g plane

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The CT is among the very first batch of light airplanes certified under the new Light Sport Airplane (LSA) category rules. These specify that a driver's license. There is a caveat, however: You can't have been denied your most recent FAA medical certificate application, or have had your most recent medical revoked or suspended. Oh, and for pilots who don't already hold FAA pilot certificates, knowledge and practical tests must be passed. Pilots holding conventional

Light Sport

Light Sport Aircraft

Little big plane

The Flight Design CT: small on the outside, big on the inside

BY THOMAS A. HORNE

PHOTOGRAPHY BY JIM RAYCROFT

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The CT is among the very first batch of light airplanes certified under the new Light Sport Airplane (LSA) category rules. These specify that LSAs have a maximum gross takeoff weight of no more than 1,320 pounds (in the case of landplanes), a never-exceed airspeed of no more than 120 knots, and a stall speed of no more than 45 knots. LSAs also must have fixed landing gear, a single engine, a fixed-pitch propeller, and no more than two seats. The intent of these rules is to create airplanes for pilots holding a sport pilot certificate. Sport pilots don't need an FAA medical certificate to fly LSAs—they can qualify by having a driver's license. There is a caveat, however: You can't have been denied your most recent FAA medical certificate application, or have had your most recent medical revoked or suspended. Oh, and for pilots who don't already hold FAA pilot certificates, knowledge and practical tests must be passed. Pilots holding conventional certificates and medicals are of course authorized to fly these simple airplanes.

The whole idea is to reduce the cost and complexity of certifying and flying recreational airplanes. As the LSA movement grows it's hoped that more pilots will be drawn to these new aircraft—both new pilots and those "downsizing" from Part 23 airplanes as well as those facing the prospect of compromised medical certificates, will be lured back to the skies.

SPECSHEET

Flight Design CTSW

Base price: $79,000
Price as tested: $85,000

Specifications

Powerplant	Rotax 912 ULS, 4 stroke, 4 cyl, 100 hp
Recommended TBO	1,500 hr
Propeller	Neuform 2-blade composite, ground adjustable
Recommended TBO	500 hr
Length	20 ft 4 in
Height	7 ft 11 in
Wingspan	28 ft
Wing area	107.4 sq ft
Wing loading	12.19 lb/sq ft
Power loading	13.1 lb/hp
Seats	2
Standard empty weight	649 lb
Max takeoff weight	1,310 lb
Max useful load	661 lb
Max payload w/full fuel	455 lb
Fuel capacity, std	34.3 gal
Baggage capacity, aft fuselage compartments	110 lb

Performance

Takeoff distance, ground roll	295 ft
Takeoff distance over 50-ft obstacle	762 ft
Maximum demonstrated crosswind component	
minus-6- to 15-degree flaps	16-13 kt
30- to 40-degree flaps	13-11 kt
Maximum rate of climb, sea level	960 fpm
Cruise speed/range w/no reserve (fuel consumption)	
@ 75% power, 5,200 engine rpm	112 kt/783 nm (4.7 gph)
Service ceiling	14,000 ft
Landing distance over 50-ft obstacle	967 ft

Limiting and Recommended Airspeeds

V_X (best angle of climb)	66 KIAS
V_Y (best rate of climb)	78 KIAS
V_A (design maneuvering)	99 KIAS
V_G (gust penetration)	132 KIAS
V_{FE} (max flap extended),	
0-degree flaps	100 KIAS
15- to 40-degree flaps	80 KIAS
V_{NE} (never exceed)	145 KIAS
V_R (rotation)	57 KIAS
V_{S1} (stall, clean)	44 KIAS
V_{SO} (stall, in landing configuration)	39 KIAS

For more information, contact Flight Design, Post Office Box 760, Ellington, Connecticut 06029; 860/875-8185; www.flightdesignusa.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.

Large, gull-wing doors ease access to the egg-shape cabin. The doors lock with a three-point latch.

The CT can make sense for this hoped-for new batch of pilots. Though it may look toylike, it's a solid performer with few quirks and many attributes.

The CT stands for *composite technology*, and the airplane has it in spades. Carbon fiber dominates, right down to the spar caps (the spar web is fiberglass). The propeller is a carbon-fiber/foam construction. The cabin enclosure is made of a Kevlar and carbon-fiber shell, with a foam sandwich in between. This gives the passenger compartment an extra measure of crashworthiness. For even more protection, a Ballistic Recovery Systems' BRS 1350 ballistic parachute system can be installed as a $4,350 option. Its actuating handle is at the aft cabin bulkhead, between the seats.

