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DECEMBER 2001

Hammerhead SKYLANE

This isn't your daddy's 182

Text And Photography

By Budd Davisson

FOR THE MOST PART, FROM MY viewpoint at the controls, this could have been just another 182. Granted, this one was equipped like a mini-airliner, but as we lined up on the runway, I had to grin as I mentally re-ran the numbers Tom Castleberry, the airplane's owner, had just given me. He said to rotate at 38 knots, accelerate to 55 and then climb out at 70 knots. FYI: The handbook says in a zero-wind condition at full gross (we were two people, two-thirds tanks, 4,500 feet density altitude and a slight tailwind), the airplane will operate out of 390 feet. (No, that's not a typo. It will take off AND land in a space only a little longer than a football field.)

I could glance down out of the windshield and see what looked like a shark fin sticking out of the side of the nose and, as I moved the elevator, the back half of the small canard surface moved, too. Oh, well, I thought, as I moved the

throttle forward to wake up the 260-hp IO-470 Continental. Using the runway lights as guides, I'd guess we left the ground in something around 300 feet!

The Peterson 260SE is the creation of Todd and Jo Peterson and their company, Peterson Performance Plus (1465 S.E. 30th, Municipal Airport, El Dorado, KS 67042, 316-320-1080, www.260se.com), which has cranked out more than 400 of the airplanes since the first one rolled off the line in the mid-'80s. The 260SE isn't Todd's first 182 project, however. In fact, his association with 182s modified for performance goes all the way back to when he was manufacturing the famous Wren, one of the most efficient, complex bush airplanes ever built.

"The Wren sold for exactly six times what a comparable stock Skylane did, but people seemed to want it," Peterson says. At one point we were back-ordered for 18 months, and we were producing one airplane a week. Then, I began to notice something. People weren't keeping the airplane very long.

"We decided to build an airplane that was much simpler and had the canards, but the wing was essentially stock except for a leading edge. The final airplane, the Skylane 260SE, took only 90 feet more runway than the Wren to take off and land, but with the 260-hp Continental and lower drag, cruised at a solid 150 knots. Better yet, the new airplane has a useful load of over 1,100 pounds."

Tom Castleberry, of Paradise Valley, Ariz., who loaned us his airplane, is typical of the 260SE buyer. He's the first to admit he doesn't expect to take full advantage of all of the airplane's short-field capabilities, but he likes the idea of being able to get in and out short "just in case," along with the safety of the slow-speed capabilities.

On our first takeoff, as soon as the airplane left the ground at 38 knots indicated, I started looking for anything unusual in its handling, but found nothing, other than the fact that it was climbing in an unusually flat attitude. It felt rock-solid at liftoff and rocketed up to 55 knots so quickly that I would have had to yank the nose up hard to keep the speed down. Fifty-five knots sounds slow, but, as I was to find out, that speed is close to the top edge of its comfort and safety zone during the approach.

What Peterson has done with the 260SE is knock the bottom edge of the envelope down so low that all of the numbers are based on stall go down proportionately. For instance, its stall is 35 knots, so the FAA-style 1.3 Vso approach speed should be only 45 knots. Actually, the airplane is much more comfortable slow than it is a few knots faster, and 60 knots is quickly recognized as too fast for any approach.

At full power on takeoff and 70 knots, we were climbing at around 1,100 to 1,200 fpm (density altitude was 4,500 feet), which dragged us up to 5,000 feet quickly. Part of the climb was at 90 knots, which produced about 500 fpm.

Once we had altitude, I didn't even give it time to accelerate before bringing the power back to 15 inches and starting to pull the nose up. I wanted to see what the airplane did at that power setting as I slowly increased the angle of attack. Pull. Pull. Pull. The airspeed gradually bled off, but it was climbing all the while. It finally stopped climbing at

PETERSON 260SE N735GH

SPECIFICATIONS

Base price: $80,000 (conversion only); $200,000 (conversion and aircraft)
Engine make/model: TCM IO-470-F
Horsepower@rpm@altitude: 2600@2700@SL
Horsepower for takeoff: 260
TBO hours: 1500
Fuel type: 100LL
Propeller type/diameter (in.): McCauley CS
Landing gear type: Tri/Fixed
Max ramp weight (lbs.): 2950
Gross weight (lbs.): 2950
Landing weight (lbs.): 2950
Std. empty weight (lbs.): 1800
Useful load (lbs.): 1150
Payload - full std. fuel (lbs.): 622
Usable fuel - std. (gals.): 88
Oil capacity (qts.): 12
Wingspan: 36 ft. 0 in.
Overall length: 28 ft. 1.5 in.
Height: 9 ft. 2 in.
Wing area (sq. ft.): 174
Wing loading (lbs./sq. ft.): 16.9
Power loading (lbs./hp): 10.6
Wheel base (ft. in.): 9 ft. 1 in.
Wheel track (in.): 9 ft. 1 in.
Wheel size (in.): 6.00 x 6
Seating capacity: 4
Cabin doors: 2
Cabin width (in.): 42
Cabin height (in.): 48.5
Baggage capacity (lbs.): 200

