



Simnest A320 FNPT II APS MCC

FIXED BASE FLIGHT SIMULATION TRAINING DEVICE



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The Simnest A320 FNPT II APS MCC is the simulator that fits all the necessities and expectations of the cadets, instructors, as well as HTs and CEOs of the ATOs at the same time. This unique value is the result of Simnest Aviation being a simulator manufacturer that also operates its own ATO, Simnest Pilot Academy.

Our pilot academy gives us invaluable advantage in the development and production of simulators, since our engineers and software developers can talk personally with pilots, instructors, and cadets at any time and they can immediately utilize their feedback in the further development of our devices. Furthermore, in the course of the operation of our own ATO, we face the same challenges every day as Simnest Aviation's customers, hence we know all the needs and pain points of the ATOs' management.

That is how we can create simulators that not only meet the needs of all those involved in pilot training, but also make our mission come true:

We believe in the essence of training in high fidelity device.

In this solid faith, our simulators are created to provide the opportunity for the stakeholders to reach the highest level of education according to their potential.

This is what led us in 2015 to shift the focus of our successful company, which fostered and supported independent R&D projects, solely to FSTD development and manufacturing. Since then, we have become the leading FSTD manufacturer in the region with a 1 000 square meter development and assembly facility and 19 installed simulators in 8 countries around the world, some of them with more than 10 000 operational hours without any major issues.

„Flying an airliner requires whole different skills than a light aircraft the cadets have flown before. They have to get used to the modern fly-by-wire technologies, the different energy management of a large aircraft and the characteristics of high altitude flying. These skills are easy to teach in Simnest simulators as various situations and conditions are simulated, making the transition to a large jet easier. The daily operation is simple and practical thanks to the one button start-up and shut-down, no technician required on site. The intuitive Instructor station is a complex solution yet easy to use, which makes the sessions twirling and saves valuable time. The simulator's vivid resemblance to the A320 cockpit, the behavior of the primary flight controls and the flight model prepares the cadets for type rating courses and adds more value to the APS MCC training.“ - Gyula Kührtreiber, A320 TRE

General overview

Good for your future cadets



- They can **learn the handling and behavior of the A320** before the type rating.
- **20 different training** can be conducted on the device from preparation courses to APS MCC.
- All these provides **direct route to airlines** for them.
- It can greatly **facilitate their career progression**.
- You can offer highly attractive opportunities for your future students.

Good for your instructors



- Our simulator is a **tailor-made product**, shaped for their and your needs.
- Thanks to the in-house developed software it is so **easy to operate** our simulators just like a smartphone.
- As a result of the **extremely low downtime**, continuous training sessions can be held without interruption.
- The members of the **support team can be contacted directly** by mobile phone and email.

Good for your business



- We are happy to share our **know-how in setting up and running a training organization** in the form of our ATO Establishment & Operational Manuals.
- As a result of the ease of use, there is **no need for technical staff to operate** the device, so the operating cost can be reduced.
- Thanks to the **wide range of the possible training and the insignificant downtime**, the utilization rate of our simulator can be extremely high.
- We provide **a real airliner environment** for a price of a generic simulator.
- Our simulators are not a collaboration between several companies, but the **product of a strong, stable and reliable company** that is the market leader in its region.
- We can take your business to the next level with **upgrading your Simnest simulator anytime to FTD level**.

Training

One of the most advantageous and attractive features of our simulator for the future pilots is that our device is created for APS MCC training thanks to the realistic A320 environment and behavior.

Of the courses currently available, the APS MCC provides cadets the most comprehensive knowledge and competencies that airlines are looking for in their candidates, the APS MCC will thus maximize their chances of finding employment with commercial airlines.

In addition to the APS MCC, our simulator allows ATOs to offer more than a dozen different courses, from certified trainings to preparation courses, airline screenings, and recruitment, so that almost everyone can benefit from the tool, regardless of where they are in the commercial pilot training process.

As we pay close attention to the upcoming regulations in developing our products **the Simnest A320 FNPT II APS MCC simulators already have their FSTD Capability Signature (FCS)** as well. We believe that in this new approach our customers can exploit the underlying potential of their Simnest simulators even more and gain further trainings.



