

Sundowner

Slow, But Sure

*A comfortable cabin and a sturdy airframe
make up for lack of a few knots.*

BY MARK M. LACAGNINA



The Sundowner has served for years as the mainstay of the Beech Aero Club network. As such, the airplane has gained a reputation as a stepping-stone to Beech Aircraft's dream machines, the Bonanza and the Baron. This image is reinforced by an optional item that long has been included on the airplane's equipment list: a bogus gear selector that is intended to help pilots transition to complex aircraft.

However, a close look reveals qualities that belie the picture of the Sundowner as merely a convenient way-point on the journey to bigger and better things.

No, the Sundowner is not fast. It

is between 10 and 17 knots slower at normal cruise speeds than the Piper Archer, its closest competitor in the four-place, 180-hp market. The airplane also is slower than the Piper Warrior and the Cessna 172, both of which have 20 fewer horsepower.

Nor is it inexpensive—the Sundowner costs about \$5,000 more than the Archer and \$10,000 more than the Warrior or Skyhawk.

What the customer gets for his money is quality and rugged construction. The airplane is stressed to six positive and three negative Gs, and it has two more bulkheads in its fuselage than either the Piper or the Cessna singles. The Sundowner has

a heavy forged aluminum spar with a fuselage carry-through structure that resembles a truss in the Brooklyn Bridge. Also, the main landing gear is attached directly to the spar, not to stiffeners as in other airplanes.

The Sundowner is a sturdy airplane, indeed. Add cowling strakes, a ventral fin under the rudder, fairings ahead of the stabilator, a G-meter, quick-release doors and a snappy checkerboard paint job, and you have an airplane certificated for aerobatics. (The aerobatic package costs \$4,400.)

Several refinements are evident in the 1980 model Sundowner. The seats are now as tall and as wide as those



in the Bonanza and the Baron. The front seat armrests have been recessed into the sidewalls, and armrests have been added for rear-seat passengers.

The doors now are identical to those used on the Duchess twin. Beech made the change primarily for commonality in manufacture, but the doors reduce interior noise in the Sundowner by up to three decibels.

Beech installed detents on the floor-mounted fuel selector to prevent it from being shut off inadvertently by a carelessly thrown Jepp manual or pocketbook. The company also switched from a 12-volt to a 24-volt electrical system to make it easier to start the Sundowner's Lycoming

O-360-A4K engine in cold weather.

The Sundowner is a big airplane. It is two feet longer and a foot taller than the Archer, but weighs 100 pounds less. The wide fuselage takes its toll in airspeed, but provides a roomy cabin with ample elbowroom and legroom for all aboard.

