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Flight Simulation eMagazine : Review



Carenado™ Cessna S550 Citation II



General Description

The Cessna Citation II was the first of the Model 550 series of Citation jets, which are light corporate jet built by Cessna. A direct development of the Citation I, the Citation II led to the later development of the Citation II/SP, the S550 Citation S/II, and the Citation Bravo. The Citation II was also used by the United States Navy under the designation T-47A for radar system training.

Design and development:

The Citation II, Model 550, was a direct development from the Citation I. The earlier aircraft's success in the market led Cessna to believe there was demand for a larger aircraft that utilized the same design philosophy. The result was the Citation II, which had a maximum seating capacity of 10. In addition to more seats, the plane had more powerful JT15D-4 engines (2,500 lbf (11 kN) thrust per engine), increase of fuel capacity to approximately 5000 lbs, faster speeds and longer range. First flight was on January 31, 1977, and the aircraft was certified for two-pilot operation in March, 1978. A total of 603 aircraft were built before the Citation II was replaced by the Bravo in the production line. The US Customs & Border Protection purchased ten Citation IIs configured with fire control radar (initially the F-16's APG-66(V), later the Selex ES Vixen 500E system) and the WF-360TL imaging system. These aircraft have been used effectively in Panama, Honduras, Colombia, Peru, Venezuela, Mexico and Aruba and are not to be confused with the similar OT-47B aircraft, which are based on the Cessna Citation V airframe.

Specifications:**General characteristics:**

Crew : 2
Capacity : 8 passengers
Length : 47 ft 8½ in (14.39 m)
Wingspan : 51.7 ft (15.90 m)
Height : 15 ft 0 in (4.57 m)
Wing area : 342.6 ft² (31.83 m²)
Empty weight : 8,059 lb (3,655 kg)
Max. takeoff weight : 15,100 lb (6,849 kg)
Powerplant : 2 × Pratt & Whitney Canada JT15D-4B turbofans, 2,500 lbf (11.12 kN) each

Performance:

Cruise speed : 403 knots (464 mph, 746 km/h, 0.7 Mach) 35,000 ft (10,670 m)
Stall speed : 82 knots (94 mph, 152 km/h)
Range : 1,998 nmi (2,300 mi, 3,701 km)
Service ceiling : 43,000 ft (13,100 m)
Rate of climb : 3,040 ft/min (15.4 m/s)

Source : http://en.wikipedia.org/wiki/Cessna_Citation_II_under_the_Wikipedia:_Text_of_Creative_Commons_Attribution_Share_Alike_3.0_Unported_License

Appraisal - Introduction:**Developers Description:****Special Features:**

Original Citation II systems
EFIS (EADI + EHSI)
EFIS Control Panel
Autopilot Control Panel
Altitude Selector
Universal Multi-Function Display (MFD)
Universal Flight Management System (FMS)
Special wind drag effect
Improved lighting systems (interior and exterior)
Multiple aural warning sounds
Full FSX and P3D v2.0 compatible.

Features:

HD quality textures (4096 x 4096)
Real ground power unit (GPU) simulation feature (with volts indicator)
Original HQ digital 3D stereo sounds.
Panel dim light option
Complete back cabin
Customizable panel for controlling windows transparency, instrument reflections and static elements such as wheel chocks and sights props.
Real behavior compared to the real airplane. Real weight and balance.
Tested by real pilots.
Realistic night lights effects on panel and cockpit.

NOTE: This aircraft does not have a 2D panel. Only MFD, FMS, EFIS, Autopilot, Altitude selector and EFIS control panel have 2D windows.