The wings are highly cambered and super-smooth, and derived from the Wortmann family of sailplane wing profiles. Pushrods activate the ailerons, cables actuate the rudder, and a combination teleflex- and conventional-cable setup works the stabilator and stabilator trim. This redundancy lets the pilot use pitch-trim inputs for controlling the stabilator should the control stick's stabilator linkage somehow fail.

Fast-acting, electrically actuated flaps include 15-, 30-, and 40-degree deflections, plus a minus 6-degree setting for maximum speeds in cruise.

The long and short of it

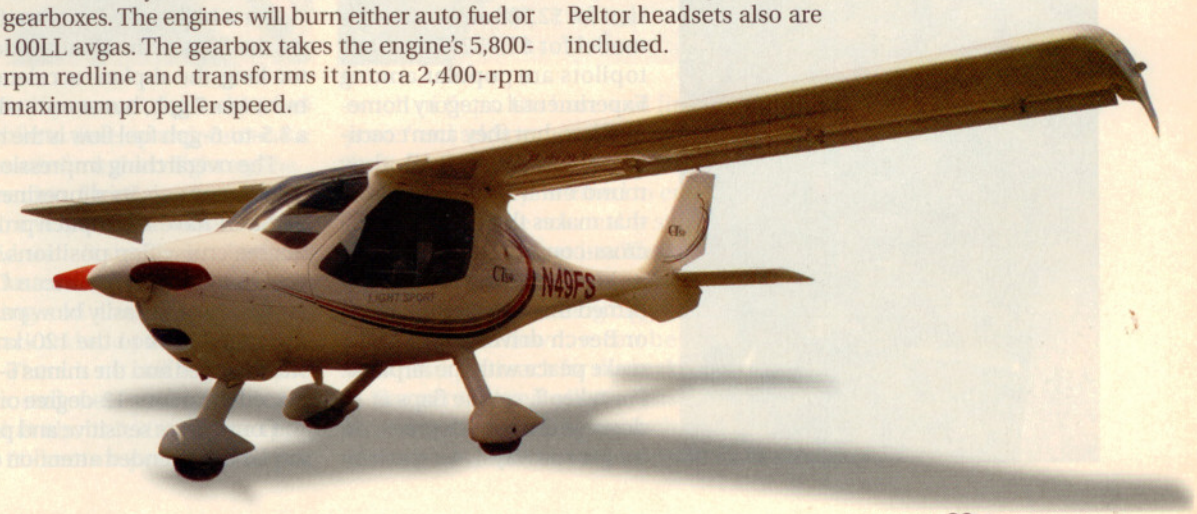
The CT is offered in both long-wing (the CT2K, with a 30-foot, 6-inch wingspan) and short-wing (the CTSW, with a 28-foot span) versions. The more responsive SW is by far the sales leader, with 35 units delivered in the United States so far. Only one long-wing CT has been sold. Base prices for both are identical: $79,000.

For power, the CT uses either a 100-horsepower Rotax 912 ULS engine (a very popular $3,339 option) or the standard 80-horsepower Rotax 912 UL engine. These have dual Ducati electronic ignition systems, dual Bing carburetors, carburetor heat, liquid-cooled cylinder heads, and reduction-drive gearboxes. The engines will burn either auto fuel or 100LL avgas. The gearbox takes the engine's 5,800-rpm redline and transforms it into a 2,400-rpm maximum propeller speed.

You enter the egg-shape cabin by first sitting on the edge of the seat, then swinging your legs in. The large gull-wing doors make this an easy procedure, and once you're inside you can secure the door with its three-point latching mechanism. There are seat belts with two shoulder straps each, and the leather seats can be adjusted fore and aft.

The controls and instrument panel have a helicopter look, what with the electrical switches running down the center and the flight and other instruments arranged in a horizontal, pod-shape enclosure. The basic airplane comes with the bare minimum of instruments needed for VFR flight. Some—like the Winter airspeed indicator—also are used in sailplanes. So far, Flight Design hasn't settled on a standardized instrument installation, but sources say that soon the switch will be made to the basic "six-pack" gauge layout that all of us know. Two other avionics packages, of escalating capability, also will be added to the order sheet.

