Bonanza G36

PRODUCT ANALYSIS

Hawker Beechcraft

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Introduction

This document describes an aircraft that is truly a legend: The Bonanza G36. First produced in 1947, the Bonanza quickly became the “gold standard” for single-engine piston aircraft, a tradition that continues today.

The Beech Aircraft Company has been the quality leader in the business aircraft manufacturing industry for over 70 years. This commitment to excellence has been achieved in over 100 Beechcraft models since 1932 and continues uppermost in the Bonanza, the longest-running production airplane in history with continual production since 1947. In total, nearly 17,000 Bonanzas of all models have been produced, operating in 94 countries worldwide and amassing an impressive 20,000,000 flight hours.

In particular, the Model 36 Bonanza has an unparalleled and proven reliable operation with over 4,500 Model 36 Bonanza aircraft produced since 1968.

Quite simply, the Bonanza is the finest piston-single ever built and for those who demand the best the G36 is the ultimate personal expression of leadership and success.

Product Enhancement Program

The company conducts a continuous program of product improvement. This program provides an operator of a new Bonanza G36 with increased reliability, reduced operating costs, incorporation of appropriate new technology and enhancements to cabin comfort. The following is a selected list of the many recent improvements accomplished on the G36:

	Feature	Benefit
Avionics	2006 - Garmin G1000 avionics	Fully integrated, increased safety
	Optional WX500 Stormscope/Skywatch 497	Increases planning and avoidance
	Class-B Terrain Awareness (TAWS)	Increased safety
Cabin	New cabin sidewall design	Comfort, styling
	New cabin door seals	Improved cabin sound and temperature control
	New seat foam	Enhanced lumbar support
	Restyled interior seat tailoring	Aesthetics, comfort
	Smoke-gray window tint	Reduced glare, UV protection
	Improved noise dampening materials	Reduced cabin noise levels, fatigue, higher resale value
Paint	"High solids" urethane paint	Durability, hi gloss, reparability
	New paint schemes	Styling
	Polyamide epoxy corrosion-proofing	Long-term durability
Airframe and Ops	Propeller dynamically balanced	Reduced vibration
	Stainless steel cowl door fasteners	Enhanced appearance
	One piece inboard and outboard landing gear doors	Improved fit and finish
	Additional stall warning horn	Increased safety
	New, higher quality acrylic windshield	Improved clarity of vision
Manu-facturing	1998–All assembly tools re-mastered and retooled	Precision in manufacturing
	1999-New fuselage canopy assembly tooling	Improved window and door fit
	2001-New cowl and nacelle assembly tooling	Improved cowl and nacelle fit

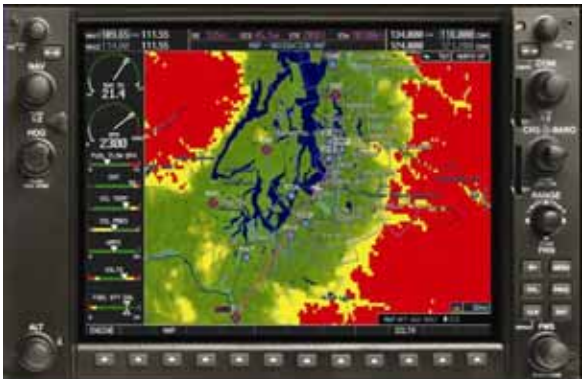
Advanced Garmin G1000 Avionics

The Beechcraft Bonanza G36 (Serial Effectivity E3640 and on) is equipped with a fully integrated GARMIN G1000 avionics package.

Previous Bonanza G36 Panel

G1000 Bonanza G36 Panel

The G1000 dual display allows for an all-glass flightdeck that presents flight instrumentation, moving maps, navigation, communication, and identification data on two 10.4 inch, high-resolution displays. As a result, the pilot flying a Bonanza with G1000 avionics will experience reduced pilot workload, intuitive operation of the equipment and greatly improved situational awareness.

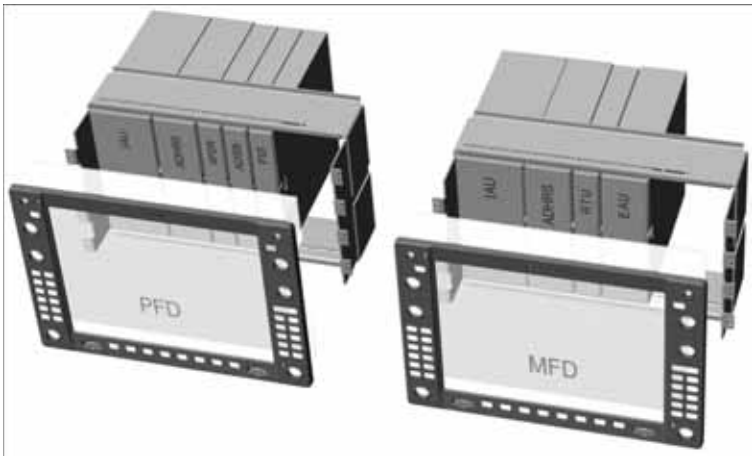


The Primary Flight Display (PFD) replaces many of the traditional cockpit instruments and presents enhanced flight data in an integrated large-format display. All flight-critical information is displayed at the pilot's fingertips and is completely integrated.

