



*Bonanza history begins with the 1947
Model 35, such as this one owned
by Samuel L. Upton and George S. Mennen.*



V IS FOR VALUE

Some regard V-tail Bonanzas with suspicion. Others view them as the most attractive bargain in the used market.

BY J. JEFFERSON MILLER

The Model 35 Bonanza was once considered the preeminent single-engine airplane—the Cadillac of the airways. To own a butterfly Bonanza was to have joined an exclusive club. Not coincidentally, early Beech publicity shots featured the Bonanza parked in country-club surroundings: by the pool, in front of the clubhouse, even on the polo grounds.

Today, however, the V-tail Bonanza's image has been clouded by controversy. Questions have been raised about the integrity of the tail structure.

Critics of the design point to a high rate of in-flight structural failures compared to straight-tail Bonanzas—the 33- and 36-series models. Statistics from the Federal Aviation Administration show that the Model 35 has an in-flight failure rate about 20 times that of the straight-tail Bonanzas.

A disproportionate number of V-tail Bonanza structural failures, roughly one third, have occurred in original Model 35s, which were produced in 1947 and 1948. The original Model 35, or "straight" 35 as it is sometimes referred to, despite its V-tail, was certificated in the Normal category, with a positive



V

What do owners like about Bonanzas? Speed, comfort and the sense of going in style. For some, the V-tail is the classic Bonanza.



limit load of 3.8 Gs. Subsequent Bonanzas had a stronger wing structure and were certificated in the Utility category, with a positive limit load of 4.4 Gs.

The controversy over the tail structure followed the introduction of the C35 in 1951. The C model's stabilizer chord was extended about seven inches farther forward of the stabilizer spar without the stabilizer leading edge being fastened to the fuselage.

Some believe that the stabilizer leading edges should be attached securely to the fuselage. Doing so, they argue, would lessen the chance of the stabilizer bending and breaking under extreme structural loads (such as can be induced by an abrupt recovery from a spiral dive). A number of kits have been developed for this purpose (see "Major Mods," p. 42, and, for more detailed information, "Tough Tails," October 1984 *Pilot*, p. 45).

Defenders of the V-tail Bonanza argue that most, if not all, in-flight structural failures in Bonanzas have occurred because of pilot error. The airplane simply "got away from" a non-proficient or non-instrument rated pilot in instrument meteorological conditions. There is ample evidence in National Transportation Safety Board accident reports to support this theory. When flown within its certificated limits, the Bonanza backers say, there is no danger of structural failure in a Model 35.

Bonanza detractors and defenders agree on two important points. First, there is agreement that the V-tail Bonanza is a relatively demanding airplane to fly on instruments. As with any single-engine airplane, the Model 35 is spirally unstable: Without attention to the aircraft's attitude, it will roll off on one wing. In the Model 35, a high-speed spiral dive can develop quickly. Also, the airplane has a tendency to yaw from side to side in turbulence (a characteristic the Model 35 shares with other short-fuselage Beech aircraft). These factors make instrument flying proficiency essential for the Bonanza pilot.

Second, to perhaps a greater degree than is necessary with some other aircraft, meticulous attention to weight and balance calculations is required for safe flight in the Model 35 Bonanza. The airplane has a rather narrow center of gravity (CG) envelope. Pilots should calculate the CG for a V-tail Bonanza at takeoff weight and landing weight, as the CG shifts aft as fuel is burned. A number of loss-of-control accidents in V-tail Bonanzas have been attributed to



Guessing a Bonanza's age can be difficult. Some Bonanzas, such as this 1959 K model, have been extensively modified by their owners to resemble late-model V35Bs.

overloading or improper loading.

To Model 35 aficionados, however, these shortcomings are compensated for by a number of virtues. Many pilots consider the Model 35 Bonanza an absolute delight to fly. Controls are light, responsive and well harmonized.

Cruise speeds in the neighborhood of 170 knots (for later versions of the Bonanza) are highly valued by Model 35 owners. Comfort is one of the airplane's frequently mentioned strong suits: Bonanza owners have the feeling of traveling in style. And, of course, there is the cachet of flying a Bonanza.

Somewhat surprisingly, considering all the controversy, a number of pilots who have flown V-tail Bonanzas hundreds or even thousands of hours cite the airplane's ruggedness as one of its best features. All mention severe turbulence encounters that left not so much as a popped rivet on their Bonanzas.

In hopes of once and for all laying the V-tail controversy to rest, the American Bonanza Society, an association of about 7,000 Bonanza owners, asked the FAA to investigate the Model 35's safety record. In response to the request, the FAA contracted with an engineering



consulting firm, Transportation Systems Center of Cambridge, Massachusetts, to review all information on V-tail accidents, with particular attention focused on structural failures. The contractor's report was due out shortly after this issue went to press.

This is not the first time the V-tail Bonanza's structure has been investigated (it was studied in the 1950s by the FAA's predecessor, the Civil Aeronautics Authority), and it may not be the last. Concerns about an airplane's structural integrity are deeply felt and hard to allay completely. Many pilots will harbor reservations about the V-tail Bonanza. Others will not be troubled by the controversy surrounding the airplane.

For those pilots who fall into the latter category, who cherish the Model 35 as a unique, prestigious and eminently practical airplane and wish to own one, now may be the time to buy. The continuing V-tail debate appears—for the moment at least—to have substantially lowered the purchase price of some versions of the Model 35.

