



# Skyhawk SP flies on

The most popular GA airplane gets better

BY NATHAN A. FERGUSON

I thought this was going to be a case of déjà vu. Hadn't I flown Skyhawks before? Well, yes and no. The Cessna Aircraft Company has continued to make a lot of improvements to the 172S Skyhawk SP. From the standard leather interior to the latest avionics, Cessna has breathed new life into an airplane model that was introduced in 1956.

Following the difficulties of restarting production of single-engine pistons—"starting all over

again" might be a better way of putting it—dealing with a flurry of airworthiness directives (ADs) and accusations of "building the same old airplanes," Cessna has created something that performs better, is quieter inside and out, and has modern safety features. The biggest changes to the airplane since we first visited it when it was introduced in 1998 (see "Cessna Skyhawk SP: Ponying Up the Skyhawk," September 1998 *Pilot*) are in the instrument panel, which looks like it belongs in a

**Once the autopilot is disengaged, the airplane flies just like a Skyhawk should; it's stable and predictable with no mean streaks or manic psychotic episodes.**



business jet when decked out with all the optional equipment, and the two-axis autopilot is a quantum leap from the old single-axis version that only kept the wings level.

One of Cessna's biggest competitors is its own aircraft. Just look around the ramp at your home airport and count how many old Skyhawks you see. These are owned by people who pronounce it "Cezzna" and have diamond shapes stamped into their foreheads from walking into the trailing edge of the flaps. *AOPA Pilot's* own unscientific research found several Skyhawks with more than 20,000 airframe hours. This is one venerable airplane.

With this in mind, Cessna knew it had its work cut out for it when it launched the 180-horsepower 172S Skyhawk SP (the SP stands for *special performance*) as a follow-up to the less sprightly 160-hp R model. (Cessna goes in alphabetical order when it assigns letters to models.) Both airplanes feature the same fuel-injected Lycoming IO-360 engine, but the SP has a higher-pitch prop and the engine redlines at 2,700 rpm instead of 2,400, meaning it can generate more horsepower. The SP also has a higher maximum gross weight, translating into a 99-pound useful load increase that brought it to 831 pounds in our test airplane. Both models also have dual engine-driven vacuum pumps and electric fuel boost pumps as standard equipment, as well as beefier seat rails borrowed from the Caravan line that lock the 26-G front seats firmly in place.

The new Skyhawk models have improved air vents built into the interior treatment rather than the cylindrical "tin can" kind in the much earlier Cessna models that come flying

out of the wing roots when you pull too hard. Air conditioning is now an option for \$20,300 and has apparently piqued the interest of flight schools in the South. Since Cessna wanted to reduce cabin noise it did something that you'll probably never see unless you rip up the interior. Starting with the R model the company glued thin sheets of aluminum and foam along the floor, sidewalls, and into the tail cone, a higher-tech and more environmentally friendly solution compared to the old tar-based system of the past. Besides reducing vibration this gives the airframe a more solid feel by minimizing "oil canning" where the skin flexes in the breeze. Just go up to your friend's new Skyhawk and start knocking on the fuselage. As you work your way back to the tail past the baggage door it will suddenly sound hollow. That's where the pieces stop and your friend gets angry. The windows are tinted and made of thicker acrylic and, combined with the soundproofing material and low-revving engines, make for a much quieter cabin. I took off the headset during our test flight and was able to carry on a conversation with Joe Stewart, a Cessna sales representative, without shouting.

To understand how all this came about, we visited the factory on the prairie in Independence, Kansas. When Cessna restarted production in 1996 after a decade-long hiatus, it decided to bring back the "sure hits," the Skyhawk, 182 Skylane, and 206 Stationair. But what about the 152? Cessna officials said that it would cost just as much to build the 152 as it would the 172, plus flight schools wouldn't have the option of putting an observer in the backseat.



The Honeywell Bendix/King avionics suite brings a new level of safety to the general aviation cockpit with weather, traffic, and terrain data available on one display.



Following the economic downturn and the September 11, 2001, terrorist attacks Cessna realized that it had to get lean, explained Terry Clark, Cessna's general manager in Independence. That's when the company continued its efforts to employ lean manufacturing techniques that were originally developed in Japan to improve efficiency and eliminate waste. Cessna, for instance, drew spaghetti diagrams where workers' movements were observed and charted. By the end of the day, with curved lines going everywhere, you end up with a lot of pasta. Wasted motion is a bad thing for a company on a diet. Cessna then took steps to redesign workspaces. With these new lean tools, Cessna workers began to think outside the cookie jar and came up with other ways to improve efficiency, such as installing the prop on the airplane farther down the assembly line. This, as you probably know from bumping your own head, reduced the number of bruises and walkaround time for workers. Cessna believes that by making this simple change it freed up \$150,000 annually in inventory costs from not having to stock the propellers for so long.

