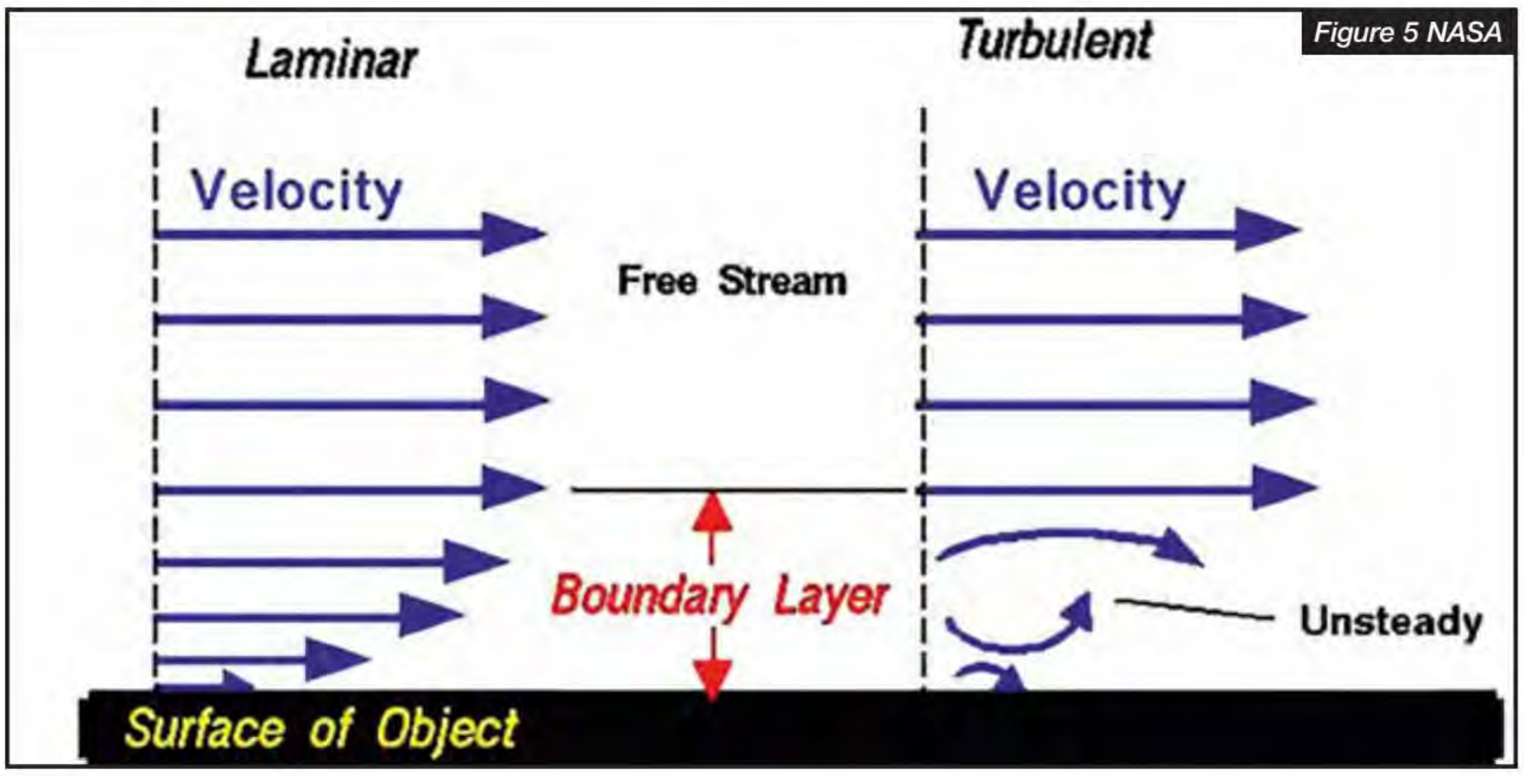


is the decrease in turbulence and the Jet Stream. Clear Air Turbulence (CAT) and thunderstorms can be a serious hazard in the high-altitude environment as can icing (see my next training article). Knowing the effect of the atmosphere, or more accurately, fluid dynamics, is important for safe flight at subsonic and above air speeds.

Subsonic flight

We are aware of how a wing generates lift and the maths that help us understand the physics. As a wing accelerates, the Pressure Forces begin to change because the wing generates greater amounts of lift with various angles of attack, **Figure 2.** Most wing designs have the greatest amount of thickness in the camber at a quarter or 30% aft of the leading edge. This is where the greatest amount of lift is generated as the pressure acts perpendicular to the surface. The pressure and Area of the wing determine the total lift: $p \cdot A$ = (force area) $\cdot A$ = force. The average location of this pressure is called the Center of Pressure. As the AOA changes, the center of pressure varies on the surfaces of the wing, thus causing the aircraft to be re-trimmed to maintain the AOA, **Figure 3.** Averaging the location of the center of pressure mathematically results in what is known at the Aerodynamic Force which is constant despite the change in AOA (angle of attack), **Figure 4.** The aerodynamic force is important as it incorporates other forces as well: Viscosity and Compressibility. Viscosity has to do with fluid flow, and Compressibility with pressure on a surface. This leads to a discussion of Laminar Flow and Boundary Layers, **Figure 5.**

