

Mutley's Hangar

Introduction

The "Golden Age" of aviation and the period immediately post World War II were two classic periods of development in aviation and the general aviation aircraft category in particular. For the significance these periods represent in aviation history, they attract a relatively minor focus in the development of aircraft for flight simulator enthusiasts. As amazing as the latest, most complex, "glass cockpit" equipped, full function FMS, and autopilot controlled aircraft are, there is something about classic aircraft which hold an extra attraction, an object of beauty. Maybe it's the sound of a deep burbling radial engine or simply the fact you actually have to "fly" the aircraft - real hands on with no autopilot, no "children of the magenta" here.

Alabeo have previously produced wonderful renditions of classic aircraft such as the Beechcraft Model 17 'Staggerwing', Granville Gee Bee Model Z, and Waco YMF-5. They have now added another classic from the 1940's, the Cessna Model 195 'Businessliner'. With its Jacobs R-755-A2 radial engine, the Cessna 195 'Businessliner' certainly sounds magnificent, but this classic Cessna aircraft is deserving of a closer look.

History

The Cessna 195 'Businessliner' is a five seat, single engine, general aviation aircraft which was derived from the pre-war Cessna Model 165. It has a cantilever wing and a conventional, flat sprung steel, landing gear, and was the first Cessna aircraft to be completely constructed of aluminium.

Primarily marketed as a business aircraft, it was also used by the military in a light transport and utility role. Production of the 195 'Businessliner' ran from 1947 to 1954 with 1,180 units being produced.

Availability and Installation

The Alabeo Cessna 195 'Businessliner' is currently available direct from Alabeo and Alabeo resellers as a 'download only' product (some resellers also offer a master back-up CD / DVD service for a minor additional cost). It is priced at US\$22.95, or the equivalent on currency cross rates. The file size of 145MB is reasonable for an aircraft of this type and quality and it requires 390MB of HDD space for installation. Depending on where it was purchased, an 'activation key' may be issued to be used during installation.

Documents

There are three manuals / documents provided in Adobe Acrobat format (.pdf):

- Normal Procedures – Normal Procedures – this eight page manual provides the procedures for the normal operation of the aircraft;
- Performance Tables – this two page document details the operating cruise performance specifications of the aircraft; and
- Reference – this one page document details the performance specifications of the aircraft.

Model Features

With a basic avionics suite, the Cessna 195 'Businessliner' is a solid, rudimentary, general aviation aircraft and Alabeo have modelled this beautifully. This is an aircraft for hands on flying, the simple experience and pure pleasure of flight. This review has involved over 15 hours of specific flight testing flying hours and it is evident Alabeo have delivered an aircraft in the 195 'Businessliner' which focuses solidly on the joy of flying.

The model features listed by Alabeo for the Cessna 195 'Businessliner' are

typical of models in the Alabeo range and include:

- HD quality textures;
- High quality 3D model and textures;
- Material shines and reflections;
- Gauge reflections;
- Windows scratches (crazing) and blade shines; and
- Realistic behaviour.

There is a single model provided (two pilots), six HD paint schemes and a blank texture provided for aircraft painting enthusiasts.

General Visual Appearance

Exterior. Alabeo's Cessna 195 'Businessliner' displays a high level of attention to accuracy and detail. A comparative review of photographs of real world aircraft to Alabeo's rendition reveal the exterior shape and dimensions to be highly accurate and a true representation of the real world aircraft. There were some noted minor differences, but these are considered to be related to real world production variations and / or developer latitude for the level of modelling adopted for the Alabeo aircraft range.

Interior. Consistent with the exterior, the general appearance of the cockpit and the panel layout are also modelled to a very high degree of detail. However, the avionics layout and fit out of Alabeo's Cessna 195 'Businessliner' varies from the original, classic 195 'Businessliner' layout and displays a more modern appearance with the inclusion of some modern instrumentation. Nonetheless, when compared to real world photographs of similar layouts, the cockpit and panel layout are modelled to a high degree of accuracy.

Paint Schemes. There are six individual paint schemes provided with the Alabeo Cessna 195 'Businessliner' and each aircraft has a unique aircraft registration number. The surface textures, reflections, and shadings give

the aircraft a crisp and realistic appearance and the polished aluminium, where used, has a natural look and shine.



Paint Scheme 1



Paint Scheme 2



Paint Scheme 3



Paint Scheme 4



Paint Scheme 5



Paint Scheme 6

Exterior

The exterior modelling accuracy of the Cessna 195 'Businessliner' is excellent. The level of this detail includes wheel fairings (these can be toggled on and off), individual fuselage panels and panel rivets, an access

panel, aerals and antenna, fuel tank caps, and exhaust and oil stains on the fuselage, which add to the overall realistic appearance. One noted missing exception was the retractable step for access to the cabin when the cabin door is opened.



