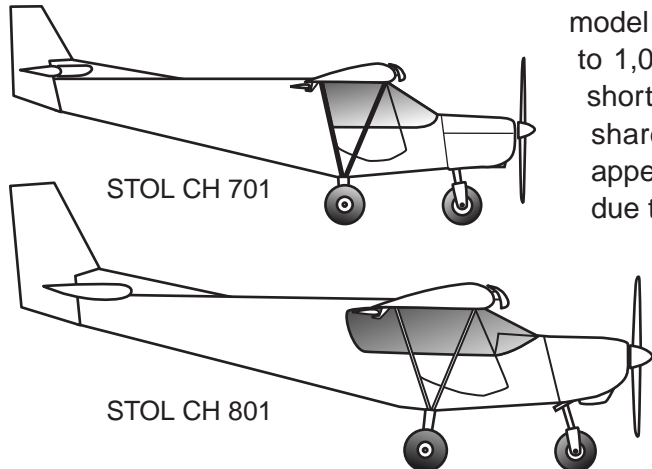


SPORT UTILITY KIT AIRCRAFT

With form following function, the STOL (short take-off and landing) series of kit aircraft from Zenith Aircraft Company look like the **sport utility** aircraft they are designed to be. Not designed to be just 'pretty' aircraft, both the **STOL CH 701** and the larger **STOL CH 801** were developed to provide maximum short-field performance and utility, while being kit airplanes that are simple to build and maintain, and affordable to own and operate.

First introduced in 1986, the original two-seat STOL CH 701 aircraft was developed as an 'off-airport' short take-off and landing aircraft to fulfill the demanding requirements of both sport pilots and first-time builders. Designer Chris Heintz combined the features and advantages of a 'real' airplane with the short-field and slow-flight capabilities of an 'ultralight' aircraft.

The four-seat STOL CH 801 was developed to expand the utility of the STOL CH 701 model by increasing the useful load from 500 lbs. (225 kg) to 1,000 lbs. (450 kg.) while retaining the original design's short and rough field capability. While the two designs share many similarities in both design features and appearance, they actually do not share any airframe parts due to the significantly larger size of the STOL CH 801.



Unique design features of the STOL series include fixed leading-edge wing slats for high lift, full-span flaperons (both ailerons and flaps), an all-flying rudder, and durable all-metal construction.

"The two-place STOL CH 701 has been a success story largely unnoticed in the U.S.," wrote EAA

Sport Aviation magazine in its April 1998 issue. *"More than 400 have been completed worldwide but only 100 of them have emerged from homebuilder's shops in the U.S. Usually that ratio would be reversed, but the real world use of the airplane has dictated otherwise. A significant number of those being used in Africa and other under-developed areas of the world rarely or never see a paved runway... or any sort of formal runway, for that matter."*

Built of durable all-metal construction, the STOL series kit aircraft are designed to provide the durability and ruggedness required of an 'off-airport' bushplane, while being simple and quick to build. Developed as true sport utility kit aircraft, the STOL designs offer many modern features for truly outstanding short-field performance and overall versatility and utility.

Developed as sport utility aircraft, high speed performance has been traded for very effective high-lift features to offer true short take-off and landing performance and spectacular slow flight characteristics. While many other aircraft designs may be faster, none offer better short and rough field capability – in an aircraft that is both as affordable and as simple and quick to build.



Short-field performance is where the STOL CH 701 aircraft truly excels: It is airborne in less than 120 feet of unprepared grass, or 90 feet of hard surface, at gross weight. Rotation is possible by the time full throttle setting is applied, and lift-off can begin at 25 mph (in ground effect, with no wind) - all within less than four seconds from stand still. Of course, any headwind shortens the time and distance required for take off.



First introduced in 1986, the original two seat STOL CH 701 aircraft was developed as a lightweight 'off-airport' short take-off and landing aircraft to fulfill the demanding requirements of both sport pilots and first-time builders. Recent updates to the design include an increased gross weight, standard dual wing

"I've seen airplanes that could be flown through a hangar, but as I have said before, I think a really good pilot could fly a STOL CH 701 into a hangar, do a 180, and fly back out. The performance is truly that spectacular."