Figure 5 NASA



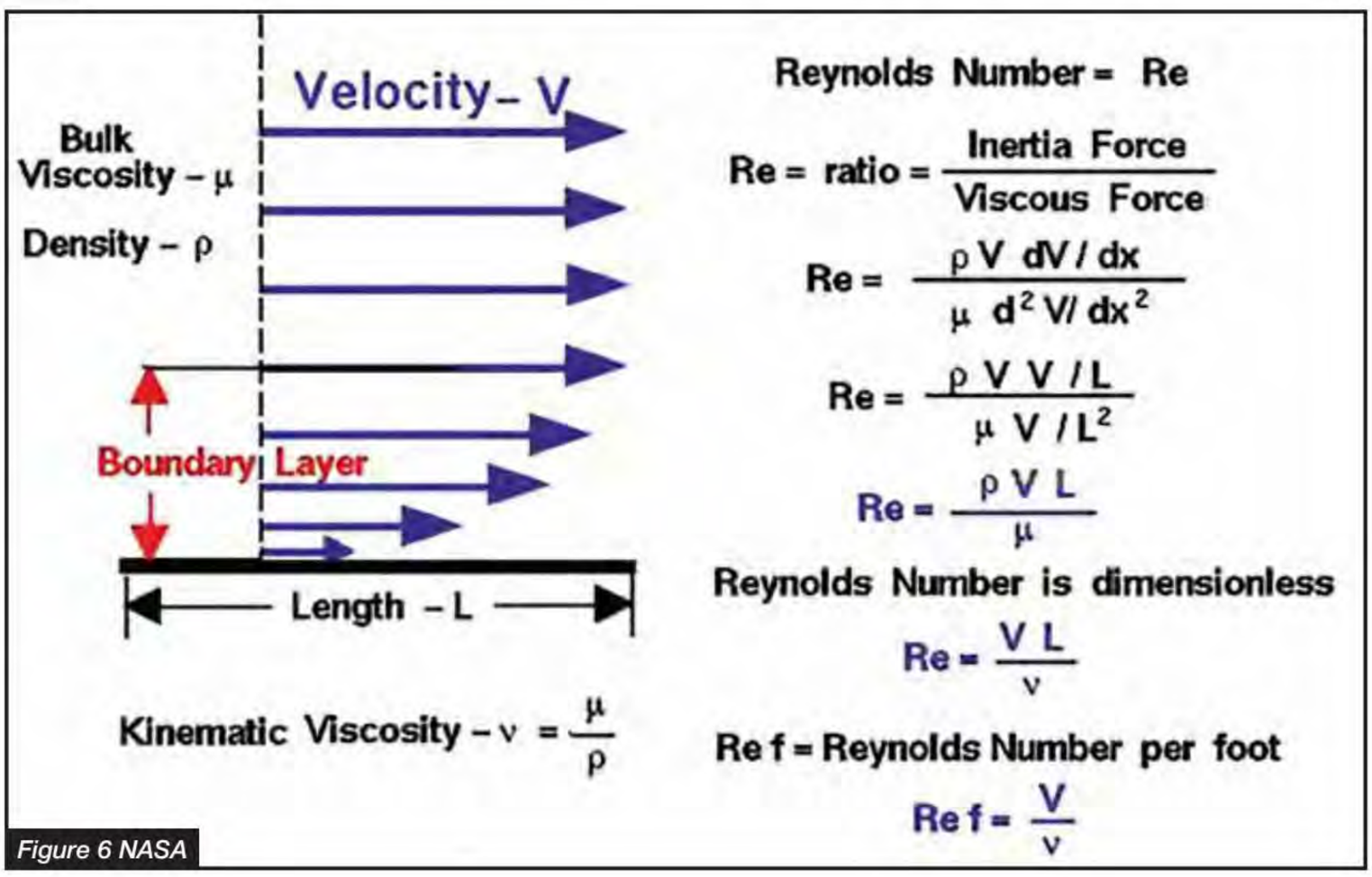


Figure 6 NASA

Laminar (layers) Flow wing refers to how air (fluid) moves across the surface of the wing. The lower layers of air that contact the surface are slowed by friction. No matter how smooth the surface of the wing (even with a good wash and wax!) air passage creates friction and the faster the air moves across, the more friction is generated. Above the surface, air moves in layers and with each layer above the surface, the friction decreases or displaces. This can be calculated by using what is known as The Reynolds Number (Re), **Figure 6.** The Reynolds Number equals velocity times density, times a certain length and divided by what is called the Viscosity Coefficient (mu). Note: mu is also used to calculate braking action on wet or snow/ice runways, the “mew” value. Using these formulae, the Boundary Layer is determined. When the calculations show that at a certain AOA the boundary layer air becomes turbulent, generating loss of lift as the wing begins to stall.

As the friction increases, the coefficient of drag quadruples and at some point, the thrust cannot overcome the drag. The air flowing over the various sections of the wing have different flow rates due to the camber and cord of the wing. Thus, the wing root

Figure 7 PHAK

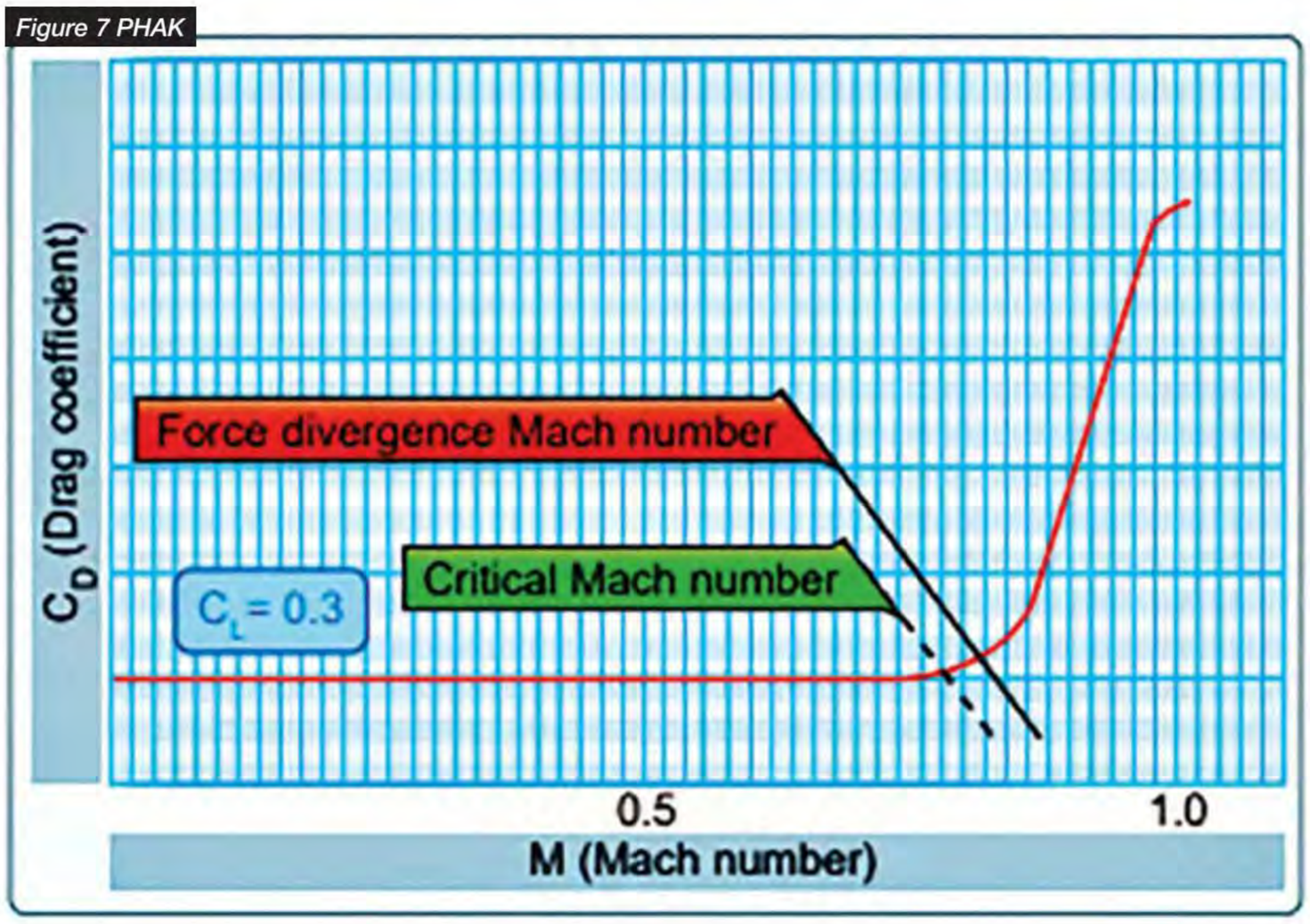


TABLE 3-1. *Variation of Temperature and Speed of Sound with Altitude in the Standard Atmosphere*

Altitude	Temperature		Speed of sound
Ft.	*° F.*	*° C.*	*Knots*
Sea level	59.0	15.0	661.7
5,000	41.2	5.1	650.3
10,000	23.3	−4.8	638.6
15,000	5.5	−14.7	626.7
20,000	−12.3	−24.6	614.6
25,000	−30.2	−34.5	602.2
30,000	−48.0	−44.4	589.6
35,000	−65.8	−54.3	576.6
40,000	−69.7	−56.5	573.8
50,000	−69.7	−56.5	573.8
60,000	−69.7	−56.5	573.8