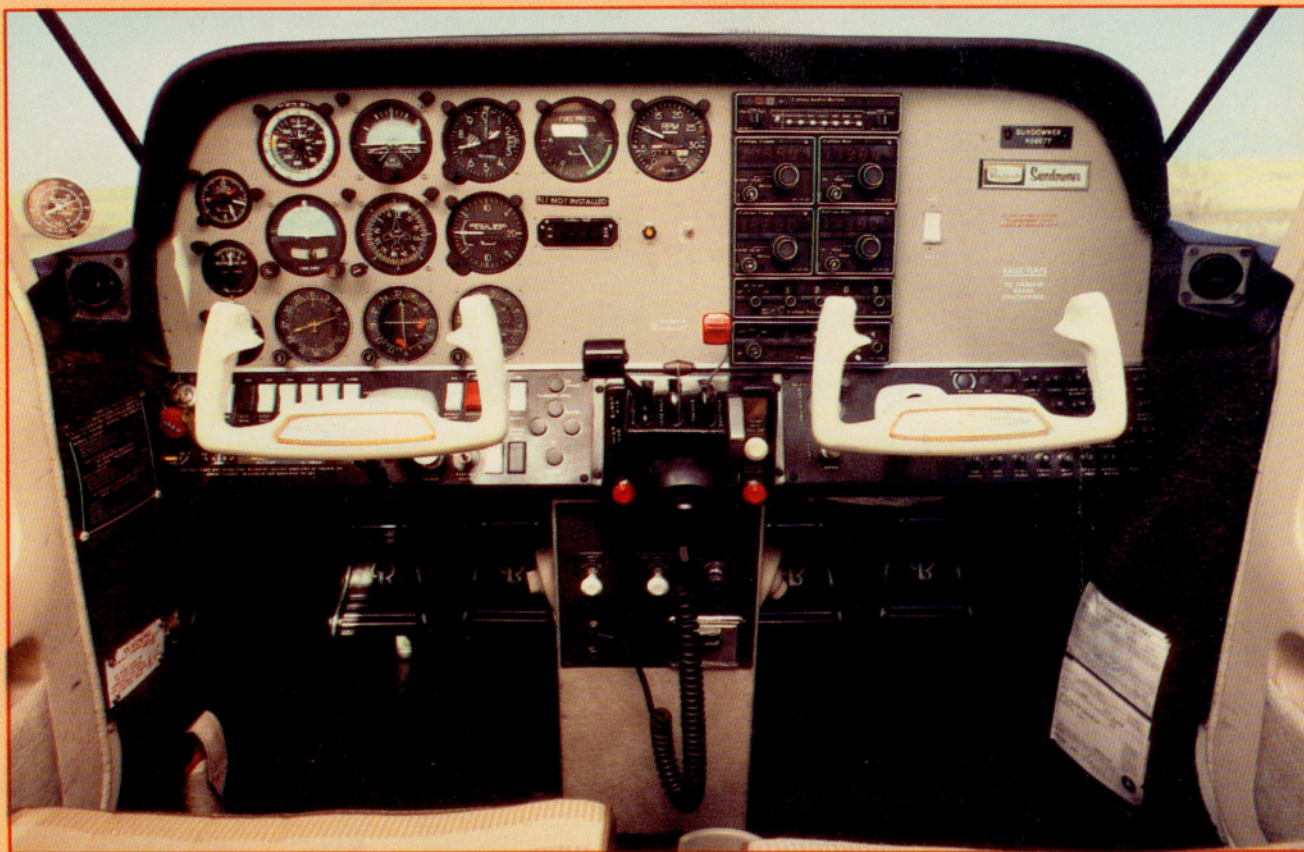
The tanks hold 57 gallons of usable fuel, providing a range of more than 550 nautical miles at 65 percent power. However, if you fill the tanks, you will not be able to fill the seats—unless, of course, you only are taking the kids along.

A visual check of the fuel supply is especially important while pre-flighting a Sundowner. Each tank can

hold up to 29.9 gallons of fuel (28.6 usable), but the fuel quantity indicator reads full when there are only 20 gallons in the tank. Each tank has a visual measuring tab to ease partial filling. There are 15 gallons (13.7 usable) in the tank when the fuel touches the bottom of the tab and 20 gallons (18.7 usable) when filled to the slot in the tab.

The cowl has only a small hatch to allow the pilot to check oil quantity. A thorough visual check of the engine can be made only after he unscrews a couple of dozen fasteners to remove the two-piece cowl.

There are no wheel coverings on the Sundowner. A Beech spokesman



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said the company found that wheel-pants would not add appreciably to the airplane's speed. He added that most owners probably would take them off, anyway, for nine months out of the year to prevent build-ups of snow and mud. The absence of wheel coverings also eases maintenance and allows the pilot to check the condition of the wheels and the brakes thoroughly.

The landing gear, which is made of magnesium and aluminum, uses rubber disks instead of oleo struts for shock absorption. The main wheels are set 11 feet 10 inches apart, which is about 1.5 feet wider than the mains on the Archer and about three feet wider than those on the Skyhawk.

The wing tips are of a flexible polymer that reduces the potential for hangar rash. There are three degrees of wash out at the tips to retain aileron authority as a stall progresses outward from the root of the wing.