A few years ago, a V35B Bonanza was worth somewhat more than a comparably equipped F33A, although the airplanes were identical in every respect

except the tail (the 33 series has a straight tail). Today, the V35B is worth several thousand dollars less.

In the spring 1983 issue of *Aircraft Bluebook Price Digest*, the average retail price of a 1976 V35B was listed as \$65,000. A 1976 F33A listed for \$64,000. In the spring 1985 issue, a 1976 V35B lists for \$59,000, and a 1976 F33A's price is \$68,000. Simply in terms of price, the V35B is a \$9,000 bargain compared to the F33A.

A 1970 V35B costs roughly \$6,000 less than a comparable F33A straight-tail Bonanza, which has a *Bluebook* price of \$50,000. A 1980 V35B costs about \$10,000 less than a 1980 F33A, which has an average retail price of \$92,500.

Searching for savings in pre-1970 Model 35s is a complicated pursuit. Prior to 1970, there was not a comparably equipped straight-tail model. It was not until the introduction of the F33A in 1970 that the straight-tail Debonair attained the same cabin size, horsepower and interior amenities as the Model 35. (For more information on the Debonair, see "Debonair," April 1982 *Pilot*, p. 87.)

In general, however, 33-series Bonanzas produced since the mid 1960s have been appreciating in value over the last

SPECIAL K

For many Bonanza owners, upgrading an early model Bonanza is not an inconvenient expense, but a challenge, a hobby of sorts and, in some instances, a labor of love. Consider the case of John F. (Jack) Palmer AOPA 196571 of Wellsville, New York, whose 1959 K Model Beech Bonanza appears on these pages.

Palmer purchased the airplane in 1973. It had flown only 600 hours. As the owner and president of Palmer Airmotive, an aircraft paint, upholstery and maintenance business, Palmer was well prepared for the task of rejuvenating 6041E.

Palmer's crew stripped and repainted the exterior. That was perhaps the simplest task. Inside the cabin, 6041E underwent a major transformation. Palmer purchased the Beryl D'Shannon supplemental type certificate (STC) necessary to install an enlarged baggage door, baggage compartment and extended third window.

The third window and baggage compartment extensions create an airier, more spacious cabin environment, which should enhance the comfort of rear-seat passengers. Bonanza owners who opt for this conversion must, of course, be sensitive to the need for careful CG calculations. Palmer also installed a Beryl D'Shannon one-piece, sloped windshield.

Front and rear bench seats were replaced with late-model Bonanza reclining seats under an FAA field approval. Vent windows



John J. (Jack) Palmer displays his Bonanza's pristine IO-470.

were installed on both the pilot's and copilot's sides (new Bonanzas come only with a vent window in the pilot's side).

A Palmer-developed soundproofing kit, consisting of high-density foam rubber with an aluminum foil backing, was installed in the Bonanza's cockpit. A V35-model ventilation system was installed under a Beryl D'Shannon STC. New side panels and a new headliner replaced old ones. Beech four-point restraint harnesses were added for pilot and copilot seats.

Palmer, himself, designed and cut a new instrument panel for the airplane. Avionics technicians at Aircraft Electronics of Minneapolis, filled the panel with an impressive array of equipment, including a King KFC 200 flight director with yaw damper, a Foster Airdata LNS 616 long-range navigation system and a 3M WX-10 Stormscope.

Improving cruise speed was an important

consideration for Palmer. He has gone to some lengths to reduce parasite drag. Mike Smith Aero aileron and flap gap seals have been installed. Antennas have been relocated from the top of the fuselage to the bottom so as to minimize disruption of the airflow over the cabin roof. Palmer removed the rotating beacon to lessen drag (but retained wing-tip strobe lights). He has installed the V-model cowling with side opening latches, but removed two of the four cowling door handles as a drag reducing measure. And Palmer has removed all raised emblems.

A Beryl D'Shannon "stinger" tailcone (an S-model-style tailcone) protrudes from the rear. And Beryl D'Shannon S-model-style wing tips complete the face-lift. Palmer's Bonanza has an electrically deiced prop and a 50-amp alternator to power all the electrical equipment he has installed.

Though Palmer expresses confidence in the structural integrity of the V-tail Bonanza, he has installed a Mike Smith Aero stub spar to support the leading edges of the stabilizers. Palmer regards the kit as added insurance against a structural failure. He also is a dealer for the kit. Painting a Bonanza is the perfect time to install the kit, he says, since components of the tail will be removed for painting (the V-tail must be disassembled to install the stub spar kit).

The result of all these improvements and embellishments is an airplane almost indistinguishable from a V35B. Palmer claims a 170-knot cruise speed on 13 gallons per hour. His K model Bonanza is powered by a 250-hp Continental IO-470C. Maximum cruise speed for a V35B is listed as 176 knots at 285 hp.

One cannot help being impressed by the beauty and capability of Palmer's airplane. Still, one suspects it would have been a lot easier, in terms of time and, perhaps, money, simply to have bought a late-model Bonanza.

To which Palmer replies: "I've molded this airplane into exactly what I want. Call it a love affair with an airplane, if you like. I've taken the best things Beech and others have designed for the Bonanza and put them into mine. You can't compare the speed and efficiency of this one with a new Bonanza."

Palmer's K model ably demonstrates that a 26-year-old airplane is not necessarily an outmoded airplane, particularly if it is a Beech Bonanza. —J/M

SILVER WINGS



Samuel L. Upton, half of the partnership in Bonanza NC3268V.