Figure 8 ANA

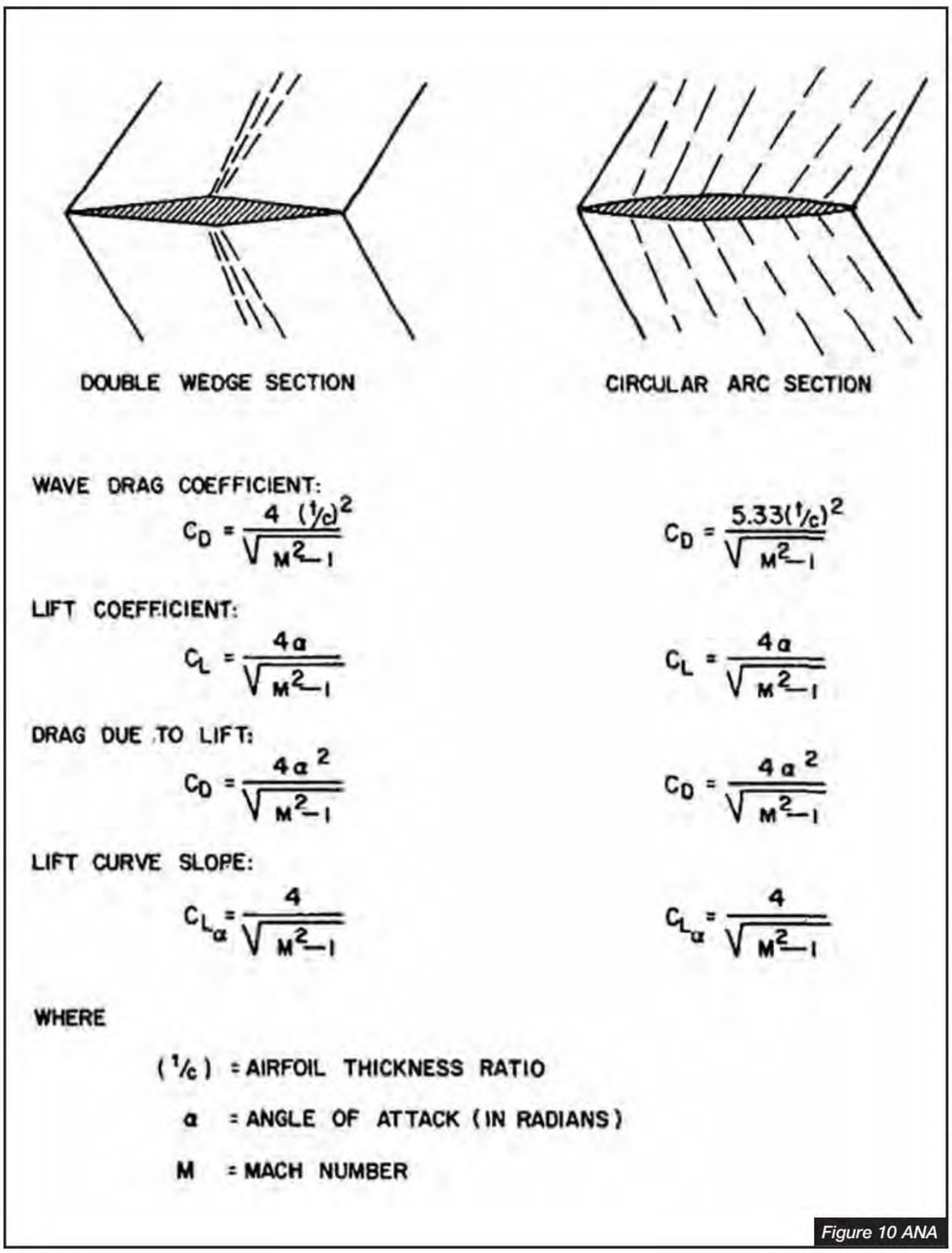


Figure 10 ANA

is accelerating the air at a certain velocity, while the wing tips have a local velocity much higher than that of the root. In addition to the wings, the fuselage, engine nacelles, horizontal and vertical stabilisers are all experiencing various flow rates. The aircraft Limitations Section lists two speeds that the pilot must never exceed: Vmo (maximum operating limit speed) and Mmo (maximum operating mach number), these are based on what is known as the Mach Critical speed, **Figure 7.**

Transonic flight

Critical Mach number is defined as: 'free stream Mach number which produces first evidence of local sonic flow.' Mach Critical is also expressed as Velocity maximum operating and Mach maximum operating speeds notation Vmo/Mmo. As the aircraft accelerates, air flow varies over the surfaces, faster at thinner sections, slower at thicker. Note that Mach 1.0 True Air Speed (TAS) decreases with altitude and temperature of the atmosphere, **Figure 8.** Vmo is for low altitude flight and Mmo is for high altitude flight. Vmo is not to be exceeded because of the negative effects of high structure loads and control surface flutter, whereas Mmo is concerned with compressibility effects and flutter. As the aircraft wing accelerates in the Transonic regime, the airflow cannot smoothly flow across the upper and lower surface and a shock wave begins to form just at the highest camber point and another about half the cord of the lower wing, **Figure 9.** The shock waves are perpendicular to the pressure patterns. As acceleration continues, four things happen as the air flow passes through the shock wave:

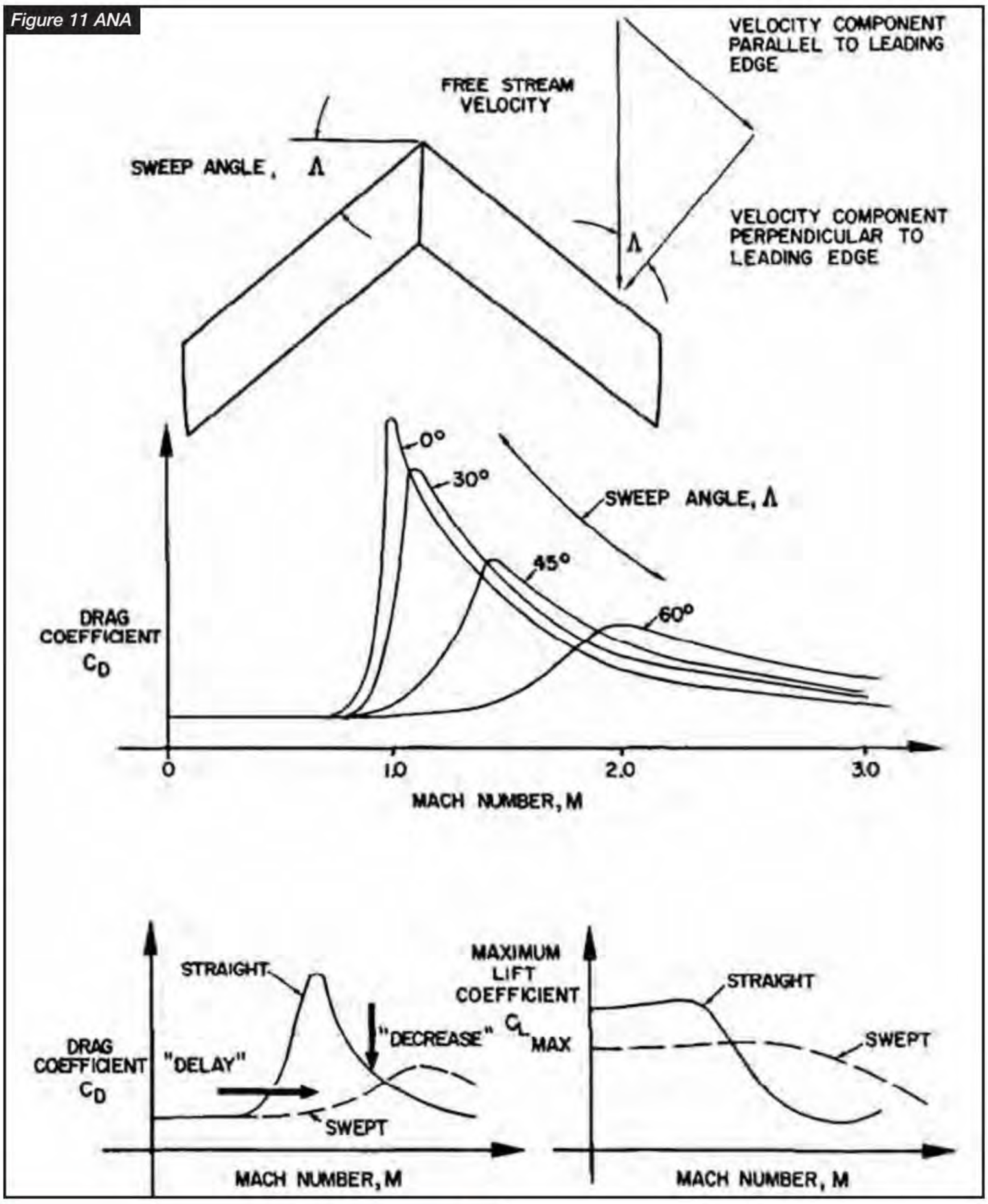
1) the speed slows to subsonic
2) flow does not change direction
3) static and density rapidly increase-compress
4) total air pressure decreases, **Figure 10.**