External General View



External Top View



Nose View



Side View & Access Panel

Interior

Alabeo's rendering of the cockpit of the Cessna 195 'Businessliner' is also excellent and very realistic when compared to real world layouts.



Instrument Panel Layout. All primary flight instruments in the 195 'Businessliner', are on the left side (pilot side) with the engine management instrumentation on the right side of the panel. The COM and NAV radios, transponder, DME, and throttle controls are all located centrally. The location of the light switches is split between the lower panel in front of the pilot and centrally with the throttle controls. The trim controls are located on the central yoke pillar and the fuel tank selector is located centrally on the floor, forward of the yoke pillar and behind the parking break lever. The primary flight instruments are laid out in the standard "T" and "six pack" arrangement and all the flight instruments are clear and easy to read and have the option for instrument glass reflections to be enabled or disabled. The yokes do not obstruct the view of any major instruments or controls, however, the removal of them can be toggled to provide an unobstructed view of the panel. Various alternative cockpit camera views are available to provide more detailed views of the instruments, however, there are no checklists or aircraft reference data provided on the 'Kneeboard'.



Detailed Panel View, Right Side



Cockpit, Rear Seat View

Cockpit Layout. The cockpit layout of 195 'Businessliner' is somewhat unique in that the rear seating is a bench seat which is capable of comfortably seating three passengers. This is due to the width of the fuselage in accommodating the large radial engine. As with other aircraft

in the Alabeo range, the attention to detail and small features differentiate the quality even though they are mostly aesthetic rather than functional. The textures of the seating, seatbelt webbing, and floor carpet provide a good and reasonably realistic appearance. There is even a certificate of airworthiness displayed in a holder. However, the width of the front seats seems too large as the space between them is uncharacteristically narrower than that seen in photographs of real world aircraft.



Rear Seat



Certificate of Airworthiness

Overall though, the attention to detail on the interior is, again, of a high quality.

Animations

The animations of the primary and secondary control surfaces and other moving elements on Alabeo's Cessna 195 'Businessliner' are all modelled faithfully.

Animations include:

- Primary control surfaces – ailerons, elevators and rudder;
- Secondary control surfaces – flaps;
- Others – elevator and aileron trim tabs, retracting landing lights, rolling wheels, cabin door open / close; and
- Pilot head movement.





Landing Configuration 1



Landing Configuration 2

Lighting

Alabeo have done a credible job on the lighting and lighting effects on the 195 'Businessliner' and they provide a good, realistic representation of the real world aircraft. There is the usual navigation lights, rotating beacon, strobe lights, landing light, and panel lighting. Other than the landing lights illuminating the ground effectively, the strobe lights also provide this illuminating effect. The detailed night light effects for the instrument panel, generally, are very good and replicate the night lighting seen in photographs of real world aircraft. All interior lighting affects can be seen when viewing the aircraft from an external view.



External View, Night



Panel View, Night

Sounds

There is something strangely beautiful about the deep rumbling sound of a radial engine and Alabeo have represented the sound of the Jacobs R-755-A2 engine on the Cessna 195 'Businessliner' quite nicely. From initial start-up, through idle to full power, this 300 horsepower radial

reverberates through your body and it is worth turning up the volume on your computer's sound system. However, after initial start-up and settling into idle, there was a noticeable inconsistency in the sound of the engine. As usual, there is also the normal array of sounds associated with switches.

General Characteristics and Performance Specifications

The general characteristics and performance specifications for the Cessna 195 'Businessliner' are provided in the table. This is based on data from the Cessna web site, data in the aircraft details provided by Alabeo, and general research sources. Some of this data varies between sources and also may be an approximation due to variances in data and the specific aircraft modelled by Alabeo.

General Characteristics	
Crew	One
Capacity	Four passengers
Length	27 ft 4 in (8.33 m)
Wingspan	36 ft 2 in (11.02 m)
Height	7 ft 2 in (2.18 m)
Empty Weight	2,100 lb (953 kg)
Fuel Capacity	75 US gal (280 l)
Maximum Take-Off Weight (MTOW)	3,350 lb (1,520 kg)
Power Plant	Jacobs R-755-A2, radial, seven cylinder, 300 hp (220 kW)
Performance Specifications	
Maximum Speed	161 kts (185 mph, 298 km/h)
Cruise Speed	148 kts (170 mph, 274 km/h), at 70% power
Stall Speed	54 kts (62 mph, 100 km/h) full flaps, engine at idle
Range	695 nm (800 mi, 1,287 km) at 70% power
Service Ceiling	18,500 ft (5,578 m)
Rate of Climb	1,200 ft/min (366 m/min) maximum

Flight Performance

Flight testing was conducted in clear weather with a full fuel load and the

aircraft at maximum take-off weight (MTOW). Like most aircraft of this type, adjustments must be made to fuel / pax loading to remain within the MTOW limitations.