On a relatively quiet corner of the Sarasota-Bradenton Airport, far away from the airline terminal, a number of classic, near classic and homebuilt aircraft reside. Here is a Swift, here a Navion, over there the first Comanche 400.

On any given afternoon, it is not unusual to see some of their owners, many of them retirees, fussing over these airplanes or simply sitting in the shade of a hangar, shooting the breeze. Florida is a natural haven for senior pilots and senior airplanes.

It is here on this grassy nook of Sarasota-Bradenton that we found a 1947 Model 35 Bonanza—the 716th Bonanza built. The airplane is owned by Samuel L. Upton, AOPA 545395, and George S. Mennen, AOPA 140611. It would be hard to find two more dedicated aviation enthusiasts.

Upton, a senior building inspector for the city of Sarasota, is not happy unless he has an airplane to work on or, better yet, one to build from the ground up. He has built several, including a Monnett Aircraft Sonerai II and two Midjet Mustangs.

As a member of the Flying Fezzes, a group of local, aircraft-owning Shriners, Upton helps fly sick children and their parents from Florida to an orthopedic hospital in Greenville, South Carolina.

Mennen has owned and flown many airplanes, including a Spartan Executive that he donated to the Experimental Aircraft Association's aviation museum. In addition to the 1947 Bonanza, he owns a French-built, single-engine Socata Rallye and a lime-green Swift.

Mennen is a former chairman of the board of the Mennen Company, maker of Skin Bracer after-shave lotion and other cosmetic products. All of Mennen's airplanes have at least a little green (the color of Skin Bracer) in the paint scheme. To maintain the purity of the Bonanza's original paint scheme, however, only the airplane's interior was redone in green.

Upton and Mennen owned a second 1947 Bonanza, the 119th built by Beech, but sold it to concentrate their efforts on maintaining one straight Bonanza in good condition. In

its 38-year history, Bonanza NC3268V, the one they currently own, has had only three other owners. Its first owner, a Montana pilot, kept the airplane for 29 years. The airframe and original Continental E-185 engine (which has been overhauled once) have accumulated 2,234 hours total time in service.

The straight 35 is not maintained as a showpiece. Perhaps the greatest tribute to the Bonanza is that this antique requires only slightly more attention than contemporary airplanes to maintain it in airworthy condition. Of course, cleaning and polishing the aluminum to keep corrosion at bay is a big job. This is done once a year. Otherwise, the maintenance on the Bonanza is fairly straightforward.

When Upton and Mennen bought the airplane in 1982, however, it was in marginally airworthy condition. A starter motor coil and the engine-driven fuel pump needed to be replaced, the brakes overhauled and the flaps and control surfaces repainted and rebalanced. The rest of the Bonanza's paint is original.

Keeping the Bonanza hangared for much of its life has undoubtedly helped to minimize the maintenance necessary on the airplane. Only two significant modifications have been made to the aircraft—a metal

propeller replaced a wooden one, and a spar reinforcement kit, required by an airworthiness directive, has been installed.

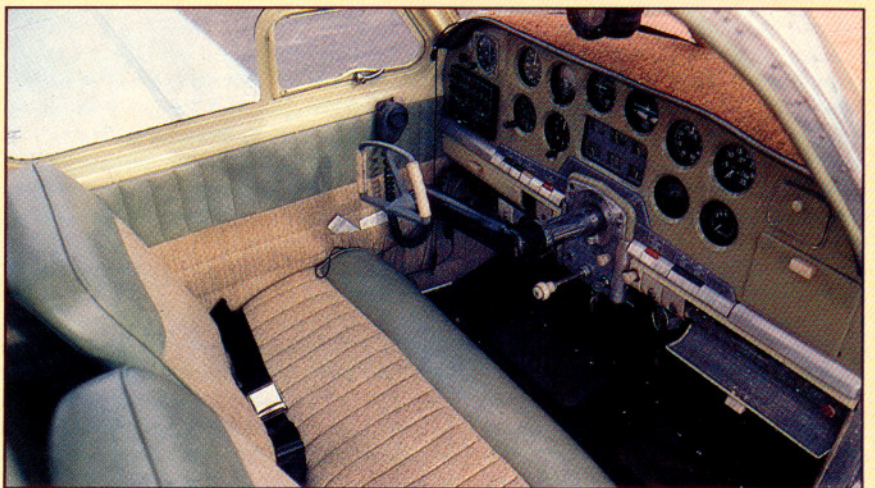
In many ways, the straight 35 is a very modern airplane. It is equipped with flap seals to minimize drag—a feature now available for the Bonanza only as an aftermarket modification.

In other ways, the straight 35 is clearly an airplane from another era. The Bonanza owned by Upton and Mennen originally was equipped with flares mounted inside the fuselage aft of the baggage compartment. These flares could be ejected in flight for use in night emergency landings. It was possible, though, to accidentally set the flares off inside the fuselage and blow a hole in the fuselage skin. The flares have been removed and new aluminum covers their exit tubes.

Most often it is Upton who flies the Bonanza, and he has equipped it for IFR flight. New flight instruments and radios have been installed. All fit neatly into the instrument and radio holes in the original panel. Upton says the airplane is pleasant to fly on instruments. But if turbulence makes handling difficult, his standard operating procedure calls for slowing to 87 knots and dropping the gear. Then the Bonanza becomes, in Upton's words, "as stable as an ox."