By aligning things according to function instead of aircraft model, Cessna also was able to consolidate the production of all three of its single-engine aircraft by running them down the same final assembly line. All this lean thinking freed up 50,000 square feet of space or about half a soccer field. This is

enough room to build a new airplane, something Cessna officials hinted at but weren't ready to announce. The factory is now called "Cessna Independence" instead of "Cessna Single Engine." Hmm.

**Leather interiors (left) are standard in Skyhawk SPs. Terry Clark (top center), general manager of Cessna's Independence, Kansas, factory, has put the operation on a diet. Taking delivery of a new airplane (lower center) can be the highlight of one's life. Cessna was able to consolidate manufacturing by running all three of its piston aircraft down the same final assembly line (right).**

enough room to build a new airplane, something Cessna officials hinted at but weren't ready to announce. The factory is now called "Cessna Independence" instead of "Cessna Single Engine." Hmm.

What does all this mean to you? Cessna says it means higher-quality airplanes, judging by its own customer-satisfaction surveys, and less rework at the end of the line. Cessna test pilots also have reported fewer squawks. The company's goal now is to reduce building time by 25 percent, Clark said.

But Cessna is not only selling an airplane, it's also selling a whole training package that allows people who have never flown before to start from scratch and move all the way up to an instrument rating in the same airplane. In partnership with King Schools, Cessna provides a computer-based instruction (CBI) system in three levels: "Cleared for Takeoff" for private pilots; "Cleared for Approach" for instrument pilots; and "Cleared for Hire" for commercial pilots (as long as you have a complex airplane to train in). The secret of the



program, Cessna officials say, is multisensory stimulation that allows the mind to retain more information. Interactive quizzes keep students engaged while they can preview lessons before the next flight. John and Martha King fly a Skyhawk with the same avionics in the video sections, so it should all seem familiar. Brumley Smith, Cessna Pilot Centers manager, said that based on the company's internal research, the program substantially reduces the time it takes to earn a private pilot certificate. Since flight instructors keep records of their students' progress, Smith believes it helps solve a problem in general aviation when the airlines are hiring—the revolving flight school door. If your instructor suddenly disappears, the next one can pick up right where the last one left off.

The integrated training approach is something you'll see at your local Cessna Pilot Center (CPC). This is a program that has been growing since it was started in 1970. There are now 265 CPCs in the United States and 15 abroad. Each CPC is required to meet certain standards such as having at least one Skyhawk on the field that is less than two years old. Cessna also provides leads for potential students to member schools and coaches the schools on how to better market themselves.

While training is core to Cessna, so are the students who become buyers. For personal transportation Cessna offers avionics that greatly reduce pilot workload. Once you have

earned a stiff piece of cardboard signed by FAA Administrator Marion Blakey you can do all the things instructors didn't want you to do in training, such as turning on the autopilot and going GPS direct. Stewart and I used the Honeywell Bendix/King KAP 140 autopilot to fly a coupled ILS approach. All of this was shown on a colorful KMD 550 multifunction display (MFD) that lays it all out for you on a moving map, making it hard to get turned around no matter how many loops the controllers throw you. With altitude preselect on the autopilot you don't need to worry about blowing through your assigned altitude. When you are within 1,000 feet it beeps, then levels out right on the dot.

Once the autopilot is disengaged, the airplane flies just like a Skyhawk should; it's stable and predictable with no mean streaks or manic psychotic episodes. Performance figures were as advertised or slightly better considering the fact that we were under gross weight. This is not surprising for a clean airplane and new engine. Cessna derives its performance figures by loading the airplanes to gross weight and full-forward CG. But don't look for dramatic increases in performance with the 20 extra horses in the SP. The 124-knot cruise speed with a 75-percent power setting at 8,500 feet is only 2 kt faster than the R model and there is only a slight improvement on the rest of the performance spectrum. The



## SPECSHEET

### Skyhawk SP

Base price: \$159,900

Price as tested: \$194,400

#### Specifications

Powerplant	180-hp Lycoming IO-360-L2A
Recommended TBO	2,000 hr
Propeller	McCaughey two-blade, fixed-pitch, 76-in dia
Length	27 ft 2 in
Height	8 ft 11 in
Wingspan	36 ft 1 in
Wing area	174 sq ft
Wing loading	14.7 lb/sq ft
Power loading	14.2 lb/hp
Seats	4
Cabin length	11 ft 10 in
Cabin width	3 ft 3.5 in
Cabin height	4 ft
Empty weight	1,644 lb
Empty weight, as tested	1,727 lb
Max gross weight	2,558 lb
Useful load	914 lb
Useful load, as tested	831 lb
Payload w/full fuel	596 lb
Payload w/full fuel, as tested	513 lb
Max takeoff weight	2,550 lb
Max landing weight	2,550 lb
Fuel capacity, std	56 gal (53 gal usable)
	336 lb (318 lb usable)
Oil capacity	8 qt
Baggage capacity	120 lb, 5.2 cu ft