A cruise altitude of 7,500 feet was adopted on the Test Flight. During cruise, a manifold pressure setting of 20.8 inHg and an rpm setting of 2100 rpm were established. The mixture setting was leaned out to produce a fuel flow rate of approximately 14.7 gph. This cruise setting produced an average speed of approximately 144 knots true air speed (KTAS) and an endurance consistent with the range characteristics of the aircraft. The Test Flight confirms the modelling of the aircraft for range performance to be quite accurate.

The aircraft was easy to taxi. With 0° flaps, aircraft rotation occurred at approximately 65 knots indicated air speed (KIAS) and the aircraft easily maintained a normal climb speed of approximately 100 KIAS at a rate of climb of 1,200 ft/min. Even at MTOW, the Cessna 195 'Businessliner' climbed effortlessly within the specified rate of climb and speed performance parameters for the aircraft. When climbing to the service ceiling altitude, with the obviously required adjustments to the rate of climb, the aircraft was able to climb to this altitude. Configured for landing, with full flaps and trimmed for a descent rate of approximately 500 ft/min, the aircraft's approach speed was approximately 85 KIAS and it touched down at approximately 75 KIAS, with a landing roll out comparable with the specifications for the aircraft.

In testing the accuracy of the instruments, based on the measured Test Flight, the speed indications on the airspeed indicator and the DME, were consistent with the averages measured. Additionally, when establishing a set rate of climb on the vertical speed indicator, the respective gain in altitude on the altimeter was achieved within the measured minute, and a standard rate turn was achieved within the measured two minute period using the turn coordinator. However, no discernible gyro drift was evident.

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In Flight 1



In Flight 2

In all, the performance of Alabeo's Cessna 195 'Businessliner' was excellent in flight, displaying the typical flight characteristics of this aircraft. The 195 'Businessliner' is a lot of aircraft, and with a large wing area, and this is definitely noticeable in the way it handles. Overall, the aircraft model displays a very accurate rendition of the flight characteristics and performance of the real world aircraft.



In Flight 3



Landing

Technical Requirements

This version of the Alabeo Cessna 195 'Businessliner' is for FSX / P3D only. Other specified technical requirements are as follows:

- Windows Vista or Windows 7 (32 or 64bit);
- Microsoft Flight Simulator FSX with SP1 and SP2 (or Acceleration Pack) or Lockheed Martin Prepar3d Flight Simulator installed; and
- Pentium V, 2GHz or similar, 2GB RAM, 512MB graphics card, and 390MB available HDD space.

Simulator Performance

The aircraft model performed very well within the existing settings I have in FSX. I have most of my settings set very high and there was no need to make any adjustments. FSX continued to perform smoothly and as it would with any default aircraft.

Review Computer Specifications

The specifications of the computer on which the review was conducted are as follows:

- Intel i7 990X Extreme 3.46GHz;
- NVidia GTX580, 1536MB graphics;
- 12GB Kingston DDR3 2000MHz;
- Windows 7, (64bit);
- Microsoft Flight Simulator FSX Acceleration; and
- Additional major add-ons include: Active Sky Next; REX Essential Plus Overdrive; Ultimate Traffic 2; Orbx FTX Global BASE; Orbx FTX Global VECTOR; Orbx FTX region series; and Orbx FTX airport series.

Conclusion

The Cessna 195 'Businessliner' is a fantastic classic general aviation aircraft and is great to fly. Alabeo have done a wonderful job of recreating the 195 'Businessliner' and the aircraft displays a good balance of quality and detail at an excellent price. Detected issues were minor and do not impact or significantly detract from the general flying of the aircraft. If you are a fan of classic general aviation aircraft and / or Cessna aircraft in particular, you will enjoy having this aircraft in your collection.



A Classic

Verdict

The Cessna 195 'Businessliner' is another solid product from Alabeo which displays a high quality and attention to detail and represents exceptional overall value for money.

Pros:

- Quality and attention to detail;
- Realistic modelling and performance;
- Good documentation; and
- Excellent value for money.

Cons:

- Minor sound inconsistencies.



Verdict:		
• External Model:	9.5/10	

• Internal Model:	9.0/10	
• Sounds:	9.0/10	
• Flight Characteristics (does it fly by the numbers):	9.5/10	
• Flight Dynamics (does it feel like what it looks like):	10/10	
• Documentation:	9.0/10	
• Value for money:	10/10	
The Alabeo Cessna 195 'Businessliner' is awarded an overall Mutley's Hangar score of 9.4/10, with an "Outstanding" and a Mutley's Hangar Gold Award.		



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