The Multi-Function Display (MFD) provides all aircraft engine monitoring and flight planning functions. In addition, the Class-B Terrain Awareness and Warning System (TAWS) can alert the pilot to potential conflicts with obstacles and terrain.

Advanced Garmin G1000 Avionics (continued)

Provides Ease of Repairs and Reduction in Overall Aircraft Weight



When compared to the traditional system in earlier Bonanzas, the new G1000 avionics package provides modular, rack-mounted line replaceable units (LRUs) located directly behind the flat panel displays thus making maintenance quick and simple.

Each LRU is a self-contained component – dual nav radios, dual com radios, a GPS sensor, a transponder and an engine control unit. If any component fails, it's a simple matter to pull out the LRU and replace it. LRU literally means it can be replaced while the airplane is still on the line – without taking it into the maintenance hangar.

Increased Redundancy and Reliability

Every component in the G1000 system shares data with every other component through a High Speed Data-Base (HSDB) Ethernet connection. Ethernet allows one wire or bundle of wires to communicate with all the other components. In other words, everything in the system is digital and information can flow in both directions.

The G1000 makes the primary and standby pneumatic systems obsolete thus both have been removed from the airplane. A digital Attitude Heading Reference System (AHRS) and an Air Data Computer (ADC) provide attitude and air data information to the system. AHRS uses comparative inputs from GPS, a magnetometer and the air data computer to achieve increased levels of integrity, reliability and precision.

Advanced Garmin G1000 Avionics (continued)

The System Provides New Functionality and Features

The following is a list of some of the standard system components features and benefits of the G1000 in the Bonanza G36:

Feature	Benefit
Fully integrated with autopilot	Each wire or bundle of wires within the avionics system has a 2-way data exchange. The dual display G1000 system will be able to communicate with the GFC700™ autopilot.
Primary Flight Display (PFD)	Horizon, airspeed, altitude, vertical speed, HSI with selectable 360° and segmented arc direction views presented on integrated a large-format 10.4 inch display in brilliant, sunlight-readable high-definition color
Multi-Function Display (MFD)	Provides all aircraft system monitoring and flight planning functions: Engine-monitoring display (EGT and CHT is monitored for all cylinders) Displays can be overlaid with traffic, weather, terrain and other avoidance system advisories
Solid State Attitude & Heading Reference System	All-electric system replacing pneumatic gyros. Capable of in-flight dynamic restarts and aligning while in motion, even during a turn
Class-B Terrain Awareness and Warning System (TAWS) *	Includes worldwide terrain and obstacle data base for increased situational awareness and safety
VHF communications with 16-watt transceivers and 8.33 kHz channel spacing	Future requirements in a package ready for today
Standby Instruments	Standby altimeter, airspeed and electric attitude indicator with an integrated battery backup