Despite the airplane's minimal soundproofing, interior noise levels are surprisingly low. Upton likes to cruise at 19 inches manifold pressure and 1,850 rpm, a power setting that yields a 120-knot cruise on 7.5 gph. He considers a maximum cruise power setting of 62.5 percent and a fuel flow of 10.5 gph to be rather sinful. It also cuts rather deeply into endurance. Maximum fuel capacity of the straight 35 is 40 gallons.

One drawback of the 35, says Upton, is its inadequate ventilation system. Flying under the midday Florida sun can be a steamy experience. Overall, though, Upton says the Bonanza's cockpit ambience is one of the reasons he and Mennen chose the airplane. "If you're going to fly about in an antique," he explains, "you might as well have one that's comfortable." —JIM



few years, while 35-series Bonanzas have been depreciating.

Earlier Model 35s have held or slightly increased their value in recent years. A 1960 M35, for example, increased from \$26,250 in 1983 to \$26,500 in 1985. Buyers do not seem to be as wary of older Bonanzas as they are of newer ones, observed Bernard W. (Bernie) McGowan, who, in his capacity as editor of the *Bluebook*, has followed price trends for a number of years.

McGowan theorized that older Bonanzas are holding their value because they are fully depreciated and because there is less concern among buyers of losing their investment in an older aircraft. He also speculated that the structure of the V-tail would not seem as much of a compromise to the buyer, considering some of the other drawbacks of buying an older aircraft.

Perhaps another factor in the relatively steady prices of early Model 35s is that they do not have any competition from Debonairs. The 33 series began production in 1962.

James A. Lafferty, of Jim Lafferty Aircraft Sales in San Jose, California (408/258-8225), confirms the divergence in price between later model 33- and 35-series Bonanzas. Lafferty specializes in Bonanza sales. A 1979 V35B in excellent condition, he reports, sat on his lot for 100 days (an unusually long time, in his estimation) before selling for \$74,000. This Bonanza was equipped with a horizontal situation indicator, flight director and Collins Microline radios and had accumulated 800 total hours on airframe and engine. A comparable F33A, he believes, would have sold much more quickly and for closer to \$90,000.

Another dealer specializing in Bonanzas, Eugene R. Simpson of Gene Simpson Aircraft Sales in Omaha, Nebraska (402/422-1444), maintains, however, that quality is the most important determinant of a Bonanza's price. "The mystique of the V-tail Bonanza is still a draw," Simpson said.

Simpson believes there are many excellent Model 35s available. Demand is still high, he insists, for "quality V-tail Bonanzas," which he defines as ones that have been well maintained, have no corrosion and have relatively low total time. A low-time Bonanza, by Simpson's reckoning, is one with 2,000 hours or less on the airframe.

As an example of a good buy, Simpson cited a 1960 Model 35M, which he sold for \$30,000. The airplane was corrosion free, had a zero-time rebuilt en-

gine and propeller, King KX 170B nav/coms, an encoding altimeter, new paint and a new interior. If Simpson's description of the aircraft's condition is accurate, this price compares favorably with an average *Bluebook* retail price of \$27,500 for a 1960 M35. The cost of the fire wall forward rebuild was \$9,000.

In its long production history, the Model 35's horsepower has increased by 120, its gross weight by 850 pounds and its cruise speed by about 20 knots. Over the years, aircraft structures were strengthened, systems improved, interior space increased and ventilation, visibility and creature comforts enhanced.

V

No longer the ultimate single, the V-tail Bonanza, to many, is still first-class transportation.

With a number of models to consider, which version of the Model 35 Bonanza represents the best buy? The answer, of course, is quite subjective, and to a large extent dictated by prospective buyer's financial resources.

Lafferty and Bonanza modifier Michael D. (Mike) Smith (whose aerodynamic modifications can boost Bonanza cruise speeds to nearly 190 knots), both suggest that an S model Bonanza could represent a good buy. The S model, produced in 1964 and 1965, closely resembles the V35B Bonanza, the last and most modern model in the series.

The S model was the first V-tail Bonanza to be powered by the 285-hp Continental IO-520. The S35 has the same cabin dimensions as the V35. Cabin area was increased by moving the aft bulkhead 19 inches to the rear. The cabin extension also enabled Beech to extend the rear window.

The S model is similar in external styling to the V model; the S35 and V35 have the same types of wing tips and tailcone. The only obvious external difference between the two aircraft is the S35's two-piece windshield. The V35 has a one-piece windshield.

With installation of a one-piece windshield and a modern paint scheme, an

S35 is nearly indistinguishable from the most contemporary V-tail Bonanzas. Current *Bluebook* price for an S Model Bonanza is \$35,000.

Some Bonanza owners, however, prefer earlier models equipped with less powerful engines because of their fuel efficiencies. H through P models are equipped with versions of the Continental 470-series engine, with horsepower ranging from 240 to 260. The H model was produced in 1957; the last P model in 1963. The O-470 and IO-470 have reputations as exceptionally durable engines that often exceed TBO without prior cylinder removal. *Bluebook* price for a 1957 H model is \$22,750, and a 1963 P model is \$32,000.

Pilots who wish to undertake a Bonanza upgrade project will have many resources available. There are numerous modifications for Bonanzas. It is possible to convert a 1950s Bonanza into one that closely resembles and is, in many respects, as capable as a 1980s Bonanza.

