



Swearingen SX300

Serious fun

Worthy of aeronautical lust

BY RICK DURDEN

We are level at 10,000 feet on an IFR clearance to Tulsa, Oklahoma, when we get the call from ATC: "Experimental Niner-Echo-Echo, say type aircraft."

In the other seat, owner Stan Musick replies, "It's a Swearingen SX300; a two-seat, retractable."

"Oh, yeah, I know that one," replies ATC. "What a hot rod. I had to ask—you're really moving."

We have a three-knot tailwind and have just impressed a controller.

According to the Grand Rapids Technologies EFIS in front of us, we, in a piston single, are whistling along at 242 KTAS.

Adding to the visceral excitement of this kind of speed is the deep satisfaction of burning just 16.4 gph, for an efficiency of 14.9 nm per gallon. I've rarely seen any airplane get above 12 nm per gallon, which is excellent considering the advantages of going direct versus winding around on roads in a car, and I've never seen this kind of efficiency at anything near this speed except in a dedicated CAFE racer.

Musick then comments that when he flies the CAF's P-51 Mustang, *Red Nose*, he figures on a cruise speed of about 10 knots faster, but with a somewhat greater fuel burn of 60 gph.

PHOTOGRAPHY BY MIKE FIZER

We are near the end of a two-day trip that is taking us across half the country. Most of the trip has been in or on top of IFR weather, but it did clear off long enough yesterday for me to have a chance to toss the SX around. Musick's remark about the P-51 crystallizes my thoughts—I've been looking for a suitable comparison to this rocket.

Aerobatic to plus 6 and minus 3 Gs, the SX has slightly lighter stick forces than the P-51, will also load significant Gs with a gentle tug, and has the same excellent maneuverability and feeling of plenty of excess power during aerobatics—but without the P-51's nasty accelerated stall behavior and lack of stall warning. The SX300 does roll off at the stall, but it gives boatloads of buffeting and shaking before it lets go. Rolls are glorious affairs with the bubble canopy opening the world to view as you rotate. Although to a lesser extent than the Mustang, the significant P-factor of the SX means you have to be willing to use the rudder during any speed or power change, and it can take determination to keep the ball centered in a climb or dive.

In cruise, as with the Mustang, the SX requires constant effort to fly level and takes work to hold altitude within 100 feet.

The astonishingly high wing loading of the SX, 33.93 pounds per square foot (the P-51 combat wing loading was 39 pounds per square foot; a Cessna 172 has a wing loading of 14.08 pounds per square foot), helps explain why the airplane compares to a World War II fighter in terms of performance and handling as well as the serious respect that has to be given when stepping into it. It cannot meet stability and control requirements of a production airplane under the federal aviation regulations and does not always behave as a pilot used to Part 23 certified airplanes would expect. There have been slightly more than 40 built; about eight have crashed, most apparently because of lack of understanding of the demands of the airplane. The kits are no longer available.

Other than routine

The SX300 was the creation of the fertile mind of Ed Swearingen, known for





Two of the three screens for the Grand Rapids Technologies Horizon 1 display are in front of the pilot (top left); the control stick has buttons to transmit, disconnect the autopilot, record and display incoming radio transmissions, flip radio frequencies, select the radio transmitter, and squawk ident; the uncluttered panel with a three-screen Horizon 1 EFIS display (below left); the 41-inch-wide cabin is luxurious (above).

designing airplanes that move, including the turboprop Merlin/Metroliner series and the SJ30 jet. In the 1980s, Swearingen developed the two-place homebuilt as a blisteringly fast personal transportation machine. Some 80 kits were sold, although reportedly only 48 sets of landing gear were made by the vendor.

With the limited number of airplanes, and therefore parts—as well as the need for significant education before flying one's own SX (not to mention meeting requirements to obtain insurance)—it is fortunate that there is a strong owners' organization (www.sx300group.org) that provides technical support for flying, care, and feeding of the aircraft and has a parts pool in which an owner can participate.

Thinking back from the present to yesterday morning and my introduction to the aircraft, the first glimpse provided notice that the SX was going to be something other than routine to fly. Just sitting on the ramp, its angular lines and rakishly swept vertical tail seemed to issue a challenge, "Think you can handle this stuff?"

A 300-horsepower Lycoming engine

turning a hefty-looking three-blade Hartzell prop is tightly faired in a cowl with what are obviously minimum apertures for intake and cooling air. The airframe is strikingly robust, with utterly smooth, thick, load-carrying skin. The splayed forward and outward main landing gear retracts aft, entirely within the fuselage, minimizing wing structure and thickness. Although narrow, I found that the combination of the low center of gravity of the airplane, effective flight controls, and the direct-link nosewheel steering resulted in a solid feel in crosswinds and ground operations.