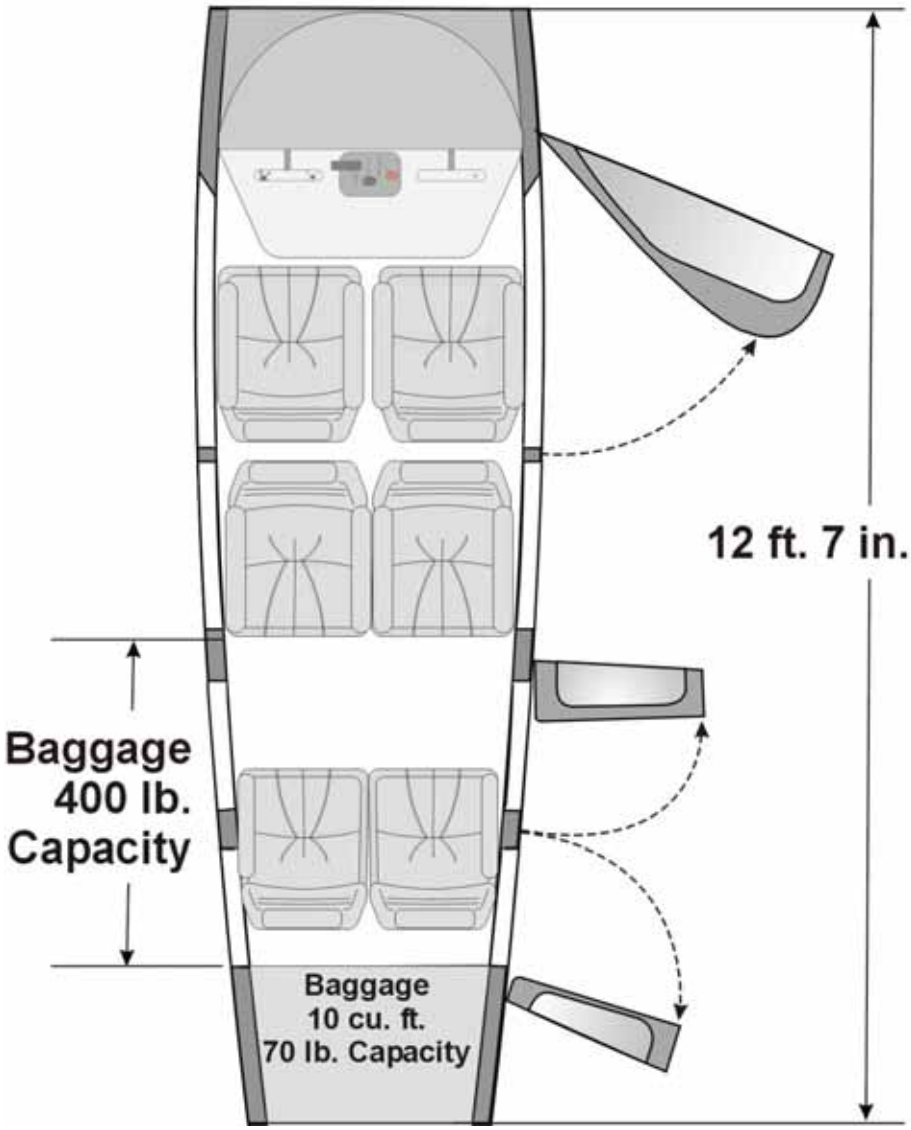
* The FAA has mandated that all U.S.-registered, turbine powered aircraft with six seats or more to install a Terrain Awareness and Warning System (TAWS). TAWS is an enhanced technology that replaces Ground Proximity Warning Systems (GPWS).

Bonanza G36 Cabin (continued)

The Bonanza allows for the pilot and five passengers in a comfortable 137 cu. ft. cabin. There is outstanding all-around visibility for both the pilot and passengers provided by a huge one-piece wrap around windshield and six very large side passenger windows.

As a result of Beech's trademark "squared oval" there is more head and shoulder room than any competitor along with very comfortable foot and leg room for every occupant. The Bonanza features abundant baggage storage with in flight access for passenger convenience.

Excellent ingress and egress is provided for passengers and the pilot through 45-in. by 35-in. double doors and a 36-in. by 37-in. single piece forward door. In addition, two center windows that open provide multiple emergency egress paths.