#### Performance

Takeoff distance, ground roll	960 ft
Takeoff distance over 50-ft obstacle	1,630 ft
Max demonstrated crosswind component	15 kt

Rate of climb, sea level	730 fpm
Max level speed, sea level	126 kt
Cruise speed/endurance w/45-min rsv, std fuel (fuel consumption) @ 75% power, best economy, 8,000 ft	122 kt/4.2 hr (59 pph/9.9 gph)
Service ceiling	14,000 ft
Landing distance over 50-ft obstacle	1,335 ft
Landing distance, ground roll	575 ft

#### Limiting and Recommended Airspeeds

V <sub>R</sub> (rotation)	55 KIAS
V <sub>X</sub> (best angle of climb)	62 KIAS
V <sub>Y</sub> (best rate of climb)	74 KIAS
V <sub>A</sub> (design maneuvering)	105 KIAS
V <sub>FE</sub> (max flap extended)	110 KIAS
V <sub>NO</sub> (max structural cruising)	129 KIAS
V <sub>NE</sub> (never exceed)	163 KIAS
V <sub>S1</sub> (stall, clean)	48 KIAS
V <sub>SO</sub> (stall, in landing configuration)	40 KIAS

For more information, contact Cessna Aircraft Company, 2603 South Hoover Road, Wichita, Kansas 67215; telephone 800/4-Cessna or 316/517-6056; fax 620/332-0388; or visit the Web site ([www.se.cessna.com](http://www.se.cessna.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.

sea-level rate of climb goes from 720 fpm to 730 fpm. For western pilots at high altitude, though, it could mean the difference between clearing the trees and trimming them.

Standard Bendix/King avionics include a single nav/com, KMA 28

audio panel, transponder, and an avionics cooling fan. The Nav I package adds an IFR-certified KLN 94 GPS with color moving map and a second nav/com with glideslope, bringing the total to \$169,600. The Nav II package adds a two-axis autopilot for a grand total of

\$181,900. The MFD (\$6,800), ADF (\$5,700), and a KCS 55A horizontal situation indicator (\$13,500) are options.

The test airplane we used for this pilot report was only cable-ready—wired up for the weather option. To get a taste for what it would be like if you had nearly every option that's available on your Skyhawk, Cessna sales representative Steve Kent and I flew a new turbocharged T182T from Independence to AOPA headquarters in Frederick, Maryland. The airplane had an HSI and a Stormscope. By pushing large buttons on the MFD you can go from "map" to "weather" to "traffic" to "terrain."

One of the most amazing things about it is that there's no hesitation as you go from screen to screen. Using the weather function you can zoom out and get a picture of what's going on in the United States. Then you can use the joystick to go to a specific area and zoom in. The weather system uses a KDR 510 datalink receiver to uplink information such as pireps, terminal forecasts, surface observations, and Nexrad color radar from Bendix/King's Wingman Flight Information Service for a monthly subscription fee. We were in solid IFR for more than an hour, but we could look at the weather map and estimate when we would leave the big green blobs of precipitation.



The TCAS-style traffic function did not display many threatening targets until we neared the East Coast. We were at Flight Level 190 sucking oxygen for most of the flight, a place where few other piston folks venture. Once we descended, the fish finder came alive. It can display up to 30 targets and track 60 by interrogating transponders on other aircraft. Combining traffic data with the KGP 560 enhanced ground proximity warning system makes it pretty hard to hit anything. This is particularly important when you are preparing for a difficult approach after a long flight.

The Skyhawk has come a long way since 1956. For many, the airplane represents their first contact with general aviation. But the new avionics usher in a whole new era of flying where

**i** Links to additional information about Cessna aircraft may be found on AOPA Online ([www.aopa.org/pilot/links.shtml](http://www.aopa.org/pilot/links.shtml)).

the pilot acts as a system administrator surrounded by a bubble of safety and security. It almost gives you a God complex to have so much information at your fingertips.

Just don't bump your head.

**AOPA**

*E-mail the author at [nate.ferguson@aopa.org](mailto:nate.ferguson@aopa.org)*