With two doors, there is no need to play follow the leader with your passengers as you board the airplane. However, it often is necessary manually to trip the metal brackets that

hold the doors open, and the doors need a healthy pull to close.

The Sundowner is a comfortable airplane. All four seats have three-position backs. The pilot sits slightly ahead of the leading edge of the wing, and the wrap-around windshield and large side windows offer excellent visibility.

The aircraft I evaluated, N6697Y, is equipped with Collins Microline communication and navigation radios, audio control panel, transponder, VOR, localizer and instrument landing system indicators, distance measuring equipment, a Smiths encoding altimeter and an Edo-Aire Mitchell single-axis autopilot. Even with all this equipment, there still is plenty of room left in the panel.

Rocker switches for the electrical system are located on the lower left-hand side of the panel, within easy reach of the pilot. Engine gauges are grouped below them. The throttle and the carburetor heat and mixture controls are mounted in a center quadrant. Circuit breakers are located on the far right-hand side.

N6697Y is equipped with the op-

tional electric wing-flap system. The three-position flap selector switch is located on the right of the power quadrant. To reach it, the pilot has to snake his hand between the quadrant and the right yoke, which is not an easy task, especially while flying in turbulent air.

The flap switch has three positions—Up, Off and Down—and the switch must be pulled out of a detent before it can be repositioned. For instance, to select 15 degrees of flap, the switch must be pulled out of the detent at the Off position and moved to the Down detent. The process is reversed when the tiny pointer in the small dial mounted above the switch moves from 0 to 15.

I found the electric flap system awkward and imprecise to operate. The manual flap system has a handle between the seats that easily can be pulled up to definite detents at 15, 25 and 35 degrees of travel, allowing the pilot to keep his eyes outside the aircraft or in an instrument scan.

The Sundowner is a delight to fly. The ailerons are crisp, and very little rudder is needed to keep the ball cen-

tered. The ailerons are a modified Friese design. The leading edge of the raised aileron protrudes slightly into the airstream at the bottom of the wing, counteracting the yaw created by drag from the lowered aileron. In steep turns, though, the nose drops quickly, and it takes a good tug on the yoke to maintain altitude.

During cruise checks at various altitudes on a warm day, N6697Y delivered true airspeeds that were consistently about two knots faster than those listed in the performance table in the pilot's operating handbook. Lightly loaded and at a density altitude of 7,500 feet, the airplane trued out at 120 knots at 75 percent power (2,650 rpm), 115 knots at 65 percent (2,500 rpm) and 96 knots at 57 percent (2,300 rpm). The handbook indicates that the airplane should burn 11 gph, 9 gph and 7.9 gph, respectively, at these power settings.

Good pilot technique is required when landing a Sundowner, since its nose gear is longer and its flaps are not as effective as those on the Archer, the Warrior and the Skyhawk.

In a comparative analysis of accident statistics for 33 single-engine

models, the National Transportation Safety Board found the Sundowner to have the highest incidence of hard-landing accidents. NTSB said Sundowners were involved in 66 hard-landing accidents between 1972 and 1976, resulting in a rate of 3.5 hard-landing accidents per 100,000 hours of operation. Piper's Cherokee series and Cessna's Skyhawk were twentieth and twenty-first on the list, with hard-landing accident rates of 0.81 and 0.71 respectively.

An aviation insurance underwriter I spoke with found the following scenario in three hard-landing accidents in Sundowners: The pilot came in too fast on final and without a sufficiently nose-up attitude in the flare. As a consequence, the nose gear hit the runway first, causing the airplane to porpoise. The nosewheel then cocked to one side, and the airplane ground-looped, overstressing and damaging its landing gear.

However, if a Sundowner is landed according to the numbers suggested by Beech—68 knots on final approach with full flaps, 80 knots with flaps retracted—the pilot should find no problem in returning to earth. The

Sundowner's wide landing gear also is very forgiving of poor pilot technique in a crosswind.