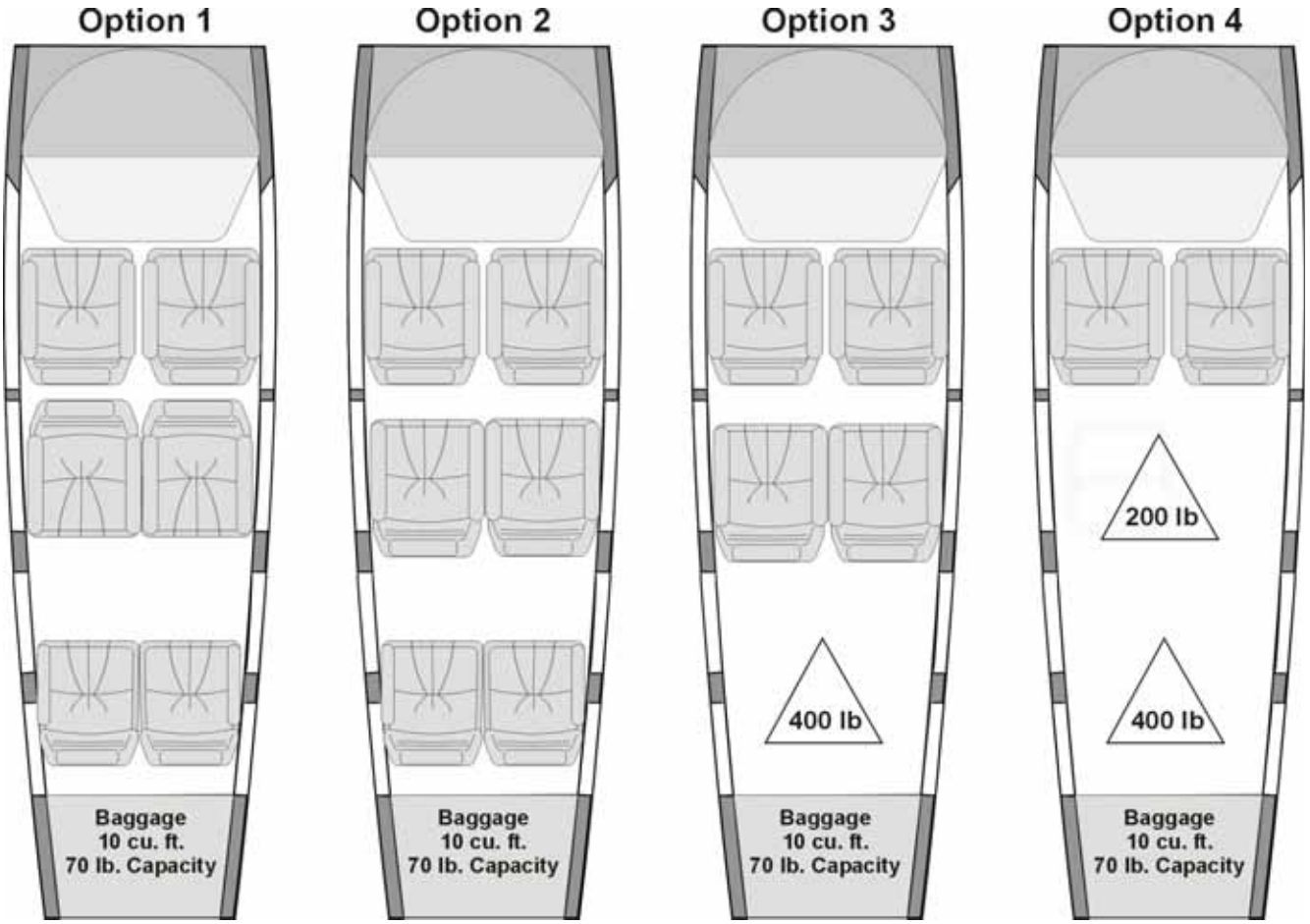
Bonanza Cabin Configurations

Interior Flexibility

The spacious interior of the Bonanza G36 can be configured in a *wide variety* of seating arrangements (options below) with various fabrics and colors to suit the customer's requirements.

Seats can be turned around from the club configuration to all forward-facing configurations. Or they can be completely removed in minutes without the need for special tools or a mechanic.

Variable density foam is now provided in the Bonanza G36 seats for improved levels of comfort for all occupants.



The Bonanza G36 Systems

Engines and Propellers

- A fuel efficient and reliable Teledyne-Continental IO-550-B “Special Edition” engine, rated at 300 horsepower
- Three blade, constant speed Hartzell propeller
- Electro-thermal propeller deice system is available as an option

Electrical System

- New, multiple aircraft busses for increased reliability and redundancy
- One alternator, a stand-by alternator and battery
- Secondary back-up battery is included

Avionic Electrical System

- Two alternators dedicated to the avionics suite
- The current starting battery and a second battery provide back-up
- Back-up or second battery can provide 30 minutes of electrical power in the unlikely event that power is lost from both alternators and the starting battery

Landing Gear/Wheel Brakes

- Fully enclosed retractable landing gear ensures aerodynamic efficiency and a quiet cabin
- High landing weight (100% of maximum takeoff weight) allows the Bonanza G36 to perform multiple, un-refueled short leg trips without landing weight restrictions
- Rugged landing gear; high operational airspeeds

