SARATOGA *Style*

Obviously Garmin's GNS 430 has caused quite a stir in the aviation industry over the past two years. This IFR-certified GPS with built-in nav, com, and localizer receivers has buyers lining up at avionics shops around the world. New Piper recognized the capability of this unit and quickly adapted it into much of its 1999 product line. As a result, new Piper airplanes from the Archer III to the Saratoga II TC now come standard with Garmin avionics. A slaved compass system and two-axis autopilot/flight director from S-Tec are also standard equipment. ■ According to New Piper officials, these avionics changes have caused owners to trade in 1998 models for 1999 versions just to get the new avionics. In addition to the avionics innovations, New Piper's Step-Up program offers its own incentives for owners to trade up the product line. More on that later. ■ Price is another big factor in sales of both normally aspirated

Piper's big-cabin retract sports a twenty-first-century panel

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N299HP

and turbocharged Saratoga models. The closest competitors are Raytheon's Beech A36 and B36TC Bonanzas, which carry standard prices that are $125,000 to $169,000 higher, respectively.

Saratogas come in two flavors, the normally aspirated HP and the turbocharged TC (see "Turbo 'Toga," September 1997 *Pilot*). The HP was first offered in 1993 as a 1994 model (see "Piper Saratoga II HP," August 1993 *Pilot*). The airplane was cleaned up aerodynamically, bringing its high-speed cruise to around 165 knots, which is six or seven knots faster than older Saratogas. Like those old Saratogas, Lances, and Cherokee Sixes, the new airplane has a gigantic cabin with lots of elbow room. Today, however, that new cabin is appointed with leather seats and a professional-looking instrument panel and overhead switch panel. Interior options, such as an entertainment/executive console, bring the new 'Togas in line with heavily optioned recreational vehicles on the road today. The $4,980 option trades out one of the aft-facing seats for the console, which contains a beverage cooler, chart storage, cup holders, a padded arm rest, and a pull-out tabletop, as well as provisions for an AM/FM CD player, a laptop computer station, and a multimedia entertainment system. With this setup, the next time an annoying passenger quips about the in-flight movie and beverage service, you'll be ready.

Anyone familiar with Piper Cherokees will take to a Saratoga with ease. The airplane has the same docile handling that requires lots of provocation to do anything untoward. The downside of this trait is the Saratoga's heavy control feel. For flights in instrument conditions, however, this stability really pays off, making instrument approaches a breeze.

On long trips, the Saratoga's roomy cabin pays big dividends in the form of comfort.

With 102 gallons of usable fuel, the HP can stay aloft for about 5.5 hours at economy cruise, which is good for a solid 155 knots in a windless world. That'll take you more than 800 miles with enough for a 45-minute reserve. It's on trips of this length that the Saratoga's roomy cabin pays big dividends. At its widest point, the cabin is a beamy 48.75 inches across. Take the rear seats out and

you have a whopping 75 cubic feet of storage space for items as large as personal watercraft.

On a hot day in late May, the HP's air conditioner made quick work of cooling down a heat-soaked cabin. Those operating in colder climates may want to leave out the air conditioning for the 56 pounds of useful load it gives back and the $8,880 it will leave in your wallet.

The new Saratoga's luxurious interior and equipment have taken away much of the load-hauling reputation that older PA–32s worked hard to establish. Deliveries remain strong, however, because people who buy new airplanes would rather have the luxo-gadgets than the ability to fill the seats and the tanks.

Because of the luxurious cabin and amount of equipment, the HP has a useful load of 1,166 pounds, which is about the same or slightly more than a new, comparably equipped Bonanza. Fill the tanks with fuel and there's enough room for 554 pounds of people and gear—roughly three adults and some baggage. Put 25 gallons in each wing and the HP will carry five adults (with little or no baggage) on a 300-mile trip with IFR reserves. To help control weight, New Piper is now installing Sky-Tec's lightweight starters, which trims approximately 10 pounds from the nose of the airplane. In addition, the Garmin radios shaved a few pounds off the airplane's total weight thanks to simplified wiring and no requirement for a separate GPS/nav switching unit.

Loading a Saratoga II HP is a snap thanks to the versatility offered by the standard nose baggage compartment located between the engine compartment and the cabin. With lots of optional equipment in the panel and fuel that is stored in the wing's leading edge, the HP has a natural forward center of gravity. If it's just two of you and full fuel, any luggage should be loaded into the rear compartment to avoid loading forward of the CG envelope. It's only until you start using five or six seats—when fuel must be left out to carry the weight—that you en-croach upon the aft CG limit. In such a case, simply throw baggage in the nose to balance it out.

