



Welcome to Orange County Flight Center

The POH Summary for the Flight Design CTSW is attached. Please study it and review areas of concern using the Pilot's Operating Handbook/Airplane Flight Manual—available on OCFC's website at ocflightcenter.com—before you meet your instructor for the airplane checkout.

We have taken this reasonable approach to airplane checkouts in order to save you time and ensure that the material you study includes all of the airplane's nuances—elements that are often missed when one quickly reviews an aircraft's POH/AFM, which Flight Design calls the “Airplane Operating Instructions” manual.

During the checkout, your instructor will ask you questions about the airplane in order to ascertain that you have in fact acquired the proper knowledge. Your checkout will be complete after the instructor signs-off your dispatch record and you sign a statement acknowledging that you have studied the AOI Summary and resolved areas of concern using the airplane's AOI.

Flight Design is a German corporation, and the AOI differs from comparable American publications. For that reason, supplement information has been added to this document. Light Sport Airplanes are more sensitive to changes in atmospheric conditions and actions that increase drag. If you've flown conventional airplanes, don't be surprised if your checkout requires more than one flight. This airplane reinforces basic flying skills, and it will make you a better pilot.

Fly smart, fly safe,

The OCFC team



FLIGHT DESIGN CTSW

N459CT

POH SUMMARY

(revised 10/02/2010)

1. Aircraft structure: Conventional two seat, high-wing aircraft with three axis controls. The cantilevered wings incorporate integral fuel tanks, pushrod actuated ailerons, and slotted type flaps that extend downwards for slow speed flight and reflex upward six degrees for cruise flight. The aircraft has an all-moving stabilator, tricycle landing gear with a steerable nose-wheel, and trim controls for the stabilator, rudder, and ailerons. The primary structures are made of carbon fiber reinforced plastic.
2. Engine: Rotax 912 ULS. It is a four cylinder, dual carburetor, horizontally opposed, normally aspirated four-stroke engine that incorporates air cooled cylinders with liquid cooled heads. A choke control is located next to the throttle. Contrary to the old choke control on cars, this one just provides extra fuel for starting. In mild climates, place it full on for the first start of the day, and close it as soon as the engine starts. A 2.43 ratio gearbox reduces engine rpm to an efficient propeller rpm.
3. Horsepower rating: 100 hp@5,800 rpm that is limited to 5 minutes. Maximum continuous power is 95 hp@5,500 rpm. 75 percent power is 5,000 rpm.
4. Propeller: Neuform, CR3-65, 3-blade, fixed pitch, fiber composite.
5. Fuel system: Fuel in the vented fuel tanks flows to the single fuel shutoff valve in the cockpit to the gascolator (drainable) and fuel filter below the engine, to the engine driven fuel pump, and then to the carburetors and intake manifolds for the left and right cylinders. In the cockpit, there's a metal, calibrated fuel dipstick to determine fuel load, and at the wing roots there are sight gauges that indicate the fuel tank quantity for each tank when it's below 10 gallons. At cruise, the airplane burns less than 5 gallons per hour. The ignition key cannot be inserted unless the fuel lever is on.
6. Fuel drains and vents: Gascolator drain and vented fuel caps. Each cap has a vertical vent pipe attached that contains the vent opening, which must be facing forward.
7. Fuel capacity and type: Each wing's integral tank holds 17 gallons, 16.5 gallons useable. Total useable fuel is 33 gallons of 100LL.

8. Oil tank capacity: 6.4 pints maximum, 4.2 pints minimum. These values are not stated on the dipstick, but lines mark the maximum and minimum allowable levels.
9. Oil tank dipstick and engine coolant tank location: Inside the top cowling hatch.
10. Oil quantity checking procedure. Make certain the master switch is off and the ignition key is out. Remove the oil tank cover and rotate the propeller 3 to 4 complete revolutions in the direction of rotation until you hear air gurgling in the oil tank. This indicates that all sump oil has been returned to the oil tank. Now use the dipstick to check oil quantity and then replace the oil tank cover.
11. Oil grade: Semi-synthetic or full synthetic 20W-50, 4-stroke motorcycle oil.
12. Minimum oil temperature before engine runup: 124° F. Prior to reaching 124°F the engine rpm gauge's green band will be very narrow, from about 2,000 to 2,200 rpm. Upon reaching 124°F, the green band will expand to the normal operating range.
13. Engine coolant checking procedure: It must be between the minimum and maximum marks on the side of the tank, which contains anti-freeze.
14. Moving the airplane and tie-down procedures: Push down on the tail boom of the aircraft to lift the nose gear off the ground. Be careful not to damage the antennas. Push the airplane in the desired direction, but never push on the stabilator. A helper, if needed, can push on two propeller shanks using both hands, one on each side of the nose spinner. Do not do this unless hands are touching the prop spinner. Conventional tie-down rings are located on both wings, but a black, tail boom tie-down strap located in one of the two baggage compartments must be placed on the aft fuselage in order to attach the tail tie-down chain.
15. Weights:
 - Maximum takeoff - 1,323 lbs.
 - Maximum weight per seat - 260 lbs.
 - Minimum single pilot weight - 120 lbs.
 - Maximum baggage weight in either baggage compartment - 25 lbs.
 - Maximum fuel weight (34 gallons) - 205 lbs. (33 gal useable - 198 lbs.)
 - Empty weight of N459CT on 09/21/2010 - 738.8 lbs.
16. Electric system: Rotax 912 series engines are equipped with a "Lighting Coil" type alternator and a rectifier-regulator that converts and regulates the output of the alternator to a nominal 13.5V to 14.2V. The battery for the electric starting system is a 12V sealed, AGM type. It's very small and if dead, there is no way to obtain a battery start from a power cart. If the battery and alternator fail, the Dynon Electronic Flight Information System has a lithium battery that should power the unit for one hour. The dual ignition is a CDI (capacitive discharge) system, not magnetos.
17. Brake system: Hydraulic disk type brakes, both of which are actuated simultaneously through a handbrake lever. The parking brake is set by positioning the parking brake valve selector to the ON position and pumping the brake lever until resistance occurs. Release the parking brake by turning the valve selector to off. There is no hydraulic reservoir.