Included in the package:

6 HD liveries.
1 HD Blank livery.
S550 Emergency Procedures PDF.
S550 Normal Procedures PDF.
S550 Performance Tables
S550 Reference PDF
Electronic Flight Information System PDF
Multi Function Display PDF
Recommended Settings PDF

Technical Requirements:

Windows XP with SP3 installed, Vista or 7 (32 or 64 bits).
Microsoft Flight Simulator FSX with SP1 and SP2 (or Acceleration Pack) installed or Lockheed Martin - Prepar3D Flight Simulator v1.4 or v2.0.
Pentium V/3GHz or similar
Minimum 2GB RAM (Recommended 4GB RAM)
512MB graphics card.
915MB available hard disk space.



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Appraisal - Exterior Model :

The modelling of the exterior of the aircraft is to Carenado's usual very high standard with excellent detailing and shaping. There are no visible mesh errors to be seen and absolutely no bleed.

The form of the fuselage especially the nose and cockpit areas are very nicely implemented. The window cut-outs etc. have smooth edges with great screw head detailing around the cockpit windshield's stainless steel framing. All of the cockpit / cabin windows exhibit a slight tint and good reflective properties. The two animated nose baggage bay / main cabin door also have smooth cut-outs. They have detailed structural edges and exhibit no bleed when closed. The main cabin door hinges out and forward though its latch is not animated neither inside or out. The main cabin door has a set of animated footsteps.

Other modelled details on the fuselage are antennas, pitot tubes and a tail position light. Various other ports, access panels, and the main cabin emergency exit door / window are detailed in the very highly detailed texture sets.

Wings, horizontal stabs, vertical fin and the associated flying controls are well modelled with good shaping / detailing where necessary, which includes static wicks which balance when the engines are running. The wing flex also gives a subtle balance when the engines are running and flex during take-off and landing. Animation of all flying controls is smooth and linear.

The wing tip strobes / navigation / recognition lights are very nicely modelled, having very good light sources which have a great bloom effect. The aircraft also sports the more dated style rotating beacon red light on top of the fin which is nicely animated with a very good light effect.

The Engine cowlings / intakes etc. are as equally well modelled as the rest of the exterior with excellent detailed thrust reversers. The first stage compressors of the engines are animated and can be seen through the main intake.

The three landing gear units are nicely modelled / detailed. Animation of the gear is sequential and smooth with no apparent interference with local structures. When closed the main gear wheels are exposed. Gear bay detail is simple but has great textures and a little structural detailing. Main landing lights are mounted on the main gear legs and like the wingtip lights have good light source / bloom.

Exterior texture sets are very well defined HD textures with very nice detailing and alignment. They are both bump and specular mapped giving good effects to panels, rivet lines, fixings etc. The package comes with 6 color schemes.

Appraisal - Interior Model:

The Virtual Cockpit of the model is very nicely modelled / textured with very good detailing on the instrument panel, console, CB's / switch panels, and the throttle / flap selector control quadrant.

The instruments on the panel are very easily read with clear fonts and crisp dials. They have good depth between the bezel glass and dial plates.

The Universal EFIS displays are two separate units on each side of the panel and consist of an EHSI & EADI which also have very crisp / clear character sets and smooth graphical movement.

Engine instrumentation is via vertical strip indications which again have crisp graphics, smooth movement and are easily readable.

The Comm / NAV / ADF / XPDR & TCAS control heads are of the Collins Pro-line II series having great orange LED displays just like the real units.

There is a Universal MFD display unit in the central area of the panel on which can be displayed Wx Radar, Terrain, & TCAS as well as general mapping etc.