Signature Combs Aircraft Sales of Fort Lauderdale, Florida, provided us with N299HP for photos and evaluation. The airplane had just emerged from Sun Aviation in Vero Beach after having BFGoodrich's Stormscope and Skywatch systems installed. New Piper offers Insight's Strike Finder as a factory option for $8,280. N299HP is equipped with S-Tec's ST-180 slaved compass system, S-Tec's System 55 two-axis autopilot/flight director with electric pitch trim, S-Tec's ST-360 altitude alerter/preselect system, air conditioning, stainless steel cowl fasteners, and a new-for-1999 DuPont Imron 6000 two-stage paint system. The new base coat/clear coat paint system provides a deeper lustre and allows metallic trim colors to be used such as the gold on N299HP.

Loading a Saratoga is a snap thanks to the standard nose baggage compartment.

Dr. Jerry Nutt, of Destin, Florida, is the new owner of N299HP and was to take delivery in June. Nutt bought an Archer III last October to use while finishing his private pilot training and subsequently for travel around the southeastern United States in his dental management business. Nutt took advantage of Piper's Step-Up Program, in which buyers can trade up the Piper line while minimizing the heavy depreciation associated with selling late-model airplanes.

"I became aware of the Step-Up Program through Fred Ahles at Signature Combs and it made a lot of sense to me," said Nutt. "I was getting tired of flying 25-year-old Cessnas." About halfway through his training for the instrument rating, Nutt decided to trade in the Archer for the Saratoga.

"I needed more speed, range, and pay-load, and the Saratoga made a comfortable step-up airplane that has a similar layout," said Nutt. After putting 200 hours on the Archer and deciding to trade up, Nutt was refunded the entire retail price of the Archer, less a $40-per-hour usage fee.

"Essentially I learned to fly in a brand-new airplane for $40 an hour," he said. Of course, Nutt had to pay the taxes and insurance on the Archer. However, when he decided to move up to the Saratoga, Florida tax laws require him to pay taxes on just the difference in cost between his Archer trade-in and the Saratoga, which greatly reduced the financial burden. The Step-Up plan also allows for discounted financing on the second airplane.

"I know I could get more airplane for the money on the used market, but I'd rather work my business than worry about the latest AD on my airplane," Nutt said. "Besides, the warranty of the new airplane makes maintenance a no-brainer." After the Saratoga he plans to trade up to a Seneca V. As with all New Piper airplanes, training is included in the purchase price of a new airplane to ease transition.

We flew Nutt's airplane in formation

with a Beech A36 Bonanza for the photos on these pages. The airplanes are very closely matched in terms of takeoff and climb performance. Both airplanes, which were loaded nearly identically, used about the same amount of runway and climbed at the same rate. In cruise, the Saratoga's beefy airframe allows the narrower Bonanza to pull away at similar power settings. Fuel flow of the Saratoga is slightly higher than that of the Continental IO-550-powered A36.

Despite the fact that there are no cowl flaps, engine cooling during the climb was adequate with oil temperature reaching about 210 degrees F and cylinder heads reaching about 380 degrees F. In cruise, these came down to 190 and 350, respectively.

At 8,500 feet on a hot Florida day, the 300-horsepower Lycoming IO-540 pulled the Saratoga along at 162 knots true at 65-percent power. The HP's digital display monitoring panel (DDMP) from Horizon Aerospace monitors volts, amps, manifold pressure, rpm, altitude, OAT, and fuel flow, has the capability to tell the pilot what percentage of full power the engine is producing. The system can work in reverse, too. Once you choose an rpm, you can set a desired percentage of power and the instrument will tell you what manifold pressure is necessary to achieve it. Because mixture settings profoundly affect engine power output, the DDMP instrument could potentially avert problems associated with poor engine management by alerting the pilot to other-than-optimum mixtures that produce less than the desired percentage of power. Of course, running at the proper mixture settings will prolong engine life, making it more probable that the HP's Lycoming will reach its 2,000-hour TBO. An added bonus is the fact that the instrument will alert the pilot when critical system parameters are exceeded—for example, a

Dual Garmin 430s and S-Tec's System 55 autopilot are standard in the Saratoga (below). Analog engine instruments are topped off by the Horizon DDMP (below left).

loss of charge, suction, or oil pressure.