The airplane flown for this article came with some nice options: a Dynon Avionics D10A EFIS (electronic flight information system; $2,718), an AvMap EKP-IV moving-map GPS ($1,951), and a FlyDat digital engine data display system ($442). A Honeywell Bendix/King KT 76A Mode C transponder also was installed, as was a Bendix/King KY 97A com radio, a Sigtronics intercom, and an emergency locator transmitter. Two Peltor headsets also are included.



A Dynon EFIS, AvMap EKP-IV moving-map GPS, and Flydat engine information monitor distinguish this CT's panel (above). The Winter sailplane-style airspeed indicator is due to be replaced by a U.S.-standard model. The "–6" on the center console readout refers to the flap setting (below).

The EFIS, with its electronic attitude indicator and vertical tape presentations of airspeed, altitude, and vertical speed, may seem incongruous in a sport airplane like the CT, but Flight Design's U.S. importer and project manager Tom Peghiny says, "It's what people want. I've had people ask for Garmin [GPSMap] 296s installed, too—along with a Garmin [GNS] 430. And some ask about IFR certification." The CT is only approved for day- and night-VFR operations, but an IFR version isn't out of the question.

The AvMap EKP-IV is equally advanced, with a 7-inch screen, Jeppesen database, customizable display screens, and calculator and checklist functions. The FlyDat shows engine temperatures and other system parameters. And what's this? The price sheet also lists a couple of Tru Track autopilots—a single-axis version for $2,386 and a two-axis model for $5,252. These autopilots are popular among Experimental category homebuilders, but they aren't certified for IFR use. Still, they round out a hefty options list that makes the CT a very nice cross-country cruiser indeed.

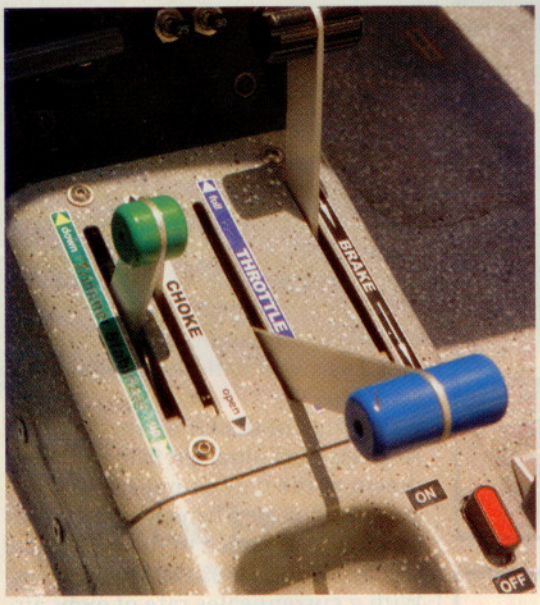
My flights in the CT confirmed that any Cessna, Piper, or Beech driver could easily make peace with the airplane. For takeoff, set the flaps at 15 degrees (or zero degrees, on longer runways), set the trim lever to the takeoff position (it uses detents), and perform all the other pretakeoff checks you'd normally make in any other airplane. There are a couple of quirks—like the trim lever, and the brake lever, which is located right next to the throttle lever. There are no toe brakes, but the rudder pedals are connected to the steerable nosewheel via direct linkages.

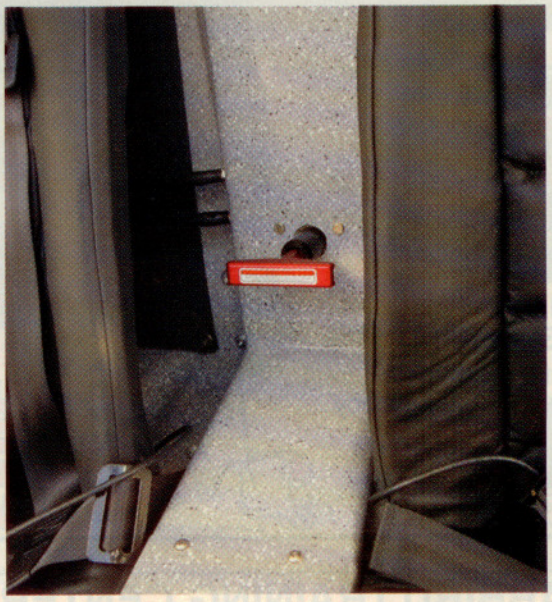
Then it's full power, begin exerting aft stick pressure at 45 to 50 knots, and climb away at the V_Y of 78 knots. With Peghiny, me, and full (34 gallons) fuel aboard we climbed away at 500 fpm or so on a hot day at Ellington Airport in Connecticut, which is Flight Design's U.S. import destination, and where Peghiny presides over Flightstar Sportplanes, a sport plane kit manufacturing company he founded in the 1980s. The company also sells and overhauls 60-horsepower HKS engines from Japan, which are aimed at the Experimental market.