The beautifully appointed, 41-inch-wide cabin is surprisingly roomy for an airplane intentionally built to minimize frontal area. The seating position is well reclined, as one might expect in a fighter, and there is adequate head and leg room for my six-foot, four-inch frame. With a 2,400-pound gross weight, a 1,600-pound empty weight, and 66 gallons of fuel usable, the rule of thumb for the SX300 is that 400 pounds may be carried in the cabin with full fuel. There is a baggage compartment

SPECSHEET

SX300

\$225,000 as equipped

Specifications

Powerplant.....	300 hp Lycoming IO-540-L1C5
Propeller.....	Hartzell 3-blade
Length.....	21 feet 1.5 inches
Height.....	7 feet 6.5 inches
Wingspan.....	24 feet 4.5 inches
Wing loading.....	33.93 pounds/square foot
Power loading.....	8 pounds/horsepower
Cabin width.....	41 inches
Empty weight.....	1,600 pounds
Max ramp weight.....	2,400 pounds
Useful load.....	800 pounds
Payload with full fuel.....	404 pounds
Max takeoff weight.....	2,400 pounds
Fuel capacity.....	66 gal usable
Baggage capacity.....	70 pounds

Performance

Rate of climb, sea level.....	2,400 fpm
Cruise speed, @ 75% power.....	245 knots
Fuel consumption @ 74% power.....	17 gph

Limiting and Recommended Airspeeds

V_x (best angle of climb, flaps 0 deg)....	105 KIAS
V_y (best rate of climb, flaps 0 deg)....	125 KIAS
V_A (design maneuvering).....	213 KIAS
V_{FE} (max flap extended).....	139 KIAS
V_{LO} (max gear operating).....	145 KIAS
V_{NE} (never exceed).....	280 KIAS
V_S (stall, clean).....	91 KIAS
V_{SO} (stall, in landing configuration).....	75 KIAS

behind the seats that is quite adequate for gear for two; maximum weight is 70 pounds.

Once inside, the canopy is closed and latched before startup. An inflatable seal helps cut noise once the Lycoming has been lit off and is rumbling contentedly. Then, the avionics are powered up, and the AHRS of the Horizon 1 system is given time to align.

Runup is conventional, with pitch trim set for takeoff (there is no rudder or aileron trim) and flaps set at 15 degrees. Flaps make a big difference in takeoff distance. One shortcoming of the airplane is a lack of published performance data; suffice to say that the ground roll on a flaps-up takeoff will eat up most of a 4,000-foot runway.

Takeoff is what you would expect from a power loading of eight pounds per horsepower—a fix for any acceleration junkie. Once the throttle reached the stop and I'd fed in plenty of right rudder to keep us on the centerline, it was time to slide in the ram air control knob on the right side of the quad-

rant to bypass the air filter and give us about two more inches of manifold pressure.

Seated with eyes only a few feet above the ground, the rotation speed of 80 knots felt far faster. I raised the nose to what felt to be a steep climb attitude, and the airplane continued to roll some distance before flying off at just above 100 knots. I raised the gear right away, first moving the handle aft to open the gear doors and then up to complete the sequence.

Approaching best rate of climb speed of 125 KIAS, the flaps came up and the rate of climb went through 2,000 fpm. Later, letting the speed build to a cruise climb of 200 KIAS, I was amazed to see the rate of climb still a solid 1,000 fpm.

Rough ride

Returning to current events from my thoughts of yesterday's flying, there is

a narrow, dissipating line of weather ahead, promising a rough ride.

A call to ATC gives us a block altitude to 14,000 feet. Without touching power I pitch up slightly and less than four minutes later am level at 14,000 feet, still doing well more than 230 KTAS in a nonturbocharged airplane. Amazing. Yesterday we'd flown at 6,000 feet at 245 KTAS. Fast down low, fast up high.

The altitude keeps us in the clear, and the speed makes short work of the weather below us. Within 10 minutes we are descending back to 10,000 feet, where we remain clear of clouds until ATC starts us down for the ILS into Tulsa.

The light controls mean that flying the ILS requires a great deal of concentration and a fair amount of work, because the SX does not stay where you put it. Runway in sight and over the threshold, I select full flaps and slow to 95 knots (the same as a P-51).

Think you can handle this stuff? A three-blade Hartzell prop swung by a 300-horsepower Lycoming powers the aerobatic SX300 to a more than 240-knot cruise.





Control forces are light; maneuvering is a delight (top). The main landing gear is splayed forward to help absorb landing loads and widen the track, retracting aft to be fully enclosed (above); the nose gear is on a direct linkage for positive ground handling (right).



Although that seems fast, the full-flap stall speed is 75 KIAS. From practice, I've learned that the gear-and-flaps-down sink rate can become prodigious. Flying the SX300 once again today, smoothly pulling the throttle to idle and then flaring to an aggressively nose-high attitude brings a smooth touchdown before a long rollout. With obstructions, I'd be cautious of any runway less than 4,000 feet long.

I want one

Taxiing in, the SX300 draws appreciative looks. This is an aircraft to inspire aeronautical lust. After shutdown, listening to the patter of light rain on the canopy, my overwhelming feeling is that this is a serious airplane for a pilot willing to remain at the top of her or his game. It demands much, it gives even more.

I want one, yet I know that these beauties change hands only rarely—but, someday. Someday.

AOPA

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