In flight, New Piper Chief Pilot Bart Jones ran me through the paces on the operation of the S-Tec autopilot/flight director and the altitude alert/preselect functions on the optional ST-360. As with any autopilot system, a study of the operator's manual is imperative. The S-Tec system is a very capable autopilot; however, the extent of its capabilities means there is more for the pilot to learn. To operate the altitude preselect function, you must punch the Alt and VS buttons simultaneously on the 55's control head. From there, you can dial in a requested rate of climb/descent to your target altitude. As you near the target altitude, the system automatically slows your climb/descent incrementally to 300 feet per minute to smooth the transition to level flight. The rate-based autopilot performed flawlessly except when it occasionally allowed the altitude to drift down momentarily when entering a turn. Piper and S-Tec are currently working to resolve that issue.

It was surprising to learn that Piper sells more turbocharged Saratoga TCs than it does normally aspirated HPs. In 1998, the company sold 48 TCs and 28 HPs. For 1999, all indications show that a similar number of airplanes will be delivered by year's end. According to Larry Bardon, New Piper's director of marketing and sales, the relatively small difference in price of $21,000 between the two airplanes convinces many owners to ante up to the high-flying TC. Bardon also pointed out that the HP has been available for four years longer than the TC, somewhat stabilizing its market.

Overall, the changes made to the Saratoga II HP and other airplanes in the fleet illustrate that Piper is working hard to meet customer demands. The Step-Up buyer-incentive plan is another stride in that direction. The success of these strategies has allowed Piper to double production in the last four years. □

Aerodynamic enhancements made in 1994 eked a few more knots out of the stocky Saratoga airframe.

Links to additional information on the Saratoga can be found on AOPA Online (www.aopa.org/pilot/links.shtml). E-mail the author at pete.bedell@aopa.org

1999 Piper Saratoga II HP
Base price: $389,900
Price as tested: $411,400

Specifications

Powerplant	300-hp Lycoming IO-540-K1G5
Recommended TBO	2,000 hr
Propeller	Hartzell three-blade, constant speed, 78-in dia
Length	27 ft 10 in
Height	8 ft 6 in
Wingspan	36 ft 2 in
Wing area	178 sq ft
Wing loading	20.2 lb/sq ft
Power loading	12 lb/hp
Seats	5/6
Cabin length	10 ft 5 in
Cabin width	4 ft 1 in
Cabin height	3 ft 6 in
Empty weight	2,391 lb
Empty weight, as tested	2,449 lb
Maximum ramp weight	3,615 lb
Maximum gross weight	3,600 lb
Useful load	1,224 lb
Useful load, as tested	1,166 lb
Payload w/full fuel	612 lb
Payload w/full fuel, as tested	554 lb
Maximum takeoff weight	3,600 lb
Maximum landing weight	3,600 lb
Fuel capacity, std	107 gal (102 gal usable) 642 lb (612 lb usable)
Oil capacity	12 qt
Baggage capacity	Nose 100 lb, 7 cu ft Rear 100 lb, 17.3 cu ft

Performance

Takeoff distance, ground roll	1,200 ft
Takeoff distance over 50-ft obstacle	1,770 ft
Maximum demonstrated crosswind component	17 kt
Rate of climb, sea level	1,110 fpm
Maximum level speed	175 kt
Cruise speed/endurance w/45-min rsv, std fuel (fuel consumption)	
@ 78% power, best power 5,000 ft	166 kt/5.1 hr (105 pph/17.5 gph)
@ 65% power, best power 8,500 ft	162 kt/5.6 hr (96 pph/16 gph)
Service ceiling	15,588 ft
Landing distance over 50-ft obstacle	1,520 ft
Landing distance, ground roll	640 ft

Limiting and Recommended Airspeeds

V_X (best angle of climb)	74 KIAS
V_Y (best rate of climb)	90 KIAS
V_A (design maneuvering)	132 KIAS
V_{FE} (max flap extended)	108 KIAS
V_{LE} (max gear extended)	130 KIAS
V_{LO} (max gear operating)	
Extend	130 KIAS
Retract	108 KIAS
V_{NO} (max structural cruising)	160 KIAS
V_{NE} (never exceed)	193 KIAS
V_{S1} (stall, clean)	65 KIAS
V_{SO} (stall, in landing configuration)	60 KIAS

For more information, contact The New Piper Aircraft Inc., 2926 Piper Drive, Vero Beach, Florida 32960; 561/567-4361; www.newpiper.com.

All specifications are based on manufacturer's calculations. All performance figures are based on standard day, standard atmosphere, sea level, gross weight conditions unless otherwise noted.