List of trainings

- **MCC / APS MCC**
 - ATPL (15h)
 - MPL phase 2 / 3
 - MCCI
- **Jet Orientation Course (JOC)**
- **A320 procedures, malfunctions and systems training**
 - Airline screening
 - Airline recruitment
 - SOP & System and Cockpit familiarization
 - Airline oriented flight training
 - Competency-based training
 - CRM and situation awareness
 - TEM, LVO, LOFT
 - Type rating preparation training
 - OPC/LPC preparation training
 - Upset prevention and recovery training
 - Interview preparation
 - ACAS training

Simnest Multifunctional Control Unit (SMCU)

Although the SMCU is an IT system made up of numerous high-end hardware and software components, to ATOs it is like the simulator's technician staff – just without the payroll and HR issues.

It starts, coordinates and checks all the systems needed to run the simulator, such as projectors, force feedback, ventilation, simulation software, instruments and controls. It also reports any errors, manages and logs users, and provides the availability to run the simulator in different modes. Thanks to its secure online connection, the Simnest Aviation's support team can diagnose and repair minor faults remotely.



Unique features of SMCU

- The **one-button start-up** and shut-down system makes the simulator so easy to turn on and off as a television.
- It is so easy to use that there is **no need for a technician to operate it**.
- The fully isolated development partition allows you to test recent developments, new features, or any requested modification in a safe environment. You can **run a complete QTG on it without compromising the certified training mode** or interrupting a session.

Cockpit

Muscle memory is one of the most important skills for pilots, because it helps them to know instantly what task to perform, even in sharp situations, without conscious effort. **Therefore we designed the cockpit of our simulators to be exactly the same as the real Airbus A320, even in the smallest details, from the location of the controls to the strength of the buttons and the sound of the tiniest clicks.** Similar is not enough for us, so the OEM sidesticks and fully functional OEM seats are standard equipment of our FNPT II APS MCC devices, and can be upgraded, among others, with OEM thrust, flaps, spoiler panels on request.



Main elements of the cockpit

- OEM sidesticks
- OEM seats (fully functional)
- Seat shaker system
- OEM thrust (optional)
- OEM flaps (optional)
- OEM spoilers (optional)
- OEM refurbished oxygen masks (optional)
- OEM airline headset (optional)

Instructor Operating Station

Simnest's IOS is a comprehensive system with all the necessary functions yet it is easy to use. The self-developed software includes extensive simulation controls **such as instant aircraft repositioning, dimmable and switchable airport lights, dynamic weather interface, flight-path map, and wide range of system failures with cross-effects and real degradation** - all easily controlled on the dual-screen touch monitor.

Hot features for Instructors

- **dual-screen touch monitor** with customizable layout
- **wide range of failures** including engine, flight control, navigation, hydraulic and electrical failures
- all systems **simulated to the extent of cross-effect** and real degradation
- switchable and **dimnable airport lights**
- instant **aircraft positioning**
- fully electronic and **automatic QTG**