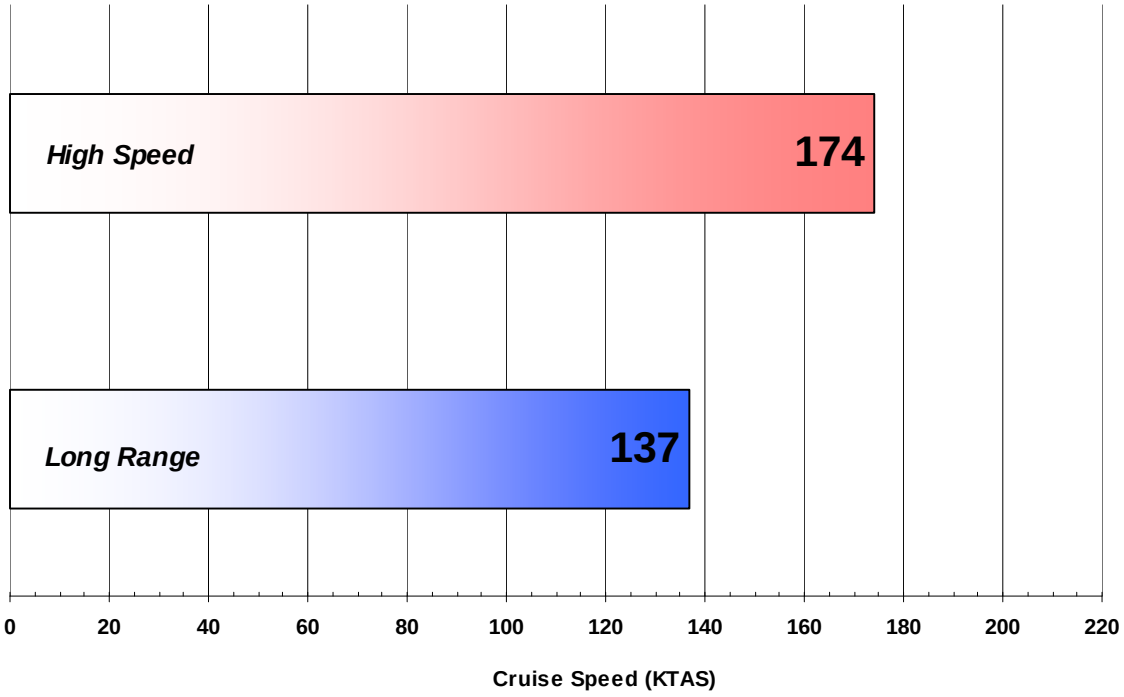
Custom Interior Appointments

- High quality finishing materials of hardwoods, top grade leathers, carpets, metalwork and fabrics in a rich selection of colors and textures available to personalize your airplane
- Integrated digital audio control system enabling more than 120 channels of digital radio commercial-free music and premier sports, news and talk radio.
- Optional vapor-cycle air-conditioning is available

Cruise Speeds and Sector Times

The G36 cruises at 174 KTAS (200 mph) with low fuel flow rates. This simultaneously provides short trip times and low operating costs.

Bonanza G36 Cruise Speeds

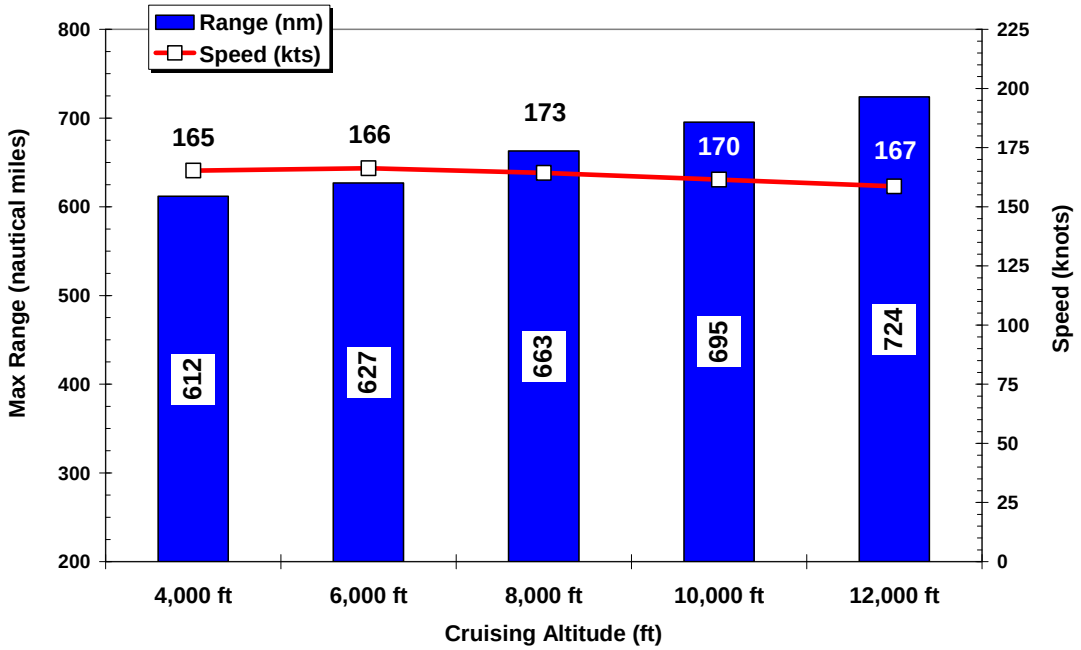


Trip Length	Time	Block Speed (HSC / knots)	Block Speed (HSC / mph)
200 nm	1:11	169	194
500 nm	2:54	172	198