The shock wave creates a large increase in drag, typically at Mach Critical + 10%, so much so that the aircraft will become unstable. This is where, in the early days of supersonic flight, aircraft breakup would occur. The solution is to have excess power available to push through the shock wave (as the aircraft passes through the shock wave a 'sonic boom' is created by the hyper accelerated wave). The other key elements in passing through the Transonic regime is airfoil design.

Supersonic flight

The final design elements that led to the breakthrough to supersonic flight were Wing Sweep and Wing Camber. It was discovered that angling the leading and trailing edge of the wing would delay and control the shock wave formation. The angle that produces the most control is between 30° and 35° degrees of sweepback, **Figure 11.** As can be seen, unlike a wing that is 90° to the airflow, the airflow moves along the leading edge of the wing and from leading to trailing edge. In addition, the sweepback delays the onset of compressibility and drag. For example, a wing with 15° sweep has 2% increase in Mach Critical and 4% increase in drag, a wing with 30° sweep has 8% Mach Critical increase and 15% increase in drag, and a wing with 60° has a Mach Critical increase of 41% and drag increase of 100%! Wing Camber was the other major breakthrough, **Figure 12.** Camber was of concern to the early airfoil designers - look at the airfoil designed by Louis Béchereau of the Société Pour L'Aviation et ses Dérives (SPAD) S.VII and S.XIII fighters and that of Anthony Fokker and the DR.1 and D.VII fighters to see the theories of camber in action. For supersonic flight, having the peak of the camber at a quarter aft of the leading edge would produce far too much drag. To control the shockwave, the airfoil needed to be very thin and the camber moved to half aft of the leading edge. Instead of a low curved camber, the camber was angular shaped, like a flattened