An excellent source of information on maintaining and modifying Bonanzas is the American Bonanza Society (ABS). The society offers many services to Bonanza owners, including flight instruction clinics and a monthly newsletter that addresses maintenance issues, among other topics.

A former Beech engineer, J. Norman Colvin, now a technical consultant to the society, conducts maintenance seminars around the country and will inspect your Bonanza as part of the program. He has written a book, *Colvin's Clinic: Bonanza-Debonair-Baron Maintenance Simplified*, that is a compendium of useful information on topics ranging from selection of a paint scheme to hot starts to reskinning control surfaces. The book is available from ABS for \$34.95 (plus \$2.50 for postage and handling). The society's address is: Mid-Continent Airport, Post Office Box 12888, Wichita, Kansas 67277. Telephone: 316/945-6913.

The Model 35 Bonanza is no longer the ultimate single-engine airplane. It has been surpassed in utility by the A36 Bonanza and in performance by the pressurized singles—the Cessna P-210 and Piper Malibu. But for a number of pilots, despite recent concerns about the aircraft's structural integrity, the V-tail Bonanza still reigns supreme in those less tangible areas of performance: style, panache and mystique. Right now, the V-tail Bonanza mystique is something of a bargain. □

MAJOR MODS

There are literally hundreds of modifications available for the Beechcraft Bonanza. With a little ingenuity and sufficient funds, it is possible to transform a down-at-heels 1950s Bonanza into a thoroughly modernized airplane that looks very much like a late-model V35B. Listed below are the major modifiers for the Bonanza and many of the modifications they offer.

Aircraft Modification & Upholstery
Hanger 3, Lunken Airport
Cincinnati, Ohio 45226
513/321-5576

This is an upholstery, avionics and modification shop. This firm offers a sound-proofing package (\$4,300), a sloped windshield (\$1,350), gap seals (\$1,195), an antenna "clean-up" to reduce drag (\$1,200 to \$2,000) and a seat custom fitted to the pilot's measurements (\$1,400).

Aviation Enterprises
2870 East Wardlow Road
Long Beach, California 90807
213/429-5949

Aviation Enterprises offers a number of interior and exterior modifications. They include: a late-model instrument panel (\$3,850 installed; \$2,850 uninstalled); a one-piece windshield (\$360 to \$1,205); gap seals (\$695); 20-gallon-per-side aluminum tip tanks (\$4,995); a set of two shoulder harnesses (\$159); and a Continental IO-470-N conversion for Bonanzas equipped with E-225 engines (\$13,700).

B & N Industries
Cameron Park Airport
3280 Cameron Park Drive
Shingle Springs, California 95682
916/933-1367

B&N produces an aluminum cuff designed to support and strengthen the leading edge of the V-tail's stabilizers. The kit costs \$695.

Beech Aircraft Corporation
Box 85
Wichita, Kansas 67201
316/681-7111

Beech offers more than a hundred upgrade kits for Bonanzas. They include propeller deicing systems, instrument panels, shoulder harnesses, third windows, tail-cones, standby generators and one-piece windshields, to name just a few. Prices change often and are available from Beech Service Centers. A catalog of Bonanza kits is available from the Parts & Equipment Marketing Department at Beech headquarters in Wichita.

Beryl D'Shannon Aviation Specialties
Post Office Box 840
Lakeville, Minnesota 55044
1-800/328-4629

Beryl D'Shannon offers interior and exterior modifications that upgrade the Bonanza in appearance and performance. Modifications include: 15-gallon-per-side tip tanks (\$2,995); sloped, one-piece windshields (\$499 to \$899); late-model instru-

ment panels (\$1,295); late-model ventilation systems (\$485); aileron and flap gap seals (\$395); and an extended third window, enlarged baggage compartment modification (\$1,295).

Knots 2U
1941 Highland Avenue
Wilmette, Illinois 60091
312/256-4807

This company has developed a stainless steel cuff that fits around and reinforces the leading edge of the Model 35's stabilizers. The cost of the kit is \$575.

Mike Smith Aero
Stanton County Airport
Box 430
Johnson City, Kansas 67855
316/492-6840

Company President Michael D. Smith has developed a series of drag-reducing modifications that can increase Bonanza speed by as much as 22 knots. The entire package of more than 20 individual modifications costs \$18,250. Pre-1964 Bonanzas cannot be fitted with Smith's RamAire Nose Cowling, the single most expensive modification at \$5,250. For these aircraft, the total modification package would cost \$13,000. Smith also offers two tail strengthening modifications—one that internally reinforces the tail (\$1,975) and one that externally reinforces it (\$595). Smith is developing a conversion for Model 35 Bonanzas that would replace the V-tail with a conventional straight tail. For more information on Mike Smith Aero modifications, see: "Speedy Beech," October 1984 *Pilot*, p. 38.

Osborne Tank & Supply
Star Route, Box 12
Oro Grande, California 92368
619/245-8477

Osborne makes 20-gallon-per-side aluminum tip tanks. The cost for a standard pair of tanks is \$3,909; tanks with flush-mounted navigation and strobe lights cost \$4,905.