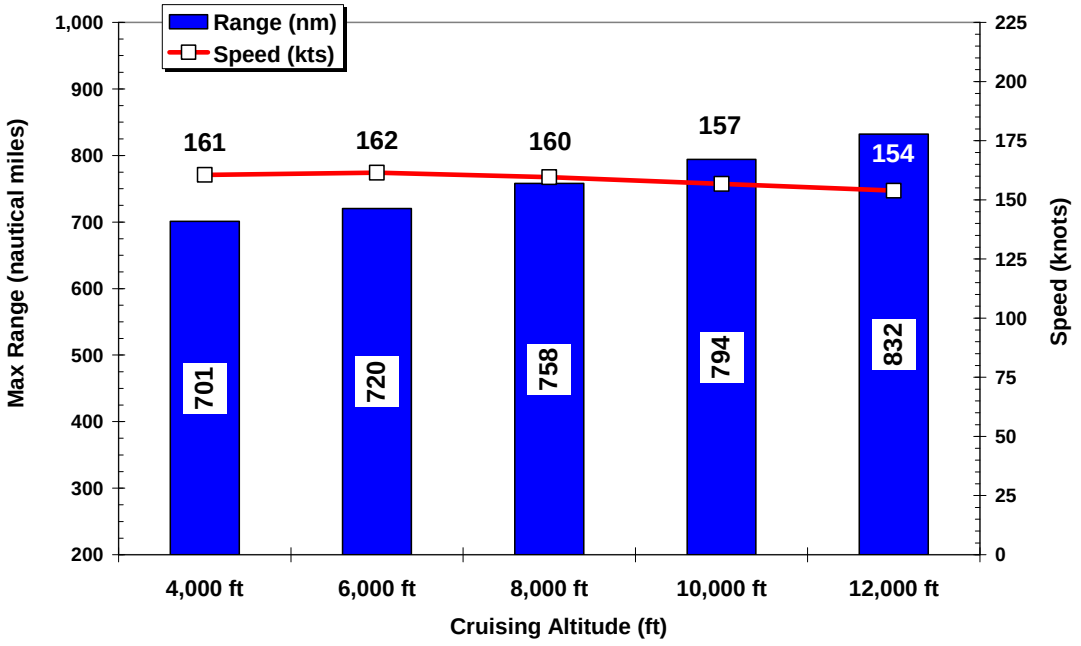
Cruise Altitude versus Range and Speed

The following tables show the remarkable range and speed ability of the Bonanza G36.

Range & Speed with Cruise Power at Rich Setting
(@ Full Throttle 2500 RPM, with Air Conditioning, ISA enroute)



Range & Speed with Cruise Power at Lean Setting
(@ Full Throttle 2500 RPM, with Air Conditioning, ISA enroute)



Flight Profile Analysis Assumptions

A typically equipped Bonanza G36 basic operating weight is assumed. Each profile assumes cruise climb to altitude, cruise at ISA and descent to the destination airport. The profiles are based on performance data from the pilot's operating handbooks. The profiles were prepared using the following criteria:

Distance	All distances are in nautical miles.
Winds	Zero winds are assumed.
Passengers	Four occupants at 170 lb. each are carried on the missions.
Cruise Alt. /Power Setting	Cruise altitudes are typical for the trip lengths flown. High Speed Cruise (HSC) power setting is used.
Take-off Weight	Take-off weight includes aircraft empty weight, the indicated passenger load, sector fuel (less taxi-out fuel) and reserve fuel.
Sector Fuel	Fuel used includes taxi-out, take-off, climb, cruise and descent.
Sector Time	Flight time is from lift-off to touchdown and includes climb, cruise and descent.
Reserve Fuel	Assumes 45-minute VFR reserve.

Flight Profile Analysis

Bonanza G36 Generic Mission Profiles

Route	Distance (nm)	Wind (kt)	Take-off Weight (lb)	|------- Sector -------| Time (hr:min)	Fuel (lb)	Num Pax	Total Payload (lb)	Cruise Alt	Power Setting	Reserve Fuel (lb)
Bonanza G36	100	0	3,382	0:38	71	4	680	7,000	HSC	41
Bonanza G36	200	0	3,438	1:12	127	4	680	7,000	HSC	41
Bonanza G36	300	0	3,487	1:49	176	4	680	9,000	HSC	41
Bonanza G36	400	0	3,539	2:24	229	4	680	9,000	HSC	41
Bonanza G36	500	0	3,582	3:03	272	4	680	11,000	HSC	41
Bonanza G36	600	0	3,632	3:39	322	4	680	11,000	HSC	41

** Number of passengers reflects the number of occupants in the airplane including the pilot.*

Estimated Direct Operating Costs

	Bonanza G36
Fuel	
$5.00 per U.S. Gallon	90.00
(Gallons per Hour) [1]	(18)
Maintenance Cost ($):	
Labor - @ $72.00 per Man-hour [2]	42.48
(Man-hours per flight hour) [2]	(0.59)
Parts - airframe and avionics [2]	20.58
Engine Restoration ($):	
Restoration Costs	14.33
Propeller Overhaul Reserve [2]	6.32
Total Direct Operating Costs per Hour ($):	$173.71
Average Speed (200 nm mission) [1]	169
Cost per Nautical Mile ($)	$1.03

Source:

1. *Business & Commercial Aviation magazine, May 2007 (200 nm mission)*
2. *Conklin & deDecker Associates, Inc. - Aircraft Cost Evaluator Fall 2007*

Bonanza G36 Weight Statement

Design Weights

Max. Ramp Weight	3,663 lb.	(1,662 kg.)
Max. Takeoff Weight	3,650 lb.	(1,656 kg.)
Max. Landing Weight	3,650 lb.	(1,656 kg.)
Max. Zero Fuel Weight *	3,509 lb.	(1,592 kg.)
Fuel Capacity	444 lb.	(201 kg.)

**Calculated weight based on MTOW minus fuel required to fly 1.5 hours at HSC.*

Weight Breakdown

Basic Empty Weight **	2,530 lb.	(1,148 kg.)
1 pilot	170 lb.	(77 kg.)
Basic Operating Weight	2,700 lb.	(1,225 kg.)