For a high-speed run, we floored the Rotax and set the flaps at the minus 6-degree position. Before too long, the airplane accelerated to 120 knots. Fuel burn was 7 gph, but at normal cruise power settings a 3.5-to-6-gph fuel flow is the rule.

The overarching impression of this airplane—to me, anyway—is its slipperiness. European variants of the CT have lower-pitch propellers and minus 12-degree cruise flap positions, but if those features were retained on American CTs, Peghiny said, the airplane would easily blow past LSA limits. To bring the speed back to the 120-knot target, prop pitch was changed and the minus 6-degree flap setting replaced the minus 12-degree one.

Controls are sensitive and powerful, and if ever an airplane demanded attention to rudder, the CT is it.





The CT's cabin is wide and comfortable, and surrounded by a Kevlar and carbon-fiber enclosure designed for safety. Stabilizer trim lever (far left, green handle) and brake lever (far left, black handle) take some getting used to, but are very effective. To activate the optional BRS parachute system, pull on the red handle between the seats (left).

You can't have lazy feet if you want the rudder ball centered—it takes awhile to develop an intuition for the correct rudder pressure for a given flight regime.

Stalls were pretty benign. I tried one in the landing configuration with a very slow deceleration, and the airplane never did stall. It simply mushed at a high descent rate. A faster deceleration brought a pronounced buffeting and a minor wing drop. Lower the angle of attack and add power, and recovery is instantaneous. There is no stall horn, so you have to rely on somatic stall cues.

You fly downwind at about 3,200 engine rpm, which yields an 80- to 90-knot airspeed with the first notch of flaps. On base and final, keep reducing power and adding more flaps, while aiming for a 54-knot final approach speed, and 40 knots at the threshold. I always seemed to end up high on final, but I had a couple reasonably smooth landings and, well, a couple of drop-ins. The latter I'll attribute to my inadvertently duplicating the sight picture needed for flaring and landing bigger singles.

After touchdown, it can be easy to bump the throttle as you reach for the brake lever, so take care.

For certificated pilots transitioning to the CT, three hours of training are included in the price of the airplane. This should be more than enough to

learn the CT's ropes. Customers can come to Ellington for training, or Flight Design will arrange for an instructor to fly the airplane to their location. Five hours of dual instruction is the usual requirement for insurance. For a private pilot with 500 hours, premiums should run $3,000 per year for a million dollars' worth of liability and $90,000 of hull coverage.

Having soldiered through the ultralight phenomenon of the early 1980s, Peghiny feels that airplanes like the CT stand excellent chances of market receptivity. The LSA rules—which Peghiny was central in developing—lend a legitimacy that ultralights could never achieve. They combine the stricter regulatory goals of FAR Part 23 with the looser, more creative interpretations of the Experimental category, and use ASTM (American Society for Testing and Materials) guidelines.

So far, 370 CTs have been sold worldwide since its debut in 1997, and 34 have been delivered to U.S. customers via Flight Design's four American distributors: Flightstar; Lockwood Aviation Supply, Sebring, Florida; Airtime Aviation, Tulsa; and Flight Design West, Carson City, Nevada. Flight Design, a German company, makes the CT in the Ukraine.

Peghiny said, "Half of my customers come from backgrounds flying Bonanzas and big Cessna singles, and they're worried about their medical certificates. Some didn't renew their medicals, or have issues with special issuances. They'll say things like, 'I don't do that kind of flying anymore'—referring to long cross-countries or instrument flying—and 'I just want to fly for fun and make short trips.'"

The rest of the CT's prospects are step-ups from ultralight flying, or those drawn to the new composite and engine technology. There doesn't seem to be much resistance to the CT's price, which can reach $95,000 with options. With a current sales rate of eight airplanes a month and a goal of 120 airplanes per year, Flight Design hopes the CT will be the flagship of the LSA fleet. It's already proven itself in the European market. Will it capture the American imagination? AOPA

i Links to additional information about light sport aircraft may be found on AOPA Online (www.aopa.org/pilot/links.shtml).

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