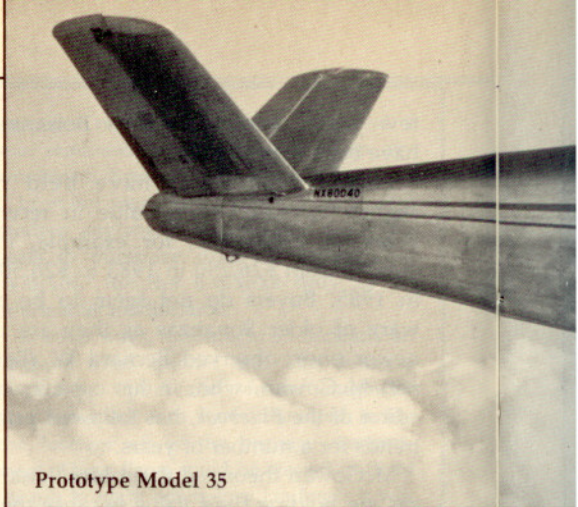
Precise Flight
63120 Powell Butte Road
Bend, Oregon 97701
1-800/547-2558

Precise Flight offers modifications for a number of different types of aircraft, including Bonanzas. Its major modifications are: speed brakes (\$5,085); a standby vacuum system (\$349.95); and the Pulse Light identification light system (\$295). The Pulse Light was described in greater detail in "Seeing... And Being Seen," October 1984 *Pilot*, p. 70.

Rapco
N16 W22020 Jericho Drive
Building 3
Waukesha, Wisconsin 53186
414/549-0000

Rapco sells standby vacuum systems for \$895 to \$1,095.

—J. Jefferson Miller and Eric Weiner



Prototype Model 35

1947-1948 Model 35, the "straight 35"

List price new, average equipment	\$11,355
Current average retail price	\$14,250*
Gross weight	2,550 lb**
Max cruise speed	152 kt
Stall speed	

(landing configuration), V _{so}	48 kt
Maneuvering speed, V _a	113 kt
Never exceed speed, V _{ne}	175 kt
Max landing gear extended speed, V _{le}	87 kt

A revolutionary airplane in styling and performance, the Model 35 generated tremendous buyer interest—1,500 orders before production began. The color scheme was polished aluminum with red cowling, elevators, flaps and ailerons and a red side stripe.

The straight 35 was powered by a Continental E-165, 165-hp engine (185-hp for takeoff). Propeller pitch was adjusted electrically through a geared mechanism. The original propeller was wood with a metal-covered leading edge.

Standard equipment included flight instrumentation, interior and exterior lights for night flying and a low-frequency radio. Fifteen hundred Model 35s were built; more than 500 remain on the FAA's registry.

1949 A35

List price new, average equipment	\$13,625
Current average retail price	\$15,250
Gross weight	2,650 lb
Max cruise speed	150 kt
V _{so}	49 kt
V _a	113 kt
V _{ne}	175 kt
V _{le}	109 kt

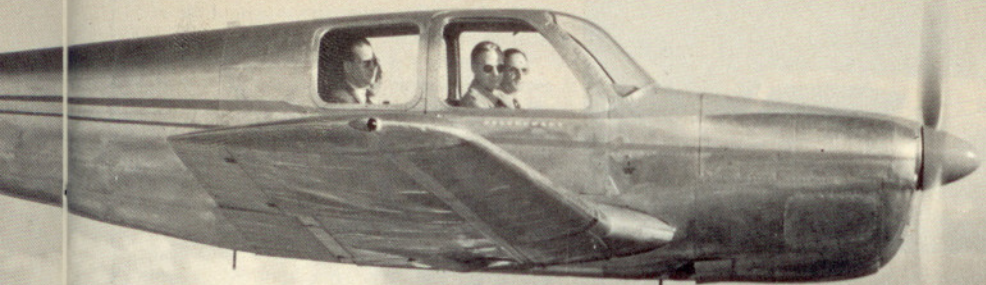
The A35 was the first Bonanza to be certificated in the Utility category, with a positive limit load of 4.4 Gs. The straight 35 had been certificated in the Normal category with a positive limit load of 3.8 Gs.

Useful load increased 78 pounds. Gear-retraction time decreased from 15.4 seconds to 11.5 seconds. Complete exterior paint was offered as an option. The nosewheel was made steerable (the original 35 had a non-steerable, full-swivel nosewheel).

1950 B35

List price new, average equipment	\$14,650
Current average retail price	\$16,250
Gross weight	2,650 lb
Max cruise speed	150 kt
V _{so}	49 kt
V _a	113 kt
V _{ne}	175 kt
V _{le}	109 kt

No major structural changes. Takeoff horse-



BONANZA EVOLUTION

power was increased to 196 by increasing maximum takeoff rpm from 2,300 to 2,450. Gear-retraction time was reduced from 11.5 to 9.7 seconds. And gear-extension time was reduced from 9 to 7.4 seconds. Model B35's maximum flap extension increased from 20 to 30 degrees.

1951, 1952 C35

List price new, average equipment	\$19,780
Current average retail price	\$17,250
Gross weight	2,700 lb
Max cruise speed	155 kt
Vso	48 kt
Va	113 kt
Vne	175 kt
Vle	109 kt

A Continental E-185-11 engine provided 205 hp at 2,600 rpm for takeoff and 185 hp maximum continuous power. An all-metal propeller was used for the first time on a Bonanza. V-tail chord increased 20 percent, and dihedral changed from 30 to 33 degrees. These changes in the tail were made to enhance directional stability and decrease the Bonanza's tendency to yaw in turbulence.

New wing root fillets helped lower stall speed one knot, despite the increase in gross weight. Shoulder harnesses were made standard equipment. Exterior paint also was standard.