Typical Options:

Prop De-ice	5 lb.	(2 kg.)
Air Conditioning	65 lb.	(30 kg.)
Typically Equipped Basic Operating Weight	2,770 lb.	(1,257 kg.)
Max. Payload (without pilot)	909 lb.	(412 kg.)
Useful Load (without pilot)	1,063 lb.	(482 kg.)

*** Basic Empty Weight includes standard interior, avionics, unusable fuel and oil*

Specifications and Performance

Characteristics

Seating (Crew + Pax)	1 + 4 / 5
Wing Loading	20.2 lb./sq. ft.
Power Loading	12.17 lb./SHP
Noise: Takeoff	76.7 dBA

External Dimensions

Length	27 ft. 6 in.	(8.38 m)
Height	8 ft. 7 in.	(2.62 m)
Span	33 ft. 6 in.	(10.21 m)

Engines

Manufacturer	Teledyne-Continental
Model	IO-550-B
Output	300 hp
Inspection Interval	1,700 hrs.

Weights

Max Ramp	3,663 lb.	(1,662 kg.)
Max Takeoff	3,650 lb.	(1,656 kg.)
Max Landing	3,650 lb.	(1,656 kg.)
Max Zero Fuel	3,509 lb.	(1,592 kg.)
Typically Equipped Basic Operating	2,770 lb.	(1,257 kg.)

Payload / Capacities

Max Payload (without pilot)	909 lb.	(412 kg.)
Useful Load (without pilot)	1,063 lb.	(482 kg.)
Max Fuel Capacity	444 lb.	(201 kg.)
(1 US gal = 6.0 lb./US gal.)	74 US gal.	
Fuel w/max payload	154 lb.	(70 kg.)

Cabin Dimensions

Length	12 ft. 7 in.	(3.84 m)
Height	4 ft. 2 in.	(1.27 m)
Width	3 ft. 6 in.	(1.07 m)

Cabin Volume

Cockpit	36 cu. ft.	(1.02 cu. m)
Passenger Cabin (including baggage)	101 cu. ft.	(2.86 cu. m)
Total Volume	**137 cu. ft.**	**(3.88 cu. m)**

Specifications and Performance (continued)

Airport Performance

Takeoff Field Length

Max. TO Wt., SL, ISA	1,913 ft.	(583 m)
Max. TO Wt., 5,000 ft. elevation, 25°C	4,145 ft.	(1,263 m)

Landing Distance

Max Landing Wt., SL, ISA	950 ft.	(290 m)
Vapproach	79 kt	

Climb Performance (Max Takeoff Weight)

Time to Climb / Altitude	14 min / FL 100	
Climb Rate	1,230 fpm	(375 m/min)
Climb Gradient	626 ft/ nm	(103 m/km)
Certified Ceiling	18,500 ft.	(5,639 m)

Cruise Performance

High Speed Cruise (25 In. Hg (or Full Throttle) @ 2,500 RPM

6,000 ft	176 kt / 203 mph	(326 km/hr)
8,000 ft	174 kt / 200 mph	(322 km/hr)
10,000 ft	171 kt / 197 mph	(317 km/hr)

Normal Speed Cruise (23 In. Hg (or Full Throttle) @ 2,300 RPM

6,000 ft	165 kt / 190 mph	(306 km/hr)
8,000 ft	167 kt / 192 mph	(309 km/hr)
10,000 ft	163 kt / 188 mph	(302 km/hr)

Long Range Cruise (21 In. Hg (or Full Throttle) @ 2,100 RPM

6,000 ft	144 kt / 166 mph	(267 km/hr)
8,000 ft	149 kt / 171 mph	(276 km/hr)
10,000 ft	153 kt / 176 mph	(283 km/hr)

Specifications and Performance (continued)

Maximum Range at Various Altitudes and Speeds (1 pilot + 2 passengers – VFR)

High Speed Cruise (25 In. Hg (or Full Throttle) @ 2,500 RPM

6,000 ft	671 nm / 772 sm	(1,243 km)
8,000 ft	713 nm / 821 sm	(1,320 km)
10,000 ft	751 nm / 864 sm	(1,391 km)

Normal Speed Cruise (23 In. Hg (or Full Throttle) @ 2,300 RPM

6,000 ft	736 nm / 847 sm	(1,363 km)
8,000 ft	746 nm / 858 sm	(1,382 km)
10,000 ft	775 nm / 892 sm	(1,435 km)

Long Range Cruise (21 In. Hg (or Full Throttle) @ 2,100 RPM

6,000 ft	919 nm / 1,058 sm	(1,702 km)
8,000 ft	923 nm / 1,062 sm	(1,709 km)
10,000 ft	916 nm / 1,054 sm	(1,696 km)

Maximum Range Performance (VFR reserves)

Executive Payload (1 pilot + 4 passengers)

Range	361 nm	(669 km)
Average Speed	130 kt.	(241 km/hr)
Trip Fuel	170 lb.	(77 kg.)