PERFORMANCE

Max level speed (knots): 153

Cruise speed @ 6500 ft. (kts.):

	ALTITUDE	SPEED
75% power:	6500	150
65% power:	6500	145
55% power:	6500	138

Max range (w/reserve) (nm):

75% power:	849
65% power:	918
55% power:	1018

Fuel consumption (gph):

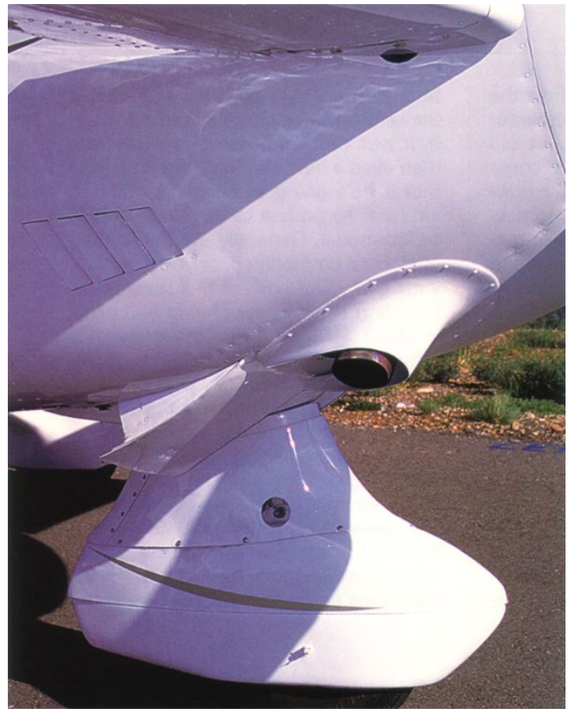
75% power:	13.2
65% power:	12.0
55% power:	10.5

Estimated endurance (65%) (1-hr. reserve) (hrs.): 5.5
Stall speed (flaps up) (kts.): 42/IAS
Stall speed (flaps down) (kts.): 35/IAS
Best rate of climb (fpm): 1380
Service ceiling (ft.): 19,500
Takeoff ground roll (ft.): 390
Takeoff over 50-ft. obstacle (ft.): 705
Landing ground roll (ft.): 390
Landing over 50-ft. obstacle (ft.): 600

around 55 knots, but it never did start going down, no matter how slow it got. I kept the nose slowly going up, and Castleberry kept counting off the speed: “45, 40…It ought to stall soon. Thirty-five knots…I can’t read it any more.”

If you could believe the airspeed indicator, we weren’t moving at all. So I decided to aggravate the situation and try a turn. Using normal rudder and aileron, I asked the airplane to roll into a 15-degree banked turn, and it happily obliged. The ailerons were soft, but they were definitely there. We were at zero airspeed and pulling only 15 inches of manifold pressure. The real kicker, however, was that we had zero flaps hanging out. It was flying around this slow with minimal power and no extra lift from the flaps.

I kept pulling, trying to induce a stall, but it wasn’t easy. If I was persistent, I could get it to buffet and try to drop a wing, but not much else. I dropped the nose a bit to get the speed back over 40 knots, then killed the power and starting pulling again.



The idea behind the Peterson Skylane is to take a good thing and make it better and, since the mid-’80s, Todd Peterson has laid hands on more than 400 Cessna 182s. His remanufacturing process allows owners to have a hand in customizing and updating the state-of-the-art instrument panels (left), while Peterson adds a canard and aerodynamic mods (above) to create the inimitable Skylane 260SE.

This time, somewhere below 35 knots, the elevator pressure gradually went to zero and gave me plenty of warning that something I wouldn't like was about to happen. Only it didn't. The nose shuddered, then dropped softly with a gentle roll to the left.

The effect of flaps on all of the handling and stalls was, for some reason, much less than with a normal Skylane. As I found later in landings, even full flaps didn't drive the nose down. Also, the stall speed with flaps down doesn't change enough to be worth talking about. Very strange. In talking with Peterson, he said the effect of the canard, as they found out with the Wren, is really quite startling at speeds under 60 knots, and some of it is nearly unexplainable from an engineering standpoint. They know it unloads the horizontal tail and contributes some lift at higher angles of attack, but beyond that, most of what they know came from empirical flight testing for certification.

Castleberry said that Peterson likes to use 55 knots as the best all-around loiter speed. In fact, the airplane has a 13.6-hour endurance (!) at 60 knots, according to the handbook. Setting up 55 knots used practically no power and most of the trim, but it would sit there, with plenty of visibility over the nose, and let you fly it as if it was indicating 150 knots, not 55 knots. Every aspect of its handling personality, including steep turns, was dead normal, except it was burning a ridiculously small amount of gas. And speaking of turns: Its measured turning radius at 55 knots is only 350 feet.