The Sundowner is one of the descendants of the three Musketeers, which Beech launched in the early 1960s as a means of introducing pilots to its product line early in their flying careers. The original Musketeer was designed by a special group of Beech engineers headed by John Elliott, who now is a project engineer for the company's 19-passenger commuter airplane.

To save weight, Elliott used 10 aluminum honeycomb ribs forward of the main spars in each of the laminar-flow wings. The ribs are bonded to the spar and to a one-piece wrap-around skin, resulting in a nearly rivetless forward wing structure.

The first production Musketeers flew with 160-hp Lycoming O-320 engines in 1963. For the next five years, Beech used an oddball 165-hp Continental IO-346A engine in the Musketeer II and Custom III models. The company reported overheating problems with the Continental and switched to a 180-hp Lycoming O-360 in the Custom model in 1969.

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In the early 1970s, the Musketeer Custom was given a wider fuselage, a second door, larger windows and a streamlined cowl and was renamed the Sundowner. By then, the Musketeer line also had spawned the 150-hp, two-place Sport and the 200-hp, retractable Sierra. The Sport was dropped when Beech introduced the T-tailed Skipper in 1979.

Sundowner deliveries have outpaced those of the Sierra. Although the Sundowner also far outsold the Sport, there are indications that the new Skipper is becoming a more popular vehicle for primary training in the Beech Aero Club network.

The Sundowner has done such a good job in its role as a transition aircraft that it has been overlooked as

a good airplane in its own right.

The airplane offers a balance between performance and quality of construction. Speed becomes less of a consideration when you sample the airplane's comfortable cabin and nimble handling qualities. The Sundowner deserves a close look by any pilot in the market for a four-place, single-engine aircraft. □

BEECHCRAFT C23 SUNDOWNER 180

Basic price \$39,350

Price as tested \$71,990

Specifications		Payload with full fuel (basic aircraft)		Range at 75% cruise (with 45-min reserve)	
Engine	Lycoming O-360-A4K 180 hp @ 2,700 rpm	605 lb		533 nm	
	Recommended TBO 2,000 hr	Payload with full fuel (as tested)	457 lb	Range at 65% cruise (with 45-min reserve)	582 nm
Propeller	Sensenich fixed pitch, 76 in	Gross weight	2,450 lb	Range at 57% cruise (with 45-min reserve)	579 nm
Wingspan	32 ft 9 in	Fuel capacity (standard)	59.8 gal (57.2 usable)	Service ceiling	12,600 ft
Length	25 ft 9 in	Oil capacity	8 qt	Landing distance (ground roll)	703 ft
Height	8 ft 3 in	Baggage capacity	270 lb (19.5 cu ft)	Landing over 50 ft	1,484 ft
Wing area	146 sq ft	Performance			
Wing loading	16.78 lb/sq ft	Takeoff distance (ground roll)	1,130 ft	Limiting and Recommended Airspeeds	
Power loading	13.61 lb/hp	Takeoff over 50 ft	1,955 ft	<i>Indicated airspeed, not calibrated</i>	
Passengers and crew	4	Rate of climb (gross weight)	792 fpm	Va (Design maneuvering speed)	118 kt
Cabin length	7 ft 11 in	Max. level speed (sea level)	123 kt	Vfe (Max. flap-extended speed)	96 kt
Cabin width	3 ft 8 in	Cruise speed		Vne (Never-exceed speed)	152 kt
Cabin height	4 ft	(75% power, 8,500 ft)	119 kt	Vno (Max. structural cruise speed)	136 kt
Empty weight (basic aircraft)	1,502 lb	Cruise speed		Vs (Stall speed clean)	63 kt
Empty weight (as tested)	1,650 lb	(65% power, 8,500 ft)	108 kt	Vso (Stall speed with full flaps)	52 kt
Useful load (basic aircraft)	48 lb	Cruise speed		Vx (Best angle-of-climb speed)	69 kt
Useful load (as tested)	80 lb	(57% power, 8,500 ft)	94 kt	Vy (Best rate-of-climb speed)	75 kt

Based on manufacturer's figures