1953 D35

List price new, average equipment	\$23,425
Current average retail price	\$17,750
Gross weight	2,725 lb
Max cruise speed	156 kt
Vso	48 kt
Va	113 kt
Vne	175 kt
Vle	109 kt

The D35 was virtually unchanged from C35, except for some interior amenities, such as reclining front seats and headrests. Maximum recommended cruise power was increased from 65 to 75 percent.

1954 E35

List price new, average equipment	\$24,395
Current average retail price	\$18,500
Gross weight	2,725 lb
Max cruise speed	156 kt
Vso	48 kt
Va	113 kt
Vne	175 kt
Vle	109 kt

An optional Continental E-225 engine boosted max cruise speed to 161 knots and

increased sea level rate of climb from 1,100 to 1,300 fpm. Aileron trim control was added. Rear leg room increased two inches.

1955 F35

List price new, average equipment	\$24,395
Current average retail price	\$19,000
Gross weight	2,750 lb
Max cruise speed	156 kt
Vso	48 kt
Va	113 kt
Vne	175 kt
Vle	109 kt

The E-225 was also offered as an option for the F-35. Only a few F35s were ordered with the standard E-185 engine. The F35 was the first Bonanza with a small third



1955 Model F35

side window. Wing, tail and landing gear doors all were strengthened. The gear could be extended in an emergency at speeds up to 152 knots. Two optional ten-gallon auxiliary fuel tanks in wings increased fuel capacity from 40 to 60 gallons.

1956 G35

List price new, average equipment	\$26,450
Current average retail price	\$19,500
Gross weight	2,775 lb
Max cruise speed	165 kt
Vso	48 kt
Va	113 kt
Vne	175 kt
Vle	122 kt

The 225-hp Continental E-225 became the standard engine on the G model; its maximum recommended cruise power setting was increased from 65 to 75 percent, accounting for the higher cruise speed.

Wing structure was further strengthened. An oil separator was installed in the oil breather line to reduce the oil slick on bottom of fuselage. Cabin ventilation was improved. The ignition harness was fully shielded to improve radio reception. A number of new options were offered, including a 50-amp generator (standard generator was 35 amps), rotating beacon and a "super soundproofing" package.

1957 H35

List price new, average equipment	\$27,150
Current average retail price	\$22,750
Gross weight	2,900 lb
Max cruise speed	170 kt
Vso	49 kt
Va	123 kt
Vne	182 kt
Vle	122 kt

The wing, tail and fuselage structures of the H35 were made considerably stronger than those of previous models by increasing spar cap area, adding ribs and more rivets and increasing skin gauge in some areas.

The H model was the first Bonanza with a Continental 470-series engine, in this case the O-470-G, which developed 240 hp. The propeller's pitch was hydraulically controlled. The engine had an automatic air/fuel mixture control (the H model was the only Bonanza so equipped).

Other changes included dynafocal engine mounts, electric primer, a standard 50-amp generator, a new overhead ventilation system with individual outlets and individual front seats to replace bench seats.

1958 J35

List price new, average equipment	\$28,890
Current average retail price	\$24,500
Gross weight	2,900 lb
Max cruise speed	174 kt
Vso	49 kt
Va	123 kt
Vne	195 kt
Vle	122 kt

The major change in the Bonanza for 1958 was a fuel-injected engine, the IO-470-C, producing a maximum of 250 hp. Emergency gear extension speed increased to 174 knots. Louvers were installed in engine access doors to vent heat and reduce the chance of fuel vaporization. An autopilot was offered as an option.

1959 K35

List price new, average equipment	\$25,300
Current average retail price	\$29,800
Gross weight	2,950 lb
Max cruise speed	174 kt
Vso	51 kt
Va	123 kt
Vne	195 kt
Vle	122 kt

On the K35, standard fuel capacity was increased from 40 to 50 gallons, and optional fuel capacity increased from 60 to 70 gallons. An optional fifth (child's) seat was offered. It was mounted sideways in the baggage compartment. The seat bottom folded up when not in use. Rear seat leg room increased by three inches.

1960 M35

List price new, average equipment	\$30,050
Current average retail price	\$27,500
Gross weight	2,950 lb
Max cruise speed	174 kt
Vso	51 kt
Va	123 kt
Vne	195 kt
Vle	122 kt

The M35 was substantially unchanged from the K35. New wing tips, similar to those used on the Beech Super 18, were added, but they did not change performance.

continued

1961 N35

List price new, average equipment	\$31,500
Current average retail price	\$29,500
Gross weight	3,125 lb
Max cruise speed	169 kt
Vso	52 kt
Va	129 kt
Vne	195 kt
Vle	122 kt

A baggage shelf was extended 19 inches beyond the aft bulkhead, making possible an extension of the third window. Installation of an IO-470-N increased horsepower to 260. Fuel capacity increased to 80 gallons with optional tanks. Instead of carrying fuel in two main and two auxiliary tanks—a system that lent itself to fuel management errors—two “extended range tanks” containing 40 gallons each were used.

The long-range tanks took up the space previously occupied by the wing-mounted



1964, 1965 Model S35

tended by moving the aft bulkhead back 19 inches, enlarging the baggage compartment and making possible the installation of a further enlarged third side window. Optional fifth and sixth seats were available.