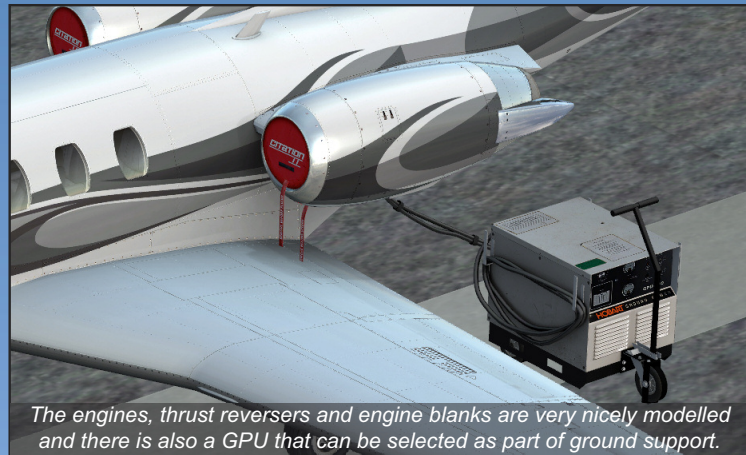
In the center console behind the throttle quadrant is a Universal FMS system control head and the AP control panel. Other Annunciator Panels, auxiliary switch panels etc. located in and around the main panel are equally as well modelled.

Rudder pedals, control quadrants, trim wheels etc. are again very well modelled.

The virtual cockpit interior trim, crew seats, side panelling etc. is again nicely modelled and textured with the crew seats having sheep skin cushions and the full four point safety harnesses.



The nose section, cockpit windshield area, nose baggage bays, main cabin door, pitot blanks, chocks etc. are all very well defined in this package.



The engines, thrust reversers and engine blanks are very nicely modelled and there is also a GPU that can be selected as part of ground support.



The thrust reversers are very well detailed, with a smooth animation and very good linking of the moving parts.





This front view of the S550 Citation II shows off the great smooth curvatures that Carenado always seems to achieve in their modelling. The bump mapping of panel lines, fixings etc. also adds to the realism of the model.



Showing the bottom of the wings, the main landing gear and the flap area was a must do as the level of detailing through structure as well as the very impressive HD texture sets shows the lengths that this developer goes to in order to achieve the final product. The subtle weathering is also typical of these very well kept / maintained business jets.



If you didn't know better you would think this was a real photo from a Cessna sales brochure. The model is very authentic in its appearance in every detail.

The detailing of the vertical fin and horizontal stabilizers is again very well implemented both in modelling and the detailing through the texture sets. Very nice work indeed.



This view shows off the equally great detailing of the lower section of the rear of the aircraft engine pylons and lower engine cowlings. Another great piece of detailing is the louvre grill.



This view shows off the great detailing of the rear section of the engine and reverser segments.



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The quarter light window on the port side of the cockpit opens through a hot spot over the latch and there are hingeable anti-glare panels on the side cockpit windows. Also through the drop down 'Shift '6' you can select cockpit windshield tint and instrument reflections, nice feature.

The passenger cabin is decked out in full leather and high class veneer and modelled / textured to Carenado's very high standards. There are two fold out tables via hot spots and the window blinds are also animated by hot spots. Night lighting in both the cockpit and cabin gives a very realistic night environment, great work.

Appraisal - Flying the Cessna S550:

The aircraft is relatively simple to operate in its basic functions with simple procedures for engine start etc. Procedures are detailed in various pdf files supplied along with a guide to the EFIS & FMS units.

Engine spin-up time is realistic like the real aircraft with good spool up engine sounds in the exterior environment though in the cockpit the sound set for the engine is rather weak. Taxiing the aircraft is simple at slow speeds with turns easily maintained. During take-off acceleration is quite retarded when compared to videos of real aircraft and the engine sounds are quite lack luster and don't have the same pitch effect as the real aircraft does during take-off. The aircraft climbs very well and is easily trimmed. Handling of the aircraft is again smooth with good reaction rates to control column inputs. The aircraft handles well in all flight regimes, being a real pleasure to fly. The aircraft's stall is very nicely reproduced with a good stalling effects and great stick shake sounds that accompanies the stall warning. Handling on approach was good and even at slow approach speeds the aircraft is stable and doesn't over react to control inputs. Braking action was very positive on landing assisted by the thrust reversers.