Ferry (1 pilot only)

Range	921 nm	(1,706 km)
Average Speed	140 kt.	(259 km/hr)
Trip Fuel	403 lb.	(183 kg.)

Mission Performance (1 pilot + 3 passengers)

200 nm mission

Flight Time	1 hr. 11 min	
Trip Fuel	130 lb.	(59 kg.)
Flight Level	FL 060	

500 nm mission

Flight Time	2 hr. 54 min	
Trip Fuel	304 lb.	(138 kg.)
Flight Level	FL 060	

Bonanza G36 Warranty

Warranty provided with the purchase of a new Bonanza G36 aircraft

Airframe - (Parts manufactured by or manufactured to company design)	5 Years
Systems & Components - (non-company manufactured parts)	2 Years
Paint and Interior -	2 Years
Garmin Avionics -	2 years
Teledyne Continental Engine -	3 years / 1,000 hours

Note: Airframe and Systems warranty coverage is limited to 600 flight hours a year.

Aircraft Support Network

The Bonanza is backed by the largest network of factory trained maintenance facilities in the industry.

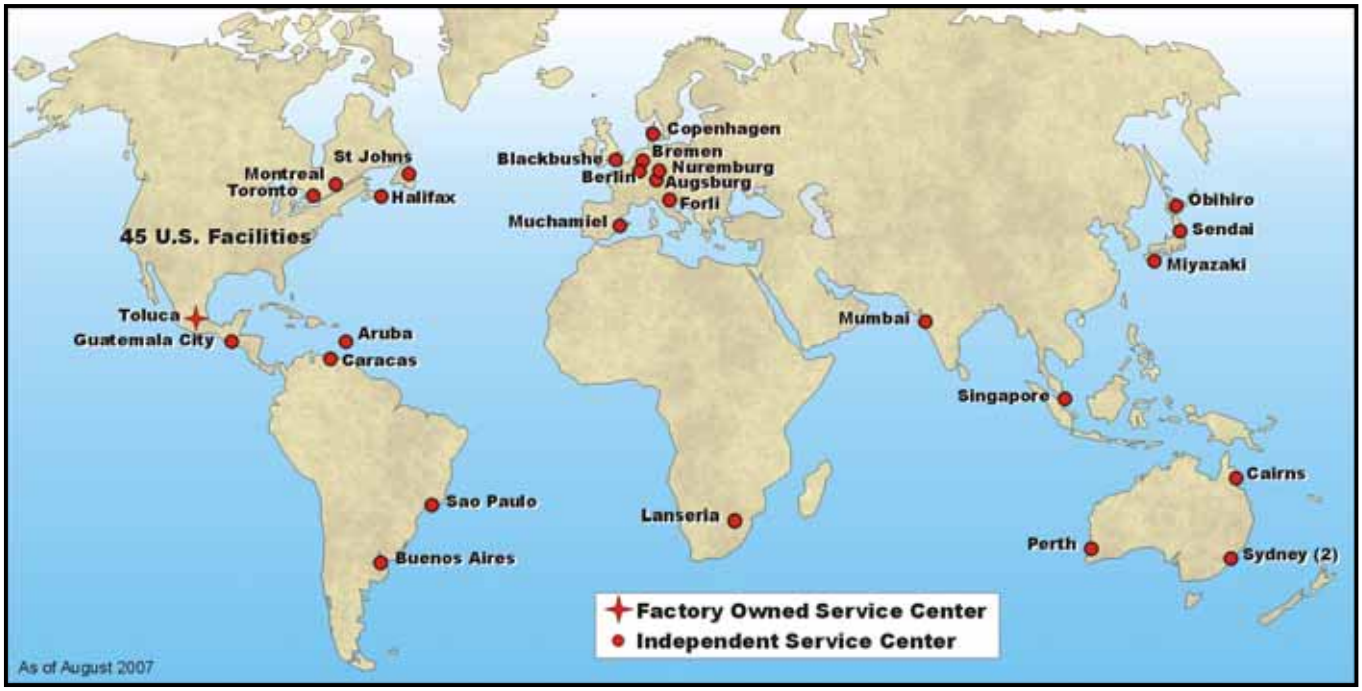
Support is provided through a wide network of Factory owned and independent Authorized Service Centers. There are 45 of these facilities located in the United States and 28 located internationally dedicated to supporting your Bonanza.

Each center is staffed with factory trained technicians and equipped with the tools, equipment, and parts to keep the Bonanza ready for use at all times. Twenty four-hour AOG support is provided as well as direct factory help on-call.

Aircraft Support Network (continued)

Wherever your travels take you, your Bonanza is backed by the finest network of factory trained business maintenance facilities in the industry. Our authorized service centers throughout the World offer a broad range of service and support.

All Beech products are fully supported by an extensive, worldwide system of service centers and field representatives strategically located throughout the world, to provide direct support liaison and on-the-spot assistance.



For More Information

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