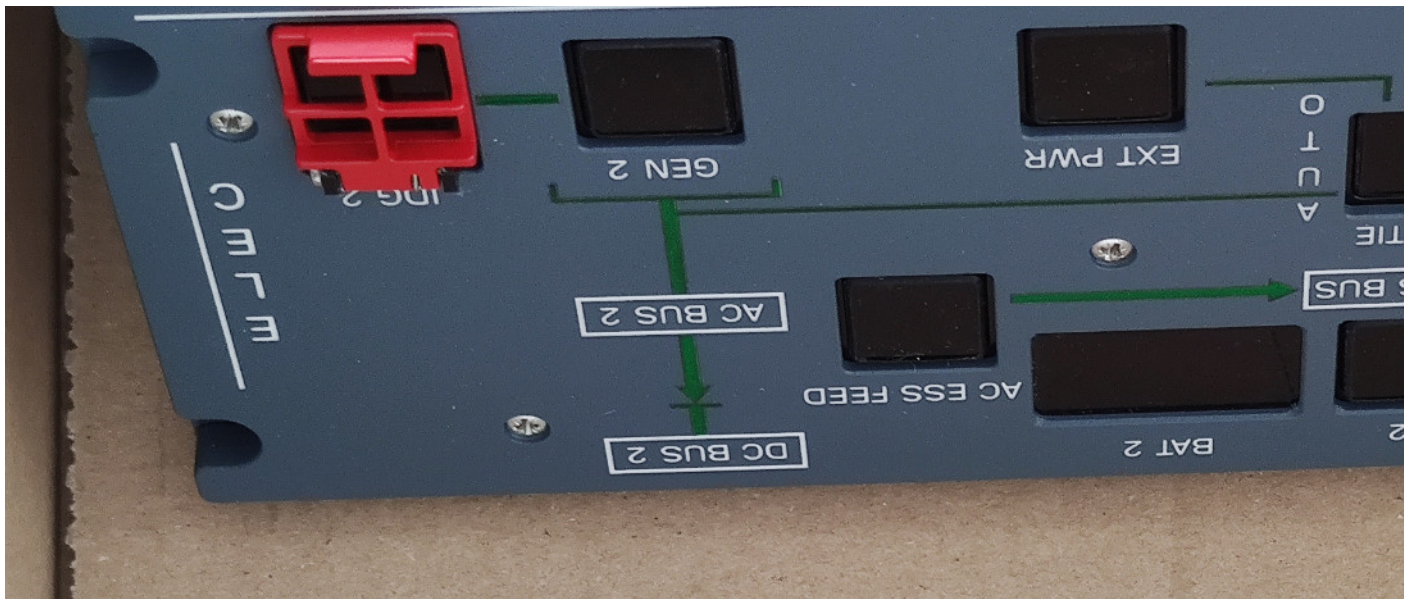
Visual

Crystal-clear, lifelike images and best-in-class color brightness – that’s what our high-end laser projectors deliver. As there is no light bulb in these projectors their operation is worry-free with guaranteed minimum of 20 000 hours of operational time.

With combining these high-definition laser projectors with the hi-gain white screen and 6,5 m diameter cylindrical projection with a parallax error of less than 10°, **we've managed to create a visual system that can only be exceeded by a collimated system**, which is significantly more expensive.

Specification

- **high-definition laser projectors** with guaranteed minimum of 20 000 hours of operational time
- 4K Enhancement Technology
- professional hi-gain white screen
- 3 channel cylindrical direct projection visual system with 200° x 45° field of view
- **less than 10° parallax error** (in case of optimal 6,5 m diameter cylindrical projection)



Installation & certification

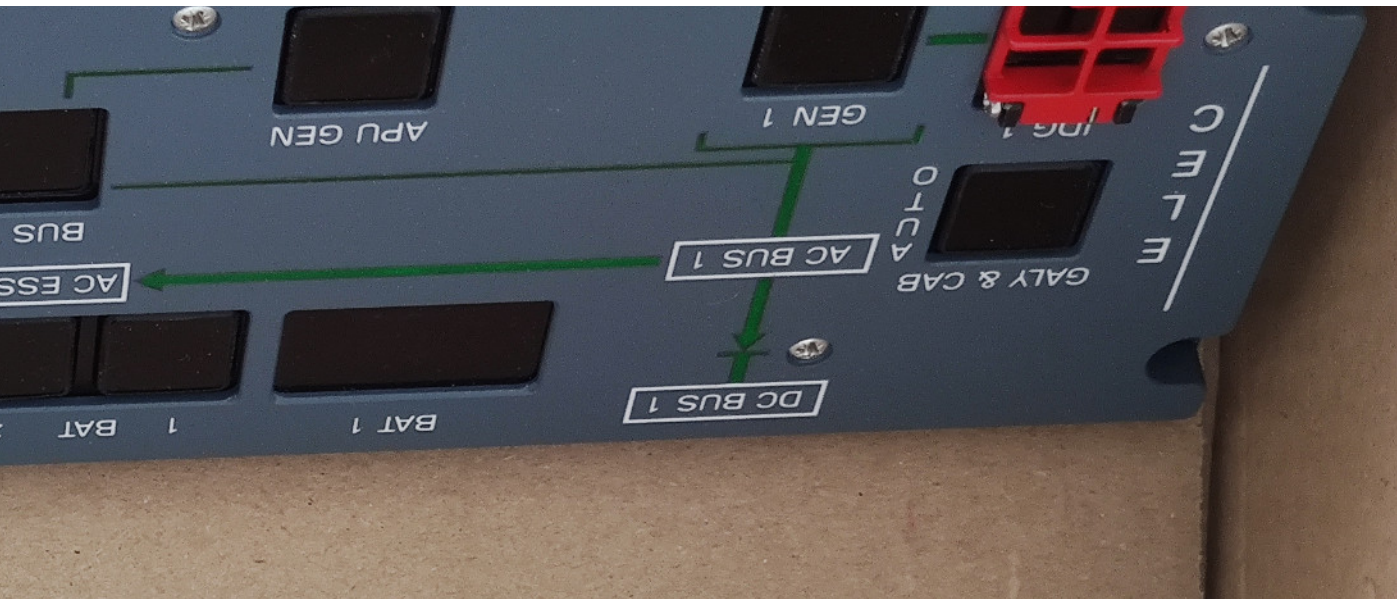
There is no need to break down walls to install our simulators. We can **fit all the parts of our simulators through an average-sized door**, so there's almost no site we can't install our devices. In locations with particularly unique conditions, we carry out a personal walk-through in order to ensure a smooth installation.