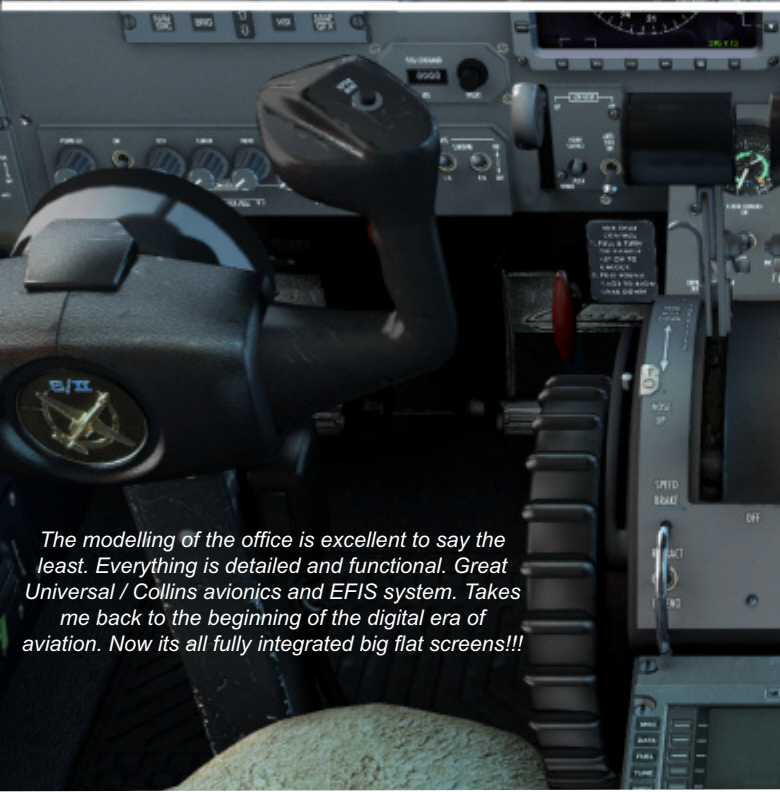
The aircraft systems all appear to operate as intended including the autopilot which was checked on various Nav tracks and using the APR function. The aircraft flew the ball as you would expect down to decision height as long as the approach was captured at recommended distances. We did not check short or steep angle captures. Overall the aircraft flies very nicely indeed and performs well. Though the sound set is a little weak especially in the cockpit.

Appraisal - Our Findings:

Overall Carenado's rendition of the Cessna S550 Citation II is to a very high standard of quality, both inside and outside as we have come to expect from this developer. If there is any gripe regarding this product then its probably the sound set which needs to be a little more realistic as mentioned, though its not that big an issue unless of course you are a perfectionist at all levels. The lack luster acceleration during take-off is another small issue. Overall we give this product our gold seal for quality and value for money. Visit the Carenado site for product purchase. www.carenado.com