New wing tips, tailcone and a longer spinner increased streamlining and enhanced appearance. The cabin heating system was improved. A new gear-driven alternator provided 70 amps of electrical power.

1966, 1967 V35, V35TC

List price, average equipment	
1966 V35	\$42,423
1966 V35TC	\$49,075
1967 V35	\$43,875
1967 V35TC	\$49,075

Current average retail price	
1966 V35	\$37,500
1966 V35TC	\$41,500
1967 V35	\$39,000
1967 V35TC	\$43,000

Gross weight	3,400 lb
Max cruise speed	
V35	176 kt
V35TC	200 kt
Vso	55 kt
Va	132 kt
Vne	195 kt
Vle	143 kt

The V35TC was equipped with a turbocharged Continental TSIO-520-D. Other new features of both the V35 and V35TC included new rear air scoops for ventilation, larger air outlets in the cabins, one-piece windshields, flap position indicators (which replaced flap-up and -down lights) and Narco Mark 12A nav/coms as standard equipment. A “Constant Copilot” wing leveler was available as an option.

A total of 543 V35s were produced. Only 79 V35TCs were built.

1968, 1969 V35A, V35A-TC

List price new, average equipment	
1968 V35A	\$46,475
1968 V35A-TC	\$53,235
1969 V35A	\$52,930
1969 V35A-TC	\$58,905

Current average retail price	
1968 V35A	\$41,000
1968 V35A-TC	\$46,000
1969 V35A	\$42,500
1969 V35A-TC	\$48,000

Gross weight	3,400 lb
Max cruise speed	
V35A	176 kt
V35A-TC	200 kt
Vso	55 kt
Va	132 kt
Vne	195 kt
Vle	143 kt

The V35A and V35A-TC were equipped with new “speed sweep” windshields, borrowed from the design of the Beech Duke. The windshield extended six inches farther

forward, creating more space behind the instrument panel for maintenance.

The panel was equipped with new-style gyros—a pictorial gyro horizon and a vertical card directional gyro. The optional Brittain B-5P and “Constant Copilot” autopilots worked from the turn coordinator, which was electrically and pressure driven so that the failure of either source would not disable the autopilot.

Other improvements included softer seats and larger ashtrays. Four hundred twenty-four V35As and 46 V35A-TCs were built by Beechcraft.

1970 to 1982 V35B (1970 only—V35B-TC)

List price new,		Current average
average equipment		retail price
1970 V35B	\$54,370	\$44,000
1970 V35B-TC	\$60,630	\$50,000
1971 V35B	\$60,411	\$45,500
1972 V35B	\$66,334	\$47,000
1973 V35B	\$65,810	\$49,000
1974 V35B	\$70,286	\$51,500
1975 V35B	\$76,940	\$54,000
1976 V35B	\$86,086	\$59,000
1977 V35B	\$89,355	\$65,000
1978 V35B	\$100,630	\$70,000
1979 V35B	\$113,450	\$75,000
1980 V35B	\$127,082	\$82,500
1981 V35B	\$152,420	\$97,500
1982 V35B	\$172,245	\$115,000
1983-1984	None delivered	

Gross weight	3,400 lb
Max cruise speed, V-35B	176 kt
V35B-TC	200 kt
Vso	55 kt
Va	132 kt
Vne	195 kt
Vle	152 kt

The V35B was the last model of the V-tail Bonanza. Externally and internally, it was little changed from the V35A except in rela-



1970 to 1982 Model V35B

tively minor details, such as a three-light gear-down indicator, improved instrument lighting and a quick-opening cowl. One very important change was made, however—baffles were installed in the fuel cells to prevent unporting of the fuel lines during slips, skids or turning takeoffs.

* All prices taken from the *Aircraft Bluebook Price Digest*.

** Specifications and information on model changes are taken from *Those Incomparable Bonanzas*, by Larry Ball. This book is a valuable resource for Bonanza shoppers and an interesting read for Bonanza lovers. It is available through the American Bonanza Society (Mid-Continent Airport, Post Office Box 12888, Wichita, Kansas 67277. Telephone: 316/945-6913) for \$25 plus \$2.50 for postage and handling. —JJM



1961 Model N35

landing lights, and the lights were moved to the nose and gear strut.

Individual, reclining rear seats were included. The distinctive Beech “ram’s horn” control wheel replaced the original Beech control wheel design.

After making a tremendous contribution to flight safety by installing front seat shoulder harnesses as standard equipment in 1951, Beech took a major step backward by making the shoulder harnesses optional. The company cited low utilization of the harnesses as the reason for the change.

1962, 1963 P35

List price new, average equipment	\$32,650
Current average retail price	\$32,000
Gross weight	3,125 lb
Max cruise speed	169 kt
Vso	52 kt
Va	129 kt
Vne	195 kt
Vle	143 kt

The major change on the P35 was a redesigned panel. Flight instruments were set in a shock-mounted panel that was hinged to provide easier access for maintenance. The flight instruments were arranged in the standard “T” pattern. Piano keyboard switches were replaced with toggle switches. Circuit breakers were exposed and labeled, rather than housed in a closed compartment. More panel space was opened up for avionics.

1964, 1965 S35

List price new, average equipment	\$38,825
Current average retail price	\$35,000
Gross weight	3,300 lb
Max cruise speed	178 kt
Vso	54 kt
Va	132 kt
Vne	195 kt
Vle	143 kt

The S35 received a new engine, the 285-hp Continental IO-520. Cabin length was ex-