In order to prepare the interior thoroughly, we provide our customers with a **detailed site preparation guide** which is handed over at the time of the contract, giving our customers plenty of time to prepare the simulator scene properly.

Before delivering the final product, we have a strict internal acceptance procedure in place to secure that the customer receives a high-quality, customized device. We also conduct a factory acceptance where the client has the opportunity to test their fully assembled device at our facility. After finishing the installation, we also carry out an on-site acceptance.

To **support the certification process we are providing the first preliminary version of the Master QTG** of the device within 2 weeks after signing the contract. A month before the certification **the second preliminary version** and a week before the certification **the last and final preliminary version of the Master QTG** is handed over.

As an optional service, **we can also provide personal assistance during the evaluation of your device** to allow instant help and information, should any questions arise.



Maintenance, support, warranty

The **training of maintenance technicians** is as essential part of our service portfolio as the transportation or installation of the simulator. We also support the constant availability of the necessary knowledge with a comprehensive maintenance manual.

Thanks to our custom-built SMCU, some **issues can be fixed via secured VPN connection** by our support team, who can be contacted directly by mobile phone and email if needed. Non-urgent cases can be reported via the Simnest Ticketing System.

As we look after every SIM that leaves the NEST, the simulator will not be unsupported even if all its components are working perfectly. We provide **continuous bug fixes for software stability and quarterly update of the navigation database**.

All the basic support services are valid for two years, as is the warranty of the simulator.

Manuals

As a simulator manufacturer who also operates an Approved Training Organization, we have all the knowledge to assist you to become an FSTD operator or an ATO from setting-up through certification procedures to operation. By purchasing a Simnest simulator you obtain an entire **documentation package including not only the necessary manuals of the simulator, but all these know-hows of ours as well.**

List of available manuals

- Electronic Qualification Test Guide (eQTG)
- Flight Manual
- Maintenance Manual
- Instructor Station Manual
- Site requirements
- Failures Description Manual
- Acceptance Manual
- Minimum Equipment List
- ATO Organizational Document Package including
 - Operations Manual
 - Organization Management Manual
 - Safety Manual
- FSTD Operations Manual
- Training Document Package including
 - JOC Training Manual
 - MCC Training Manual
 - APS MCC Training Manual
 - MCCI Training Manual

The process

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- First consultations, discussion about our product
 - Technical consultations, adjusting the requirements to compile the optimal specification
 - Quotation according to the specific needs
 - Choosing items from the options list
 - Agree on terms and signing the contract
 - Providing Part A of the Application form, first preliminary QTG
 - Manufacturing the purchased device at our production plant
 - Factory Acceptance, handing over Part B of the Application form, second preliminary QTG
 - Delivery and installation on the requested site
 - On-site acceptance
 - Providing Part C of the Application form, final preliminary version of the Master QTG
 - Certification process with the local authority
 - Providing continuous support for the device

Specification

Cockpit

- Fully enclosed flight deck
- Instructor box behind the cockpit

Cockpit includes

- Main Instrument Panel EIS 2
- Flight Control Unit
- EFIS Control Panel
- ECAM Displays
- Dual Multi-Purpose Control Display Units (MCDUs)
- Pedestal Panel and Central Console
- Speedbrake and Flap lever
- FWD and AFT Overhead Panels
- Circuit Breaker Panel (with 8 tripping switches)
- Mask and Document holder
- Tablet holder for iPads on both sides with USB socket