Figure 11 ANA



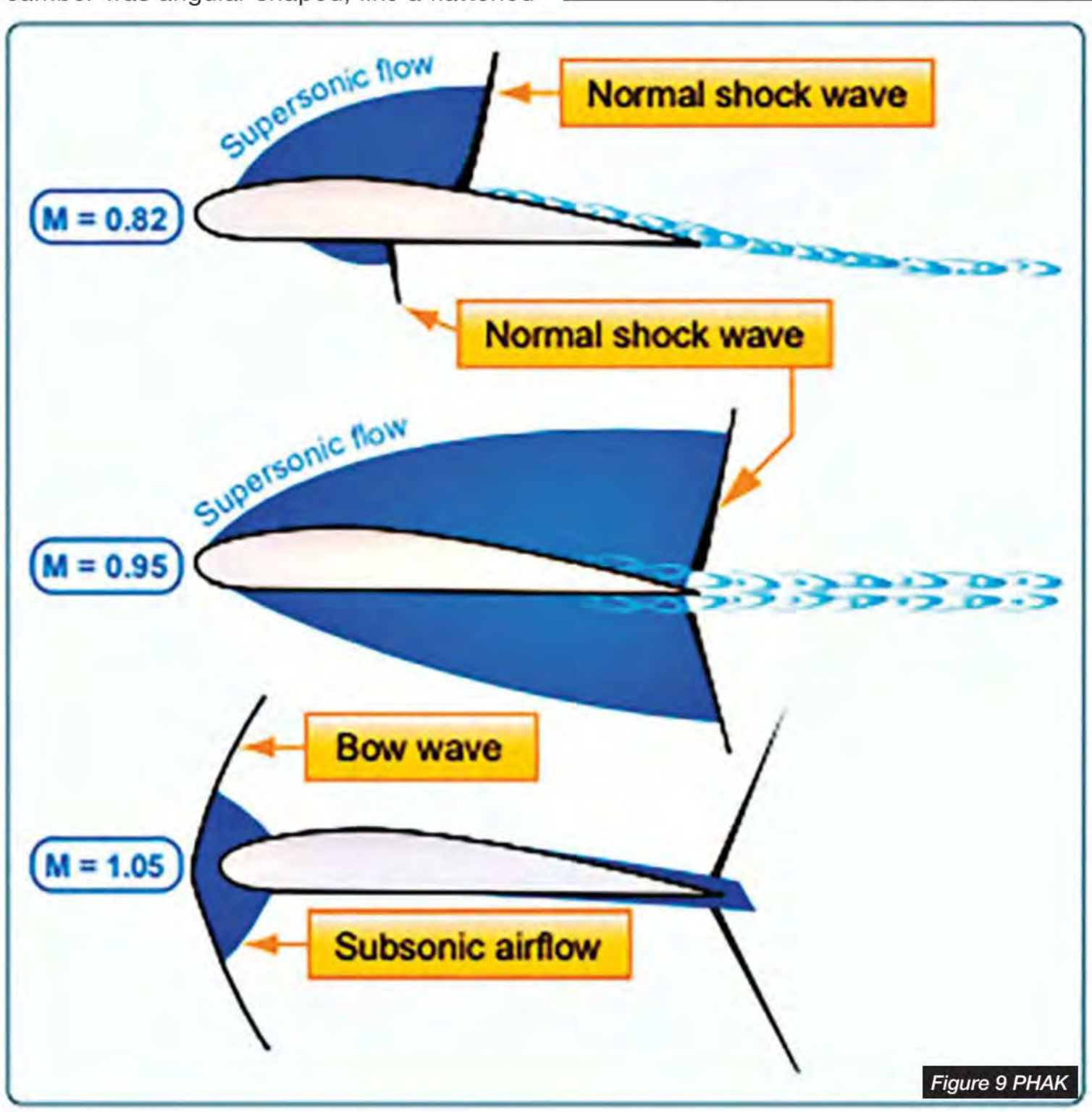


Figure 9 PHAK

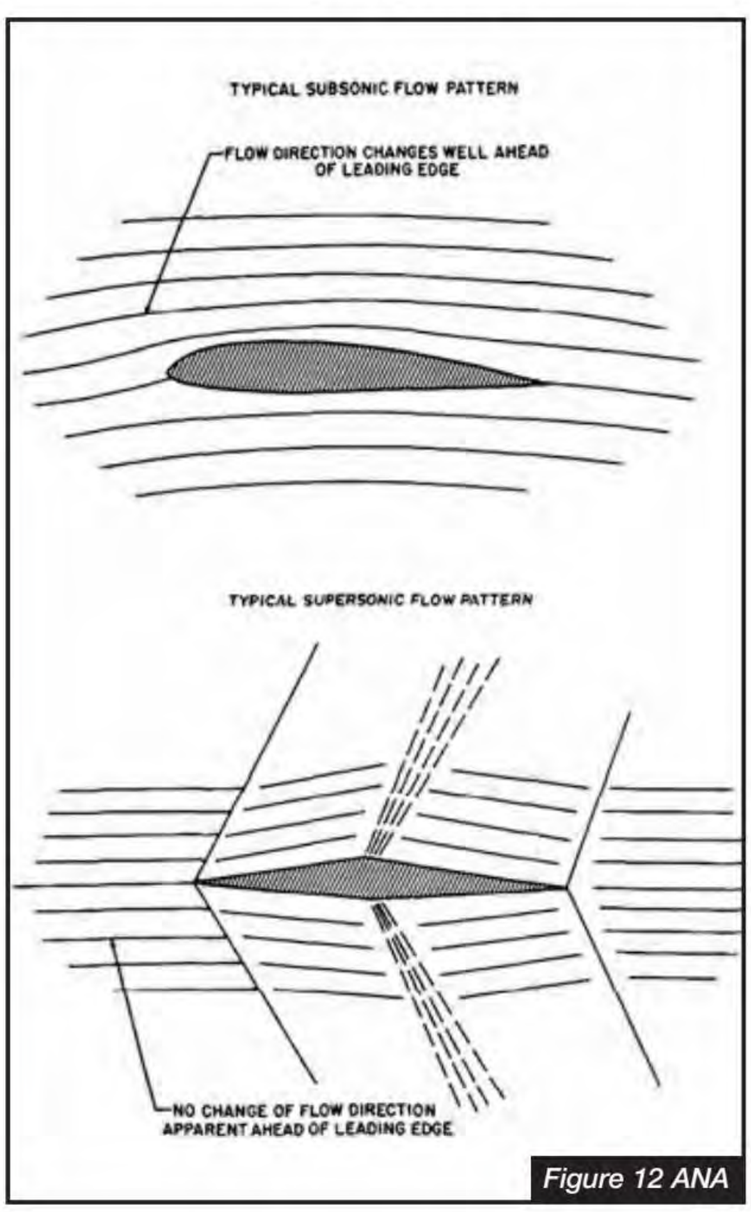


Figure 12 ANA

diamond. This allowed for less pressure on the wing and greatly reduced drag.

There are some hazards with High Speed/ Altitude flight which are addressed in my other article in this issue. Until next time, safe flying!

PCP

Using the Weather Radar: Lessons from TAM8065

How do pilots use weather radar to stay out of dangerous tropical convergence zones?


Figure 1

For over 40 years, I have been an aviation educator and pilot. Finding practical and informative lesson material can be a challenge. Sometimes accident/incident reports provide the answers I am looking for, and one such area is the use of airborne radar. When I was on my first airline course, we had about 15 minutes of instruction on the use of the radar. Mainly we were told to stay out of the yellow, red and magenta areas. This was followed by an accident review of a Southern Airways DC-9 in the State of Georgia. Years later, I was appointed to teach other pilots about radar and took a week-long course by the expert Archie Trammel, and since then, I have looked for other incidents/accidents that have teaching value for all pilots. Below is one such report from a Brazilian TAM A330-200.

The ITCZ

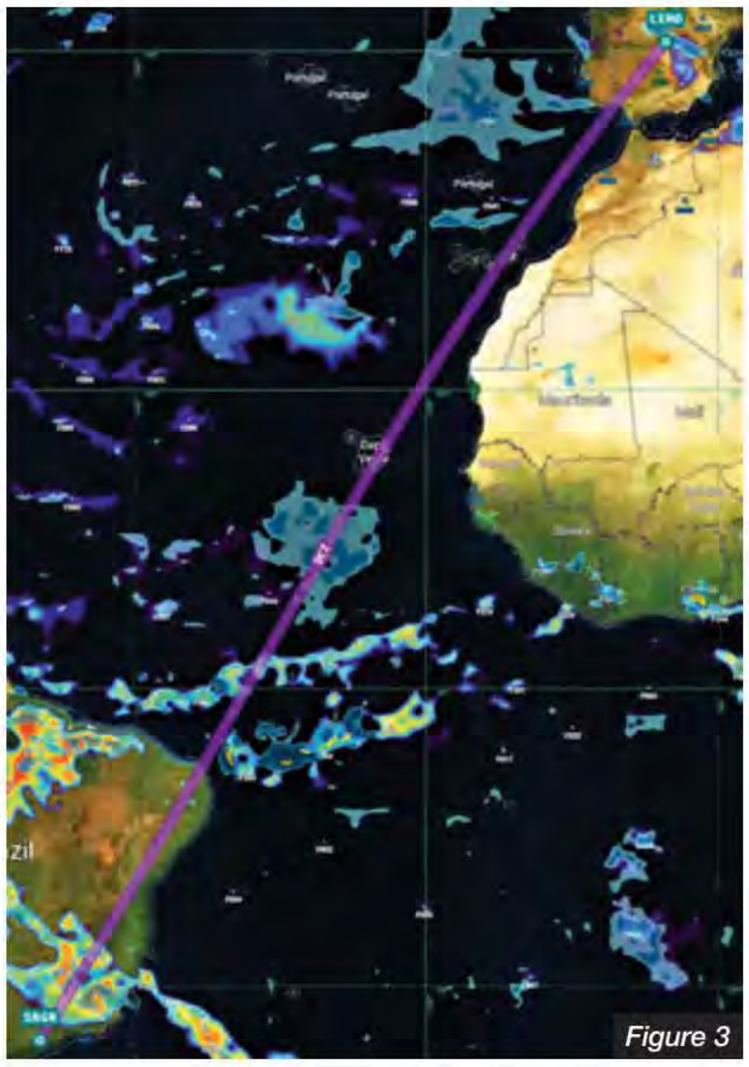
Either side of the Equator is a meteorologic phenomenon known as the Inter Tropical Convergence Zone (ITCZ), **Figures 1 and 2.** Located in the Tropics of Cancer-N and Capricorn-S, it is identified by a band of clouds and convective activity. Because of the Earth's tilt, the ITCZ produces more convective weather in the Northern Tropic Zone than the Southern. During the late spring to early autumn, especially in July and August, the buildup of Cumulus (Cu) and Cumulonimbus (Cb) is a frequent occurence and because the oceans heat up more slowly, Cu and Cb formations are more widespread and numerous at night, with tops often exceeding FL460.

