

Saratoga SP



*Piper's six place singles have more than a new name.
The semi-tapered wing makes handling superb.*

There was a great deal of fanfare when the Lance II was introduced in late 1977, most of it focused on the T-tail and its supposed advantages over the conventionally designed tail of the original Lance, or retractable-gear Cherokee Six, which had been introduced just two years before. Piper's commitment to the development of the T-tail was reconfirmed a year later at the company sales meeting by then-President (now Chairman) J. Lynn

Helms. He devoted considerable time to discussing the benefits of T-tails and the technology base the company was building as a result of its experiments with them.

But the Lance II wasn't well accepted, partly because pilots didn't like the way it handled. Pitch characteristics were very different from the Six and the original Lance. It was too easy to over-rotate on takeoff, and getting a good flare on landing re-

quired a lot of work, particularly with forward CG. Takeoff ground run increased, too, because of the characteristics of the T-tail.

Some pilots didn't mind the flying qualities of the aircraft; but many, particularly those accustomed to the original Lance, had a lot of bad things to say about the II. Perhaps its greatest shortcoming was that it did not fly as anticipated, in much the same way that pilots experienced with single-en-

If at First...

gine Cessnas had difficulty with the pitch characteristics of the original Cardinal. It didn't represent a continuity of response with the rest of the Cessna singles.

A lot of Piper salesmen didn't like the II, and the low sales figures quickly reflected the negative reactions. The Cherokee Six/Lance family of single-engine aircraft is a very important element in the Piper line. The aircraft confront tough competition—the Cessna 200 and the Beechcraft Bonanza series—and they haven't been successful. The Cessna 210 and Turbo 210 outsold the Lances by nearly a four-to-one margin, and Bonanza sales were more than twice as high as Lance sales last year, for instance.

The Lance has a lot to recommend

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The combination of something old—the empennage, and something new—the wing, works well. Ailerons are well inboard of the wingtips.

it in comparison with its competitors in such areas as initial cost, cabin size, cockpit arrangement and recommended engine TBO. It also has reasonable, although not outstanding, performance and provides great loading flexibility. But it is a distant third in sales in the six-place, high performance, single-engine category. (On the other hand, its relatively sluggish sales should make it a good bargain in the used aircraft market.)

We admit that most assessments of handling characteristics are subjective—that is, subject to the preference or prejudice of the pilot—but comparisons of the Bonanza, Lance and 210 among pilots who have flown them all rate the Bonanza as tops in handling, responsiveness and control harmony. The 210 is considered to have heavy, but relatively smooth,





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*Nothing has changed
in the wide, well-
organized cockpit. The
similarity of panel
arrangement among all
Cherokee descendants
makes transition from
one model to another
relatively easy.*

responsive ailerons and very heavy (but effective) elevators. The Lance (and Cherokee Six) is regarded as being trucky, heavy and lumbering. The original Lance rates last in responsiveness and workload but ahead of the 210 in control harmony. The Lance II lost a bit because of the different characteristics and feel of the T-tail.

Piper has worked to make the airplanes more competitive, especially the flying characteristics. We think that they have succeeded. In a word, the flying qualities of the normally aspirated airplane that we flew are delightful. What is now called the Saratoga series is bound to change the relative ranking.

The Saratoga name covers what are now four models of the basic PA-32 wide-bodied Cherokee: PA-32-301 (originally the Cherokee Six 300); PA-32-301T, the first fixed-gear, turbosupercharged version; PA-32R-301; and PA-32R-301T. The latter two are retractable gear, or Lances. But Piper didn't want to designate them as RG's, since Cessna copped

that designation years ago. So, in the complicated marketing game of names, they are dubbed Saratoga SP's, for special performance.

All four have the semi-tapered wing design first introduced on the Warrior and the conventionally located stabilator common to the Six and Lance I. It's kind of one step forward, one step back, but the result works. Piper spokesmen claim that the T-tail was modified to improve greatly the actual and perceived shortcomings of the Lance II. However, they also claim that while testing the semi-tapered wing on a Six, the combination of the two suggested that the new wing and the old tail was the better way to go.

There is bound to be speculation about possible battles between proponents of one configuration or another, or between the engineering and marketing departments. Unfortunately, the return to the original tail suggests some validity in the claim that the change to a T-tail was more for cosmetic than aerodynamic reasons (see "The T-tails Are Here", *Pilot*, April,

1979). The company response to such suggestions is that it will use whatever works best. For the long-bodied Cherokee variants, including the Seneca, a conventionally mounted stabilator is it.

And, as we said earlier, the combination of the old tail and the new wing does work well. The Saratoga doesn't fly like any PA-32 we have flown before. The difference this time will be pleasant rather than unsettling to long-time Six or Lance pilots. As a matter of fact, we have considered the Seminole to be the best handling, most well-balanced airplane Piper makes; the Saratoga SP comes very close.

Our preview of the aircraft included ferrying an engineering department aircraft, N2966Y, from Florida to Lock Haven and a later flight for handling evaluation and photography. Everyone who flew it was impressed by the marked difference in flying characteristics.

It is more stable about all axes yet much more responsive. One staff member who flew a long cross country



in the airplane with the autopilot disconnected (it was in the process of being certified) particularly was impressed with the stability of the Saratoga SP. He reported that, once trimmed for level flight, it tends to stay that way, even with passenger

movement about the cabin. The sound level seems to have been reduced—although making direct comparisons or taking measurements was not possible.