System includes

- Simnest Multifunctional Control Unit (SMCU)
- Simnest Flight Management Guidance Systems (FMGS)
- Flight model for Airbus A320 with CFM 56 engine fit
- Aircraft systems modeling including Fuel, Electrical, Hydraulic, Pneumatic, Pressurization, and Fire Protection System
- Autopilot, Autothrust, and Flight Director Systems
- Advanced autoflight including LNAV/VNAV, GLS, RNP approaches and autoland
- Weather radar (WX), ATIS system
- EGPWS, TCAS

Flight controls

- OEM Dual Sidesticks (Original Aircraft hardware)
- Dual Steering Tillers
- Dual-Linked Rudder Pedals with control load and toe brakes developed by Simnest
- Advanced fly-by-wire control laws and flight envelope protection modeling

Thrust

- Thrust levers and reverse thrust with detents
- Motorised trim wheels

Intercom

- Comprehensive intercom system with 3 headsets + 2 masks + 3 hand microphones + Overhead ACP

Specification

Instructor station

- Touch monitor interface
- Ergonomic desk
- IOS software includes comprehensive simulation controls including aircraft positioning, dynamic weather interface, flight-path map, and extensive system failures

Seats

- OEM seats (CPT and FO) refurbished (Original Aircraft hardware)

Visual system

- Direct projected
- High-definition laser projectors
- 200° × 45° field of view
- 6,5 m diameter cylindrical projection (optimal dimension)

Sound system

- Surround speakers for realistic engine and environmental sound effects
- Cockpit alerts and warnings including call-outs, configuration warnings EGPWS warnings and TCAS alerts

Manuals

- Electronic Qualification Test Guide (eQTG)
- Flight Manual
- Maintenance Manual
- Instructor Station Manual
- Site requirements
- Failures Description Manual
- Acceptance Manual
- Minimum Equipment List

Training

- Operator training includes all tasks required for the operation of the FSTD: start-up, shut down, operation of IOS software, operation of FSTD, operation of the maintenance.

Navigation

- Worldwide generic terrain database
- Navigational database including airways, SIDS, STARS and Approaches
- 5 reference airports based on EASA requirements

Additional options

- Roof and full enclosure for the whole device (i.e.: for hangar installation)
- IAE V2500 engine fit
- Tray Table and Footrests (CPT + FO)
- Dual-screen touch monitor for the IOS
- Seat Shaker System (CPT + FO)
- IOS availability via tablet
- ATO Organizational Document Package including
 - Operations Manual
 - Organization Management Manual
 - Safety Manual
- FSTD Operations Manual
- Training Document Package
 - JOC Training Manual
 - MCC Training Manual
 - APS MCC Training Manual
 - MCCI Training Manual
- Remote management
- OEM airline headset
- OEM refurbished oxygen masks (CPT + FO)
- Field-upgrade to FTD level
- Collimated display system

Room dimensions and requirements

- Space: 7300 mm (w) × 7300 mm (l) × 3700 mm (h) with fitting allowance
- Door width: 900-3600 mm (double leaf door if possible)
- Power: 3 phases, 3 × 16 A, 3x400V + N, 50 Hz

List of failures

DSC-21 AIR CONDITIONING / PRESSURIZATION / VENTILATION & DSC-35 OXYGEN

- PACK 1(2) FAULT
- PACK 1(2) OVHT
- PRESS SYS 1(2)(1+2) FAULT
- SLOW(RAPID) DECOMPRESSION
- COCKPIT OXY LO PRESS

DSC-22 AUTO FLIGHT

- FCU 1(2) FAULT
- AP 1(2) FAULT
- FD 1(2) FAULT
- TCAS MODE FAULT
- A/THR FAULT
- AUTOLAND WARNING LIGHT
- NO LAND MODE
- NO FLARE MODE
- FAC 1(2) FAULT

DSC-24 ELECTRICAL

- GEN 1(2) FAULT
- IDG 1(2) OIL OVHT
- IDG 1(2) OIL LO PR
- AC BUS 1(2) FAULT
- AC ESS BUS FAULT
- STATIC INV FAULT
- DC BUS 1(2) FAULT
- DC BAT BUS FAULT
- DC ESS BUS FAULT
- TR 1(2) FAULT
- TRIPPABLE CIRCUIT BREAKERS