Over land where heating is faster, Cu and Cb formations form during the late morning to afternoon and can reach FL550 or higher, breaking through to the tropopause. Over the oceans, the ITCZ can extend from 5°-15° North/South of the equator and over land extend from 5°-30° N/S. As the sun heats up the earth's surface, water vapour is created which in turn causes Low Pressure. The Coriolis force rotates counterclockwise north of the equator and clockwise south of the equator (this is also called the Hadley cell). This creates what is known as The Doldrums, an area of very calm winds. This is also the area where Tropical Cyclones form in the summer in the Northern Hemisphere and in January in the Southern Hemisphere.

September 2, 2013

A TAM Airbus A330-200, at FL390, a night flight from Madrid (LEMD), Spain to Sao Paulo Guarulhos (SBGR), Brazil, a distance of 4,528nm, encountered severe turbulence in the ITCZ. This resulted in 12 passengers (of 156 total) being injured (two severe), as well as three of 13 cabin crew (one serious).

The turbulence lasted 1 minute 37 seconds. The flight crew diverted the aircraft to Fortaleza (SBFZ) because of the injuries and possible aircraft damage, and the accident was investigated by CENIPA, Brazil's Accident Investigation and Prevention Centre. They published their findings in 2018.


Figure 3

Overview of the flight

The captain was pilot flying. The weather briefing included a SIG WX Chart that showed a band of clouds and Cb build up in areas in the ITCZ with isolated imbedded Cb and tops over FL470. The chart, **figure 3,** shows this. There was also a SIGMET (Significant Meteorological Information) warning for severe turbulence and Cb tops at FL450, with hail predicted during the time the flight was en route. As a result, the crew were using the aircraft weather radar on the ND in case of storms. The captain set his navigation display (ND) at a range of 80nm and a -1° Tilt, the first officer set his at 160nm and the same tilt (the FDR, however, recorded the first officer set the range at 80nm).

As the aircraft neared the area, they could see stars above and reported Visual Meteorological Conditions (VMC). As the flight entered the ITCZ, they encountered Instrument Meteorological Conditions (IMC).

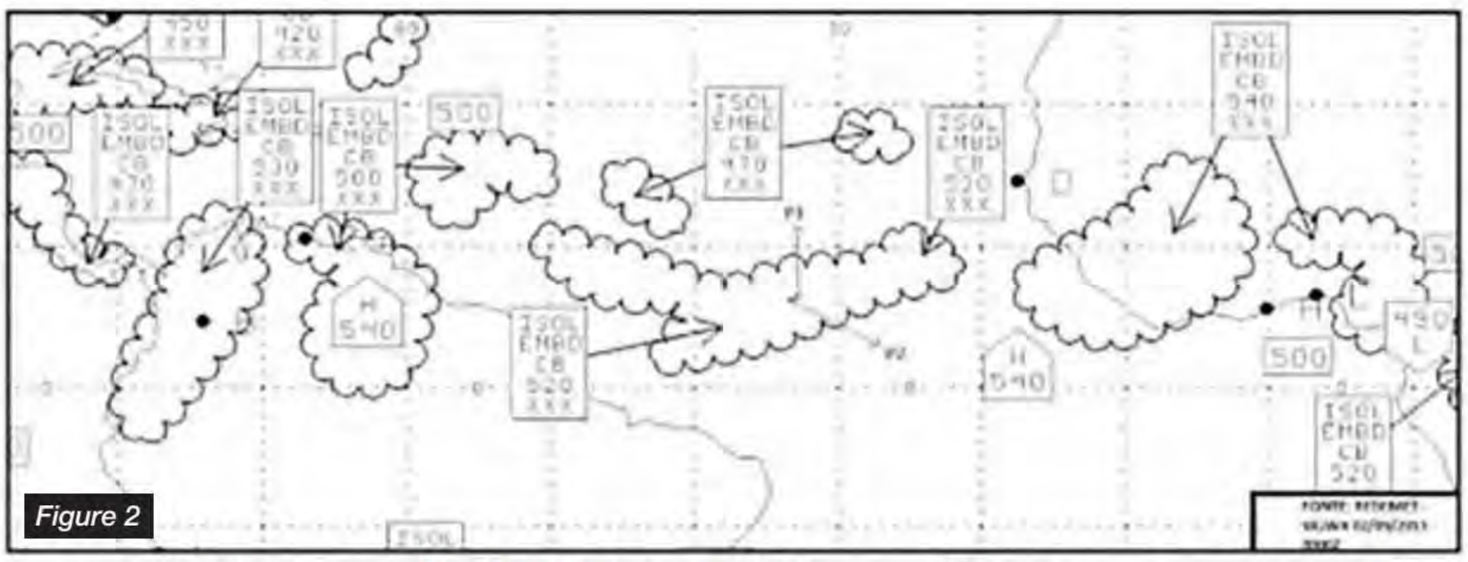


Figure 2

Figure 2 - SIGWX chart of 02SEPT2013, at 00h00min (UTC), where the positions P1 and P2 define the starting and ending sections of the turbulence.

Figure 4 Satelite



Figure 3 - Satellite image of 02SEPT13, at 0300 (UTC), highlighting the place of the occurrence.

Figure 6

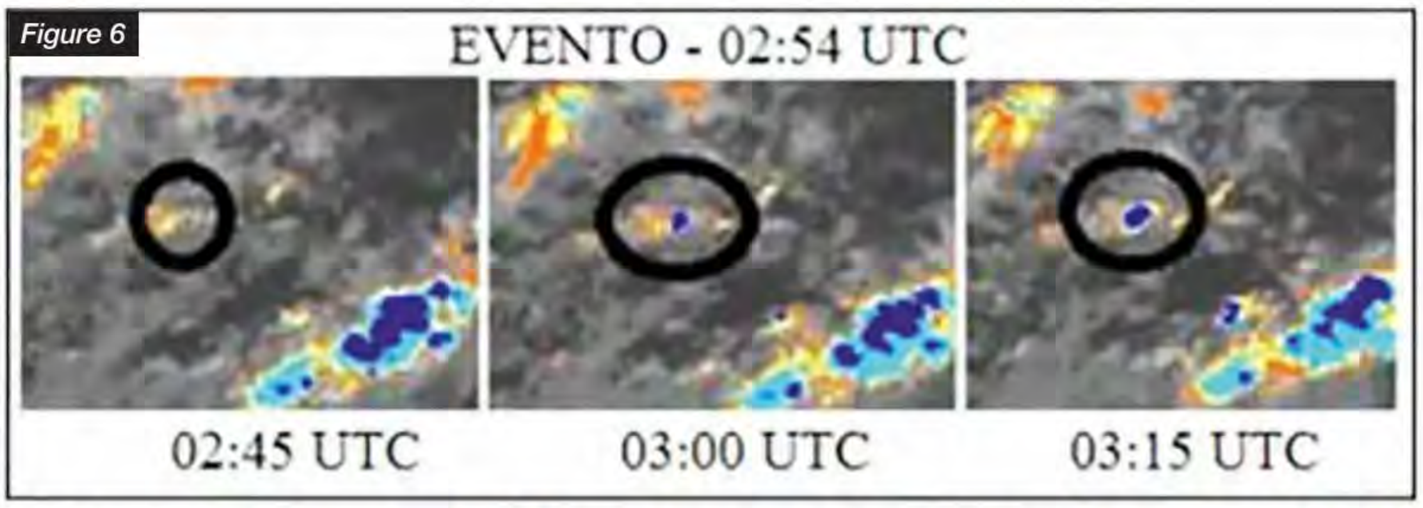


Figure 6 - Satellite images of CPTEC recording the development of cumulonimbus (CB) cells, in the region of the occurrence.