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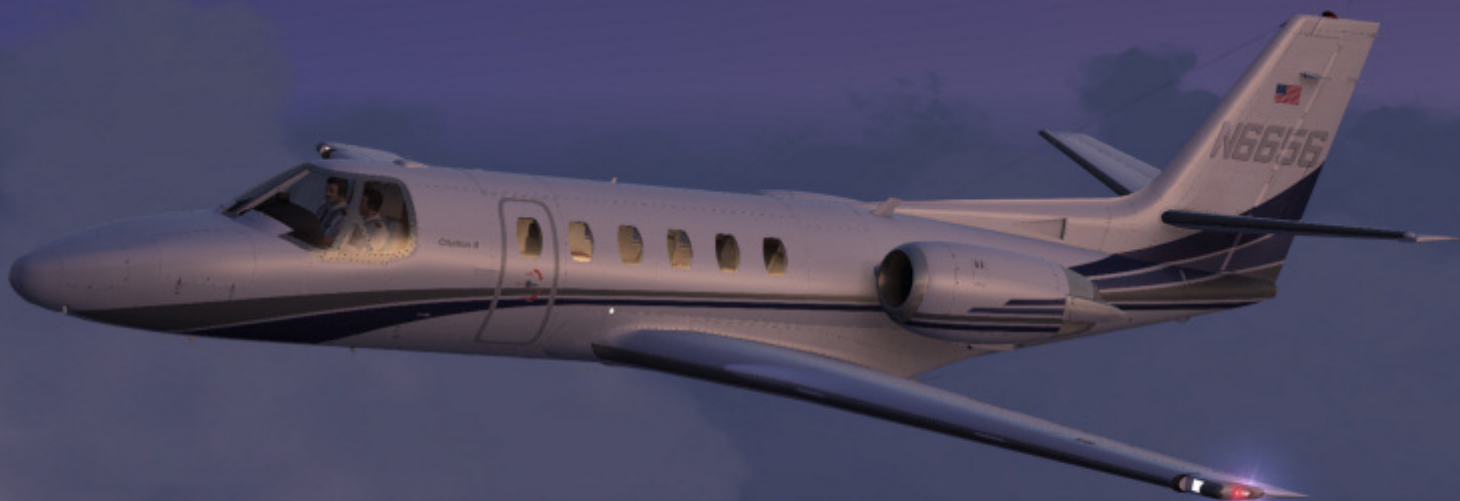


The modelling of the office is excellent to say the least. Everything is detailed and functional. Great Universal / Collins avionics and EFIS system. Takes me back to the beginning of the digital era of aviation. Now its all fully integrated big flat screens!!!



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The penthouse is also very chic, with high end leather seating and very expensive veneer furnishing. Just like my car! Not!

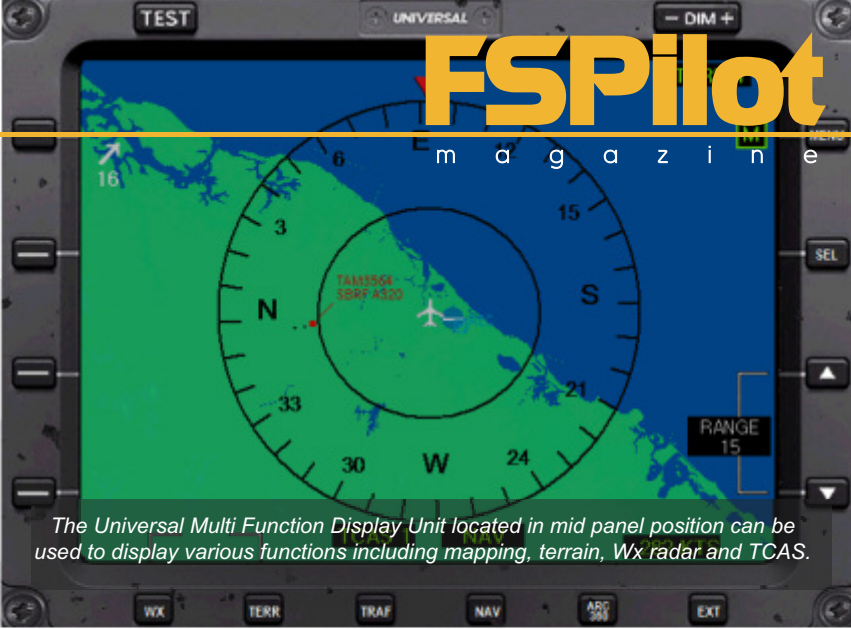


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The Universal EHSI & EADI Have very crisp and smooth movement in the character sets and graphics.



The Universal Multi Function Display Unit located in mid panel position can be used to display various functions including mapping, terrain, Wx radar and TCAS.



A Universal FMS system is located in the center console which uses FSX data with no updateable database which is a pity.



Engine Instrumentation is of the ribbon type with crisp and clear character sets and movements.



The Autopilot control unit is located in the center console as are the EFIS CRS and HDG selectors. Interesting feature of the Autopilot is the Bank limit switch and the large turn knob.

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