– Sport Pilot magazine

tanks, a tougher landing gear, new windshield, and more... Not designed to be just another 'pretty' light aircraft, the STOL CH 701 was engineered to offer outstanding short take-off and landing performance, all-metal durability, and ease of construction. With form following function, the STOL CH 701 looks like a 'Sky Jeep,' as it is often referred to by its owners. The STOL CH 801 design is based on the original and successful STOL CH 701, using the same effective high-lift design features.

Not many of the more than 400 STOL CH 701s flying today can be found at airports – most are operated from short off-airport grass fields. The aircraft's all-metal construction makes it suitable for continuous outdoor storage - providing their owners with continuous cost savings (no hangar fees).

Many of the hundreds of STOL CH 701 kits already delivered have been put to use in remote areas around the world, from Northern Canada and Alaska (on skis and floats) – to isolated mission camps in Africa and South America. While the basic design of the aircraft has remained the same since its introduction in 1986, numerous new features and improvements have been incorporated to the STOL CH 701 kit over the years.



STOL CH 701 at an African mission camp.



STOL CH 701 crop duster in South America.

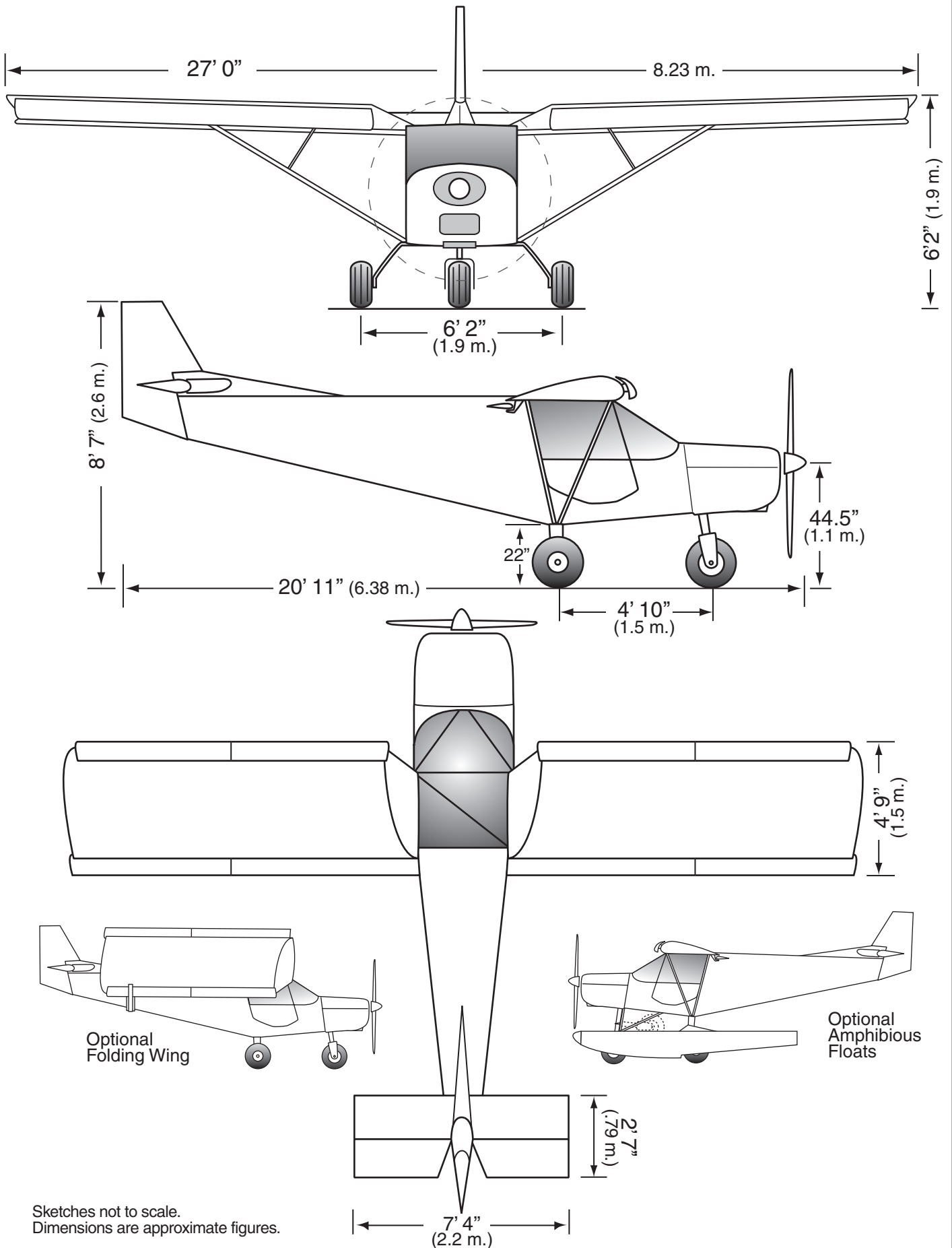
For recreational 'bush' flying or for light 'utility' applications, the STOL CH 701 delivers exceptional performance at a very affordable cost, while being an airplane that's great fun to fly!