Soon after entering IMC, St Elmo's Fire suddenly appeared on the nose for a brief period, then came the sound of hail. This was followed by severe turbulence (the crew had not turned on the seat belt signs as they had not anticipated turbulence) which caused the aircraft to start a rapid vertical ascent at 4,600ft per minute and a G loading of +1.9 to FL 409, followed instantly by a descent at -0.3 G, all in two seconds**.** The FDR recorded vertical airflow of 2,000 to 9,000ft per minute in one 5 second period. The FDR also recorded a rapid temperature change from -59°C to -52°C which is indicative of rapidly rising air associated with Cb and Cu buildups. This indicated to the investigators that the aircraft had flown directly over a very small and undetected Cb built up less than 20nm from its flight path, **see Figures 6,7 circled area where CENIPA determined the flight had flown.**

The report concluded that the aircraft had flown into an area where thunderstorms were predicted and had flown through two of the three areas where major convection was warned about.

1) The crew did not use the onboard radar as recommended by Airbus in a 2007 flight manual. One radar should have been set at 160nm and -1.5° Tilt and the other set to 80nm and a -3.5° Tilt. At least 5,000ft vertical separation from convective tops would have avoided turbulence. This would have given the crew better warning and situational awareness. **Figure 11**

2) The crew should have contacted Flight Watch and Dispatch weather services more effectively and often to maintain awareness of the situation.

Application of report

Here in the USA's Mid-West, March is known for being the beginning of thunderstorm and tornado season. I used to make two-hour each way trips from Wichita Eisenhower (KICT) and Hartsfield-Jackson (KATL) fairly often. Encountering a squall line of thunderstorms was commonplace. The ITCZ line of thunderstorms is not unlike the squall lines from North to South on such trips. For this example, I will be flying a Delta Airlines MD 82 in XPlane 12. Navigraph route and weather.

At FL310 I Set the PF range to 160nm and PM to 80nm on the ND. Decrease the range as you get closer to the buildups. As you can see, finding a route through/around the squall line is a concern, especially as it is over the STAR and Final Approach. **See Figure 9.**

Set the Tilt so that a Green Band of ground return appears on the upper quarter of the display. A 12in antenna dish beam width is 14.5°; this will give a ground return at a setting of about +4° between FL250-350, depending on the radar. Any returns that display between ground return and the aircraft are most typically weather. Once weather is detected, set the Tilt between +1° and -3° (the 'weather beam' on a 12in radar is 7.9° wide). As you get closer, at around 80nm, a Tilt between 0°and -2° will pick up most Cb and Cu buildups up to FL450. Let the radar make a few sweeps and then adjust the Tilt a few degrees up and then down to get a complete picture of the storm. The heaviest rain/hail returns will be near the base of the storm. At 80nm and 517kts GS I have only about 9-10 minutes' decision and manoeuvre time from the storm. You want to pass upwind at least 20nm from any red band. The closer the bands are, the more vertical the storm and thus more turbulent. You should start manoeuvring the aircraft to go around the storm at no less than 45nm. In my case, using the radar and looking out the windows provided the answers. What now? **See Figure 10**

Gain is used to fine tune the returns. Set to Auto/CAL and the returns will be fairly defined. Once a storm is detected, turning the Gain to minus numbers will allow you to isolate the worst of the weather. Typically, as it is reduced, red returns will turn yellow and yellow to green; any returns that remain red show extreme activity. When you get Attenuation, the pulses are being blocked by heavy rain/hail and the gain can be used to get a clearer return. Once you have isolated the worst areas, return the Gain to Auto/CAL. Diverting is a good option! **Figure 12**

Figure 7

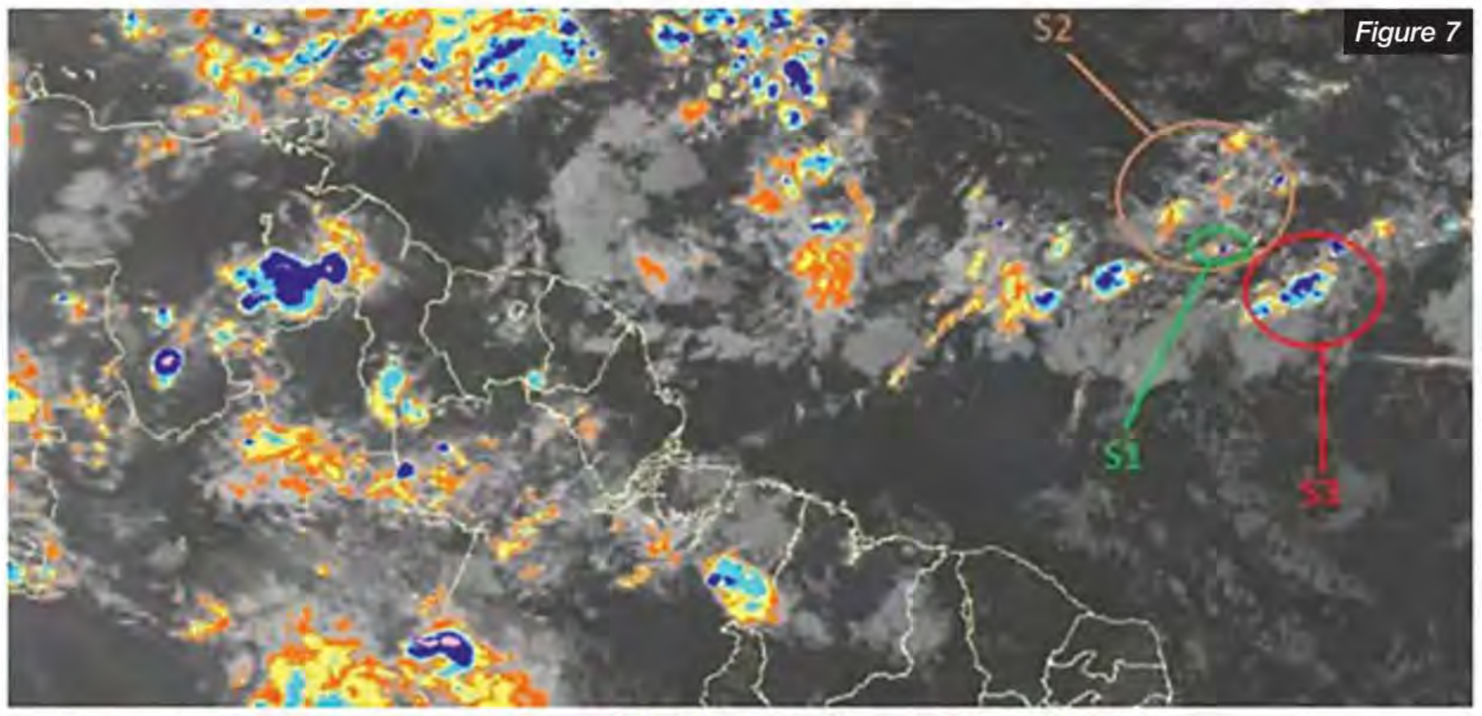
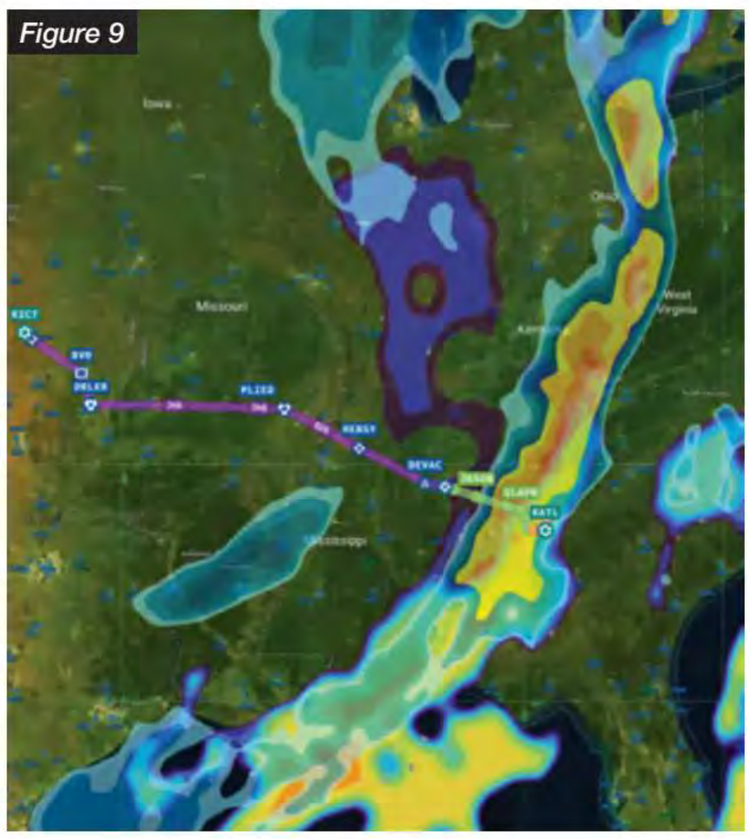