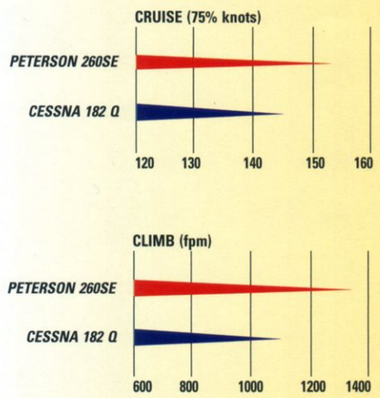
On our first approach, I misjudged the amount of tailwind and came in much too high, so I threw out 40 degrees of flap and asked Castleberry if it could be slipped in this configuration. He nodded, so I gradually worked it into a full-deflection slip at about 60 knots. The airplane acted as if it had been doing this its entire life and slid into a slip without a hint of buffeting or airflow interference with the tail.

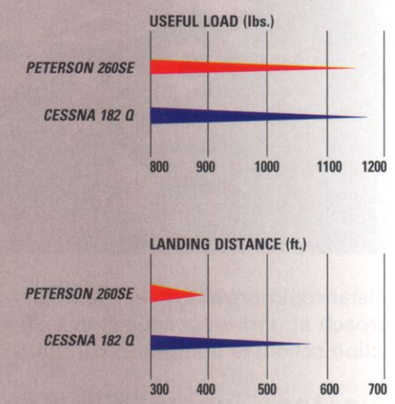
On the next approach, I backed it out just a little bit further and set up for a flaps-20, 60-knot approach. This turned out to be a no-brainer, as it was basically the same as any other Skylane, but with entirely too much float. So, next time around, it was 55 knots. It was much happier at this speed and, as I brought the nose up to hold it off the runway, I was carefully monitoring the way the nose was reacting because I half-expected it to run out of elevator and flop onto the runway. This time, however, it was still dead normal.

FACTORY COMPARISON

	PETERSON SKYLANE 260SE	1979 CESSNA 182 Q
Price (comparably equipped):	$200,000	$110,000
Engine Horsepower:	260	230
Gross Weight (lbs.):	2950	2950
Std. Empty Weight (lbs.):	1800	1754
Useful Load (lbs.):	1150	1196
Fuel Capacity (gals.):	88	88
Payload, Full Fuel (lbs.):	622	671
Max Cruise, Best Economy (kts.):	153	144
Climb Rate (fpm):	1380	1010
Stall Speed, Dirty (kts.):	35	50
Cabin Width (in.):	42	42
Cabin Height (in.):	48.5	48.5

Source: Manufacturer’s Specifications





At 50 knots, I began to sense a subtle change in the way it flared. During this entire exercise, I was using the runway numbers as the aiming point, hoping, if not to land on them, to at least be close. On previous approaches, I had used power (just the tiniest amount was necessary) to center the numbers in the windshield, but as I started to flare, the power had to come off immediately. At 50 knots, as the nose came up, just a hint of power was necessary to aid in the flair, and I saw immediately how much more control of the airplane you have when it's slower. At 45 knots, the airplane is still totally solid, but it likes just a bit of power in the flare-and it's so precise, you can thread a needle with it.

One of the things I immediately noticed about the airplane was how smooth and slick all of the controls felt. Peterson will do the conversions two ways, the most popular being a totally refurbished 1972-74 model in which he basically remanufactures the airframe while doing the mods, which includes aerodynamic cleanups around the gear and exhaust system. Castleberry's airplane was one of the refurbished airplanes, and it felt like it. It was much smoother in every way than even a new airplane. Peterson says that if he's going to simply modify an airplane, he prefers to work with a 1979 or '80 model. Generally, he has aircraft in stock to be modified, or you can bring your own. The cost of the conversion, including factory-new engine and prop, is about $80,000, while the price of a refurbished airplane out the door generally runs about $200,000. They're doing one airplane a month, and the waiting list is at least six to eight months long.

Peterson notes that only a very small percentage of his airplanes is used as STOL aircraft or will ever see serious unimproved runways. Only 5% of the buyers go for the "Bushmaster" conversion, which includes 8.00 x 6 tires on the mains and a 6.00 x 6 nose gear and heavy axles. Most of his purchasers buy the 260SE because they want an airplane that's at least 10 knots faster than a stock Skylane (individual airplanes vary, but 148 to 158 knots is the range), but one that has such good slow-speed manners that flying the airplane is simply safer. The market apparently likes the same combination because the converted airplanes hold their value well.

Probably the biggest endorsement of his product, according to Peterson, is that "owners seem to hang onto the airplanes for a long time. They like them, so they keep them, and that makes me feel good." P&P

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For more aircraft specs, see our Website at

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The Great American Dream

Stall Speed	35 kts
Cruise Speed	150 kts
Takeoff Distance	390 ft

The 260SE/STOL provides fast, luxurious transportation, and superb short-field capability with unparalleled safety. Through advanced aerodynamics, the 260SE/STOL flies slow in a safe, flat attitude just like a fixed wing helicopter.

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