

Black Square

What's new since the Analog Bonanza?

While the panel of the Bonanza Professional might look familiar, almost all other aspects of the aircraft have been rebuilt with Black Square's current technology and high standards of quality.

This expansion of the Analog Bonanza represents 1,000+ hours of dedication, and roughly a doubling of the aircraft's code complexity. Think of it as bringing Black Square's older catalog up to the quality of the Piston & Turbine Dukes. Once you experience Black Square's latest technology in your favorite A36, the difference will be clear!

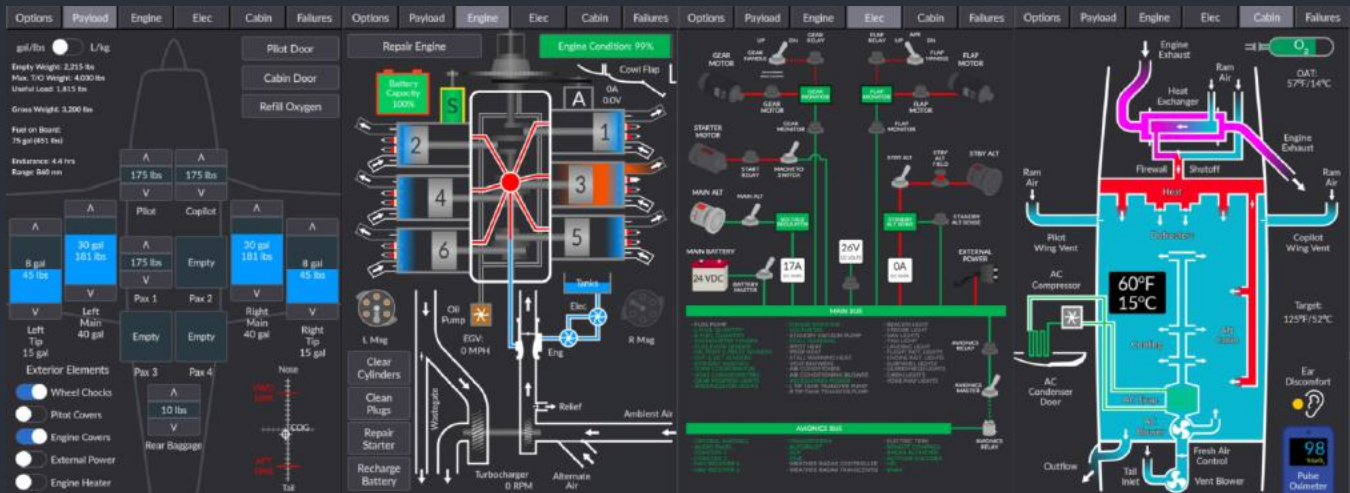


- **A completely custom exterior model** was created for the Bonanza Professional to accurately portray each version of the A36 with high resolution materials.
- **Three aircraft in one!** The Analog Bonanza only truly represented the normally aspirated A36 with grafted on tip-tanks, and lacked turbocharger intercooler inlets. The Bonanza Professional includes an accurate 2000's A36, aftermarket turbonormalized A36TC, and A36TP turboprop conversion, accurate inside and out.
- **A custom sound package** for the Bonanza Professional from Boris Audio Works brings the airframe and systems to life with the best quality sound available.
- **Six paint schemes (liveries)** authored at 8K resolution, fit anyone's taste across five decades of service.
- **Custom wing flex** and ground vibration physics from the Piston Duke.

- **Improved interior modeling and materials** show increased wear. (Doors finally open!)
- **Five new interior upholstery packages** depict the aircraft through decades of service, all unique to the Bonanza Professional.



- **TABLET INTERFACE!** The Bonanza Professional includes the same tablet interface that first debuted with the Black Square Dukes, and is now being extended to the whole fleet. The tablet interface is the most complete system for visualizing aircraft systems in MSFS, as well as configuring avionics, payload, and 100+ failures.



- **Physics-based engine simulation!** Also from the Black Square Piston Duke, the Bonanza Professional's engine now feels alive with compression, magneto impulse couplings, blade angle, oil temperature & pressure, cylinder head temperatures, and preheating simulations.
- **Fuel injected engine simulation with fouling, vapor-lock, flooding, and backfire** features began with the Analog Bonanza, but they have now been perfected with all the information required to drive the tablet engine visualizers, and adjusted to best represent the models of aircraft featured here.

- **Double the number of hot-swappable radio configurations** with the KLN-90B, GTN 650, and accurate bezels for the TDS GTNxi.
- **Instrument needle stiction and friction.** Analog instruments can become sticky without engines running. Tap the glass to free the needles and get a more accurate reading!
- **The fully simulated environmental control system** has been improved significantly to provide all the information needed for the tablet's cabin visualizer. This includes many cockpit controls that were previously non-functional, or had limited functionality. Also, small changes for each model of the aircraft are reflected in the climate control systems, each with their own cabin visualizer.



- **Several new random, scheduled, or performance triggered failures** have been added, settable via the tablet, including engine damage, compatible with 3rd party UI's and instructor stations.
- **Physics-based sound system.** Sounds like engine starting are not mere recordings, but instead many layered sounds, constructed based on the underlying simulation.

- **Functional exterior elements & control locks** have been added for your preflight, including chocks, pitot covers, engine covers, propane preheater, and external power cart. Pitot cover flags blow in the wind, and leaving items covered can have catastrophic effects.
- **Propeller hub oil simulation**, with spring return fine pitch on loss of oil pressure.
- **Simulated engine preheating** required for cold starts, with heater and ground power cart.



- **New performance tables** reflect fine tuned aerodynamic and engine cruise performance, whereas no power setting guidance was given for the Analog Bonanza.
- **Voltage-based light dimming**, an immediately recognizable effect to nighttime pilots. The lights even pulse at low engine RPM, as the voltage regulator struggles to maintain a constant voltage.
- **Gyroscope physics simulation** for electric and pneumatic gyroscopes with precession, and partial failures, based on a coupled quadrature oscillator, create a visually stunning effect.
- **Strobe lights now** cause realistic distracting flashes in clouds.
- **Experience St. Elmo's Fire** & static discharge on static wicks in severe weather.
- **The KNS-81 RNAV now supports autopilot** while using the No-GPS configuration.
- **Overhauled KAS 297B** with vertical speed arming, altitude arming, and improved usability.
- **The most advanced turbocharger simulation in MSFS** is now even better with improved turbocharger performance curves that impact the aircraft's systems. The custom sound package also greatly improves the sound quality of turbochargers, making them much more pleasant to the ear.



- **The all new A36TP Turbine Bonanza** with all the systems and advanced turboprop features of the Black Square Turbine Duke.

As a measure of complexity and care, **the 96 page Analog Bonanza user manual has grown to 205 pages**, with lots of new images, explanations, and tutorials.