Handling tests involved some terribly ham-handed indignities with the controls, including cross-controlled stalls and crossing the controls during stalls. We also did some maneuvering right at flare on landing. In every configuration and in each attempt to make the airplane quit, the Saratoga demonstrated its very good manners.

Pilots of aircraft lighter than the Saratoga tended to find the various PA-32's a handful during transition, but we feel that they would have no difficulty with the Saratoga.

In fact, the only gripe that developed during flight concerns the landing light. It doesn't provide enough illumination during landing, particularly on poorly lighted runways.

The biggest change is the wing. (It resembles the one common to all the PA-28 variants and the PA-44 Seminole.) The wingspan has increased by





over three feet, from 32.9 to 36.2 feet. The balanced ailerons are well inboard of the wing tip, as on the Seminole. Piper claims this keeps it out of wingtip, or vortex, turbulence and improves roll response.

Fuel capacity has been increased on all versions to 107 gal. (102 gal. usable) from 98 gal. (94 gal. usable).

The leading edge of the wing is flush riveted, and the ridged fuel caps have been replaced by flush-mounted ones that have generous space for fingers. This seemingly minor improvement means fewer fingernails and fingers will be damaged when checking fuel, particularly in cold weather, and that there is likely to be less paint damage as a result of using screw drivers, knives or beer can openers.

Our evaluation aircraft is equipped with an optional three-bladed propeller. While the advantage is marginal in many installations, on the Saratoga performance improvements, as well as noise reduction, are measurable. Ground clearance is improved, too. According to the factory's figures,

ground run is improved by 170 feet (1013 feet compared with 1183 feet for the two-bladed propeller); and takeoff distance over a 50-foot barrier is reduced by 186 feet (1573 feet compared to 1759 feet).

The 300-hp Avco Lycoming IO-540 series installed in the Six and Lance used a considerable amount of fuel for cooling. Improved cooling airflow in the Saratoga SP has resulted in 4 gph lower at 75% power, best economy mixture than the Lance II. With avgas prices getting close to \$1.50 in many parts of the country, for meticulous operators this modest improvement can reduce direct operating costs significantly.

A major new option is being offered on the SP and Turbo SP: deicing equipment that will permit flight in known, light-to-moderate icing conditions.

Until now, the only single-engine aircraft with this option were Cessna 210 series airplanes, although Beechcraft and Mooney offer electrical deicing propellers to provide

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In-flight profile of the Saratoga emphasizes the length of the fully six-place fuselage.





some protection to pilots who encounter icing.

Speed and range performance have been marginally improved in the Saratoga SP. Empty weight of the SP is 18 lbs. heavier than that of the Lance II (1986 lbs. compared to 1968 lbs.). The original Lance empty weight was 1910 lbs. But much of this weight is, in effect, gained back by the addition of a maximum ramp weight of 3615 lbs. This allows calculation of fuel used for start, taxi and runup on top of the maximum takeoff weight, which remains at 3600 lbs.

In all other respects, the Saratoga is similar to its predecessors. The handling improvements and other changes and options have stirred the enthusiasm of the Piper sales organization and should make the airplane a stronger competitor in the marketplace. If our reactions to our initial exposure to the Saratoga are any indication, prospective aircraft owners will receive it a lot more enthusiastically, too.—EGT

Piper, Saratoga SP	
PA-32R-301	
Basic price \$80,200	
Price as tested \$107,920 (est.)	
Specifications	
Engine	Avco Lycoming IO-540-K1G5D 300 hp @ 2700 rpm TBO 2000 hr
Propeller	Hartzell two blade, constant speed
Wing span	36.17 ft
Length	28.35 ft
Height	9.53 ft
Wing area	178.3 sq ft
Wing loading	20.2 lb/sq ft
Power loading	12.0 lb/hp
Passengers and crew	6/7
Cabin length	125 in
Cabin width	49 in
Cabin height	49 in
Empty weight	1986 lb
Equipped empty weight (as tested)	2213 lb (est)
Useful load (basic aircraft)	1629 lb
Useful load (as tested)	1402 lb (est)
Payload with full fuel (basic aircraft)	1017 lb
Payload with full fuel (as tested)	790 lb (est)
Maximum ramp weight	3615 lb
Gross weight	3600 lb
Fuel capacity (standard)	107 gal (102 usable)
Oil capacity	12 qt
Baggage capacity:	
Forward compartment	100 lb (7 cu ft)

Aft compartment 100 lb (17.3 cu ft)

Performance

Takeoff distance (ground roll)	1183 ft
Takeoff over 50 ft	1759 ft
Rate of climb (gross weight)	1010 fpm
Maximum level speed (sea level)	164 kt
Cruise speed (75% power, 7,000 ft)	
Best power	159 kt
Best economy	157 kt
Cruise speed (65% power, 11,000 ft)	
Best power	153 kt
Best economy	151 kt
Cruise speed (55% power, 15,000 ft)	
Best power	144 kt
Best economy	141 kt
Range at 75% cruise (with 45-min reserve), 7000 feet	
Best power	784 nm
Best economy	865 nm
Range at 65% cruise (with 45-min reserve), 11,000 ft	
Best power	828 nm
Best economy	937 nm
Range at 55% (with 45-min reserve), 15,000 ft	
Best power	869 nm
Best economy	983 nm
Service ceiling	16,700 ft
Absolute ceiling	18,350 ft
Stall speed (clean)	60 kt
Stall speed (gear and flaps down)	57 kt
Landing distance (ground roll)	732 ft
Landing over 50 ft	1612 ft