18. The slotted, electric flaps have a selector switch with 5 positions: Manual up, -6° up (use for cruise and cruise climbs and descents. Minimum speed is 59 knots but you should always use -6° when above 100 kts.), 0° , 15° down, 30° down, 40° down, and manual down. The manual up or down positions are used if the normal position selection system fails—you then position the flaps by visual inspection.
19. The BRS parachute is a rocket deployed emergency parachute system. The canister is located between the baggage compartments. To activate the system, pull the “T” handle located between the pilot seats until it reaches the stop. On the ground the T-handle is secured with a tagged safety pin, which should be removed for flight operations. It must be reinstalled after landing.
20. Airspeed indicator markings:
White range (flap operating range for 30° and 40° flaps) - 39 to 62 knots.
Green range (normal operating range) - 44 to 120 knots.
Yellow range (caution range) - 120 to 144 knots.
Red range (never exceed speed) - 144 knots.
21. Airspeeds:
 V_{s1} Flaps 0° - 42 KCAS.
 V_{so} Flaps 40° - 39 KCAS.
 V_{fe} - Flaps 0° - 100 KCAS, 15° - 80 KCAS, 30° and 40° - 62 KCAS.
 V_a - 98 KCAS.
 V_{ne} - 145 KCAS.
Best glide speed - 63 kts.
Approach speed, flaps 15° to 40° - 54 kts.
Best angle of climb at maximum gross weight, flaps 0° - 66 kts.
Best angle of climb at maximum gross weight, flaps 15° - 44 kts.
Best rate of climb at maximum gross weight, flaps 0° - 78 kts.
Cruise climb, flaps -6° - 86 kts.
Cruise speed at 75% power and maximum gross weight, flaps -6° - 112 kts.
Forced landing on short final - Flaps 40° , airspeed 43 kts, flair at 1.5 feet AGL and land with full aft stabilator input.
22. Flap position:
Takeoffs - normal - 0° or 15° , short- or soft-field - 15° .
Landings - normal - 15° , short- or soft-field - 30° to 40° .
Do not reduce flap setting below 0° (-6°) with less than 59 kts airspeed.
(For stage one student pilots or transition pilots, it's best to master 15° landings before making 30° or 40° flap landings.)
23. Crosswind limitations: Maximum demonstrated crosswind is 16 kts.
Maximum crosswind for takeoff and landing, flaps 0° , is 16 kts.
Maximum crosswind for landing, flaps 40° , is 11 kts.
Maximum direct crosswind when taxiing is 17 kts.
Do not fly the airplane when surface winds are gusty or in excess of 21 kts.
If KSNA is landing to the north due to Santa Ana winds or the expectation thereof, flight is not permitted.

24. Service ceiling: 14,000 feet.
25. Design load factors: Flaps up - +4g/-2g. Flaps down - +2g/-0g.
26. Prohibited maneuvers: Aerobatics including intentional spins.
27. Takeoff distance over a 50 ft. obstacle: 760 ft. at maximum gross weight.
28. Engine RPMs:
 - Minimum idle - 1,400.
 - Engine runup - 3,000.
 - Static - 4,700.
 - Normal climb - 4,800.
 - Maximum - 5,800 (5 minutes max).
 - 75% power - 5,000.
 - Maximum continuous - 5,500.
 - Normal cruise - 4,200 to 5,500.

(Note—If the engine cools too much in descent with the engine at idle and won't increase RPM, pull the choke and then increase throttle. Close the choke again.)
29. Fuel consumption:
 - At takeoff - 7.1 gph.
 - At maximum continuous power - 6.6 gph.
 - At 75% power - 4.7 gph.
30. The airplane's empty weight is 738.8 lbs., and the empty moment is 9,537.908 in/lbs. Using the weight and balance data in the N495CT's AOI, would you be legal to fly the airplane if the combined weight of both pilots was 400 pounds with full fuel? No, unless you reduced the useable fuel to 30.7 gallons, a decrease of 2.3 gallons.
31. Flight characteristic of the CTSW with 912 ULS engine and Neuform propeller:
 - Take-off distance over a 50 Ft. obstacle with MTOW of 1320 lb. on an asphalt runway, 15° flaps, at sea level with standard temperature is 762 ft.
 - Liftoff speed with 15° of flaps: 40 kts.
 - Best climb speed: 78 kts and 885 fpm at 5100 RPM and 0° flap position.
 - Maximum cruising speed at 75%: 112 kts.
 - Max. range ability with 1320 lbs is 900 miles.
32. Turns in excess of 60 degrees of bank are not recommended. At lower speeds in tight turns, the airplane loses altitude quickly. Banks of more than 30° should not be performed at less than 54 kts.
33. Airplane's FAA Type designator for obtaining ATC clearances and flight plans: FDCT.