DSC-26 FIRE PROTECTION

- AVIONICS SMOKE
- LAVATORY SMOKE
- LAVATORY SMOKE DET FAULT
- CARGO SMOKE
- CARGO SMOKE DET FAULT
- CARGO SQUIB FAULT

DSC-27 FLIGHT CONTROLS

- CAPT(F/O) SIDESTICK FAULT
- ELAC 1(2) FAULT
- SEC 1(2)(3) FAULT
- L(R) ELEV FAULT
- STABILIZER JAM
 - MAN PITCH TRIM AVAIL
 - MAN PITCH TRIM INOP
- FORCED F/CTL LAWS
- FLAPS/SLATS LOCKED
- UPRT IMPULSE GENERATOR

DSC-28 FUEL

- L(R)(CTR) TK LEAK
- L(R)(CTR) TK PUMP 1(2) LO PR

DSC-29 HYDRAULIC

- G(B)(Y) RSVR LO LVL
- G(B)(Y) RSVR LO LVL (FULL LEAK)
- G(B)(Y) RSVR OVHT
- G(B)(Y) RSVR LO AIR PRESS
- G(B)(Y) PUMP LO PR
- B(Y) ELEC PUMP OVHT
- Y ELEC PUMP LO PR

DSC-31 INDICATING / RECORDING SYSTEMS

- DMC 1(2)(3) FAULT
- SDAC 1(2) FAULT
- FWC 1(2) FAULT
- INDIVIDUAL DISPLAY FAULTS

DSC-32 LANDING GEAR

- GEAR NOT DOWNLOCKED
- GEAR UPLOCK FAULT
- GEAR NOT UPLOCKED
- LGCIU 1(2) FAULT
- NOSE WHEEL STEERING FAULT
- A/BRK FAULT
- LOSS OF BRAKING
- BSCU 1+2 FAULT
- BRAKES HOT

List of failures

DSC-34-NAV NAVIGATION & DSC-34-SURV SURVEILLANCE

- IR 1(2)(3) FAULT
- IR 1(2)(3) FAULT (ATT AVAIL)
- ADR 1(2)(3) FAULT
- CAPT(F/O)(STBY) PITOT BLOCKED
- CAPT(F/O)(STBY) STATIC BLOCKED
- GPS PRIMARY LOST
- RNP NAV ACCURACY DOWNGRAD
- ILS 1(2) RCVR FAULT
- UNSERVICEABLE NAVAIDS
- GROUND LOC XMTR FAULT
- GROUND G/S XMTR FAULT
- RA 1(2) FAULT
- GPWS FAULT
- GPWS TERR DET FAULT
- GLASS MOUNTAIN
- TCAS EVENT GENERATOR
- RUNWAY THR(MID) INCURSION

DSC-49 APU

- APU FAULT
- APU FIRE
 - 1 SQUIB EXTINGUISHABLE
 - UNEXTINGUISHABLE
- APU GEN FAULT
- APU BLEED FAULT

DSC-52 DOORS

- CABIN DOORS FAULT
- EMER EXITS FAULT
- SLIDES ARMING FAULT
- CARGO DOORS FAULT
- AVIONICS DOORS FAULT

DSC-70 ENGINES

- ENG 1(2) FLAMEOUT
- ENG 1(2) FAULT – NO RELIGHT
- ENG 1(2) SEVERE DAMAGE
- ENG 1(2) FIRE
 - 1(2) SQUIB EXTINGUISHABLE
 - UNEXTINGUISHABLE
- ENG 1(2) FADEC HI TEMP
- ENG 1(2) EPR MODE FAULT
- ENG 1(2) OIL LO PR
- ENG 1(2) OIL TEMP ADV
 - RECOVERABLE
 - UNRECOVERABLE
- ENG 1(2) OIL HI TEMP
- ENG 1(2) OIL LEAK
- ENG 1(2) START FAULT
 - EGT OVERLIMIT
 - IGNITION FAULT
 - START VALVE FAULT
- ENG 1(2) IGN A(B) FAULT
- ENG 1(2) N1(2) VIBRATIONS



How confident are we that if you try our simulator, you will agree with every word of our brochure?

So much so, that if you visit us for a test flight and experience something that contradicts what is described in this brochure, your return flight ticket will be on us!

Apply for your free test flight at sales@simnest.com!



TAKE A SEAT IN OUR SIMULATOR
BY CLICKING ON THE ICON BELOW!



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