Figure 7 - Satellite Image Chart of 02SEPT2013, at 0300 am (UTC), focused on the reporting positions (S1) and adjacent sectors with CB formations (S2 and S3).

Figure 10



Figure 9



Radar resources

SKYbrary is an excellent resource for all things aviation at https://skybrary.aero

For the report about the above accident, look up: Inter Tropical Convergence Zone. Another publication for reference is UK AIC P 056/2010: The *Effect of Thunderstorms and Associated Turbulence on Aircraft Operations.*

Airbus Safety First magazine at https://safetyfirst.airbus.com click on Magazine: issue #22 July 2016, article: Operations: Optimum use of weather radar. This is an excellent article about radar use in Airbus aircraft.

Honeywell produces an exceptional presentation about the RDR-4000M 3D Weather Radar System at https://aerospace.honeywell.com search for this radar and then the IntuVue (RDR-4000) Weather Radar Brochure.

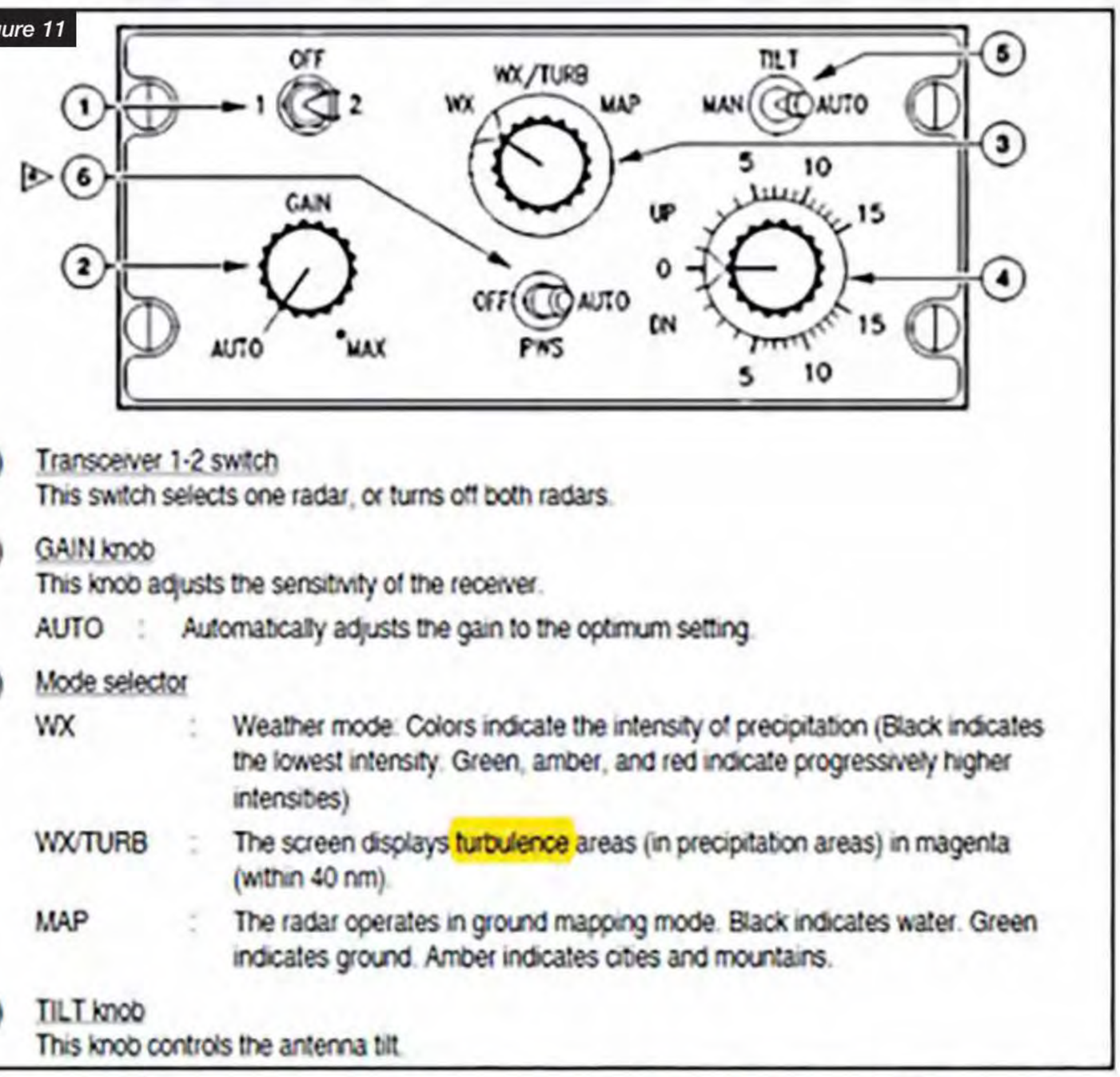
For this article I used the CENIPA report and illustrations.

I hope this helps to provide a background to some ways to operate the weather radar in extreme weather in flight simulator.

Happy flying!

Michael Townsend

Figure 11



(1) Transceiver 1-2 switch
This switch selects one radar, or turns off both radars.

(2) GAIN knob
This knob adjusts the sensitivity of the receiver.
AUTO : Automatically adjusts the gain to the optimum setting.

(3) Mode selector
WX : Weather mode. Colors indicate the intensity of precipitation (Black indicates the lowest intensity. Green, amber, and red indicate progressively higher intensities)
WX/TURB : The screen displays turbulence areas (in precipitation areas) in magenta (within 40 nm).
MAP : The radar operates in ground mapping mode. Black indicates water. Green indicates ground. Amber indicates cities and mountains.

(4) TILT knob
This knob controls the antenna tilt.

Figure 11 - Honeywell radar control panel installed on the aircraft.



Figure 12 Diverting

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