Visit www.zenithair.com's photo galleries to see some of the hundreds of STOL CH 701 aircraft currently being flown around the world.

"The STOL CH 701 is an excellent choice for first-time builders needing the ability to fly into [short] strips... It flies in a straight-forward manner, uses rugged construction methods, and has been around enough years to acquire a service history. The little airplane can do a big job, on floats as well as wheels" – KITPLANES magazine

DESIGN FOR PERFORMANCE

STOL CH 701



SPECIFICATIONS & PERFORMANCE

LENGTH	20 Ft. 11 In.	6.38 m.
HEIGHT (rudder tip)	8 Ft. 7 In.	2.6 m.
WING SPAN	27 Ft. 0 In.	8.23 m.
WING AREA	122 Sq. Ft.	11.4 m.sq.
WING CHORD	4 Ft. 9 In.	1.5 m.
HORIZONTAL TAIL SPAN	7 Ft. 4 In.	2.2 m.
HORIZONTAL TAIL AREA	19 Sq. Ft.	1.8 m.sq.
EMPTY WEIGHT	580 Lbs.	263 kg.
DESIGN GROSS WEIGHT	1,100 Lbs.	500 kg.
USEFUL LOAD	520 Lbs.	236 kg.
FUEL CAPACITY (Standard) - FUEL WEIGHT	20 US Gal. (2 x 10) = 120 Lbs.	76 l. (2 x 38) = 54 kg.
WING LOADING	9.0 Lbs./Ft. ²	43.8 kg./m. ²
POWER LOADING	13.75 Lbs./BHP	6.25 kg./HP
DESIGN LOAD FACTOR (Ultimate)	+6 / -3 G	+6 / -3 G
CABIN WIDTH (Shoulders)	41 In.	104 cm.
NEVER EXCEED SPEED (V _{NE})	110 MPH	177 km/h

PERFORMANCE

Rotax 912, 80 BHP	Single		Dual (960 lbs.)	
	TAKE-OFF ROLL	50 Ft.	16 m.	90 Ft.
MAX. LEVEL SPEED	95 MPH	153 km/h	95 MPH	153 km/h
CRUISE SPEED (75%)	80 MPH	128 km/h	80 MPH	128 km/h
STALL SPEED (Flaps Down)	28 MPH	45 km/h	30 MPH	48 km/h
RATE OF CLIMB	1,400 fpm	7.1 m/s	1,200 fpm	6 m/s
SERVICE CEILING	15,000+ Ft.	4,500+ m.	12,000 Ft.	3,650 m.
RANGE (Standard) - ENDURANCE (no reserve)	400 miles 5 Hours	644 km. 5 Hours	400 miles 5 Hours	644 km. 5 Hours

Specification and performance figures quoted with the Rotax 912 engine (80 HP).

Standard atmosphere, sea level, no wind.

Performance and specification figures based on prototype flight test results; subject to change without notice.

Suitable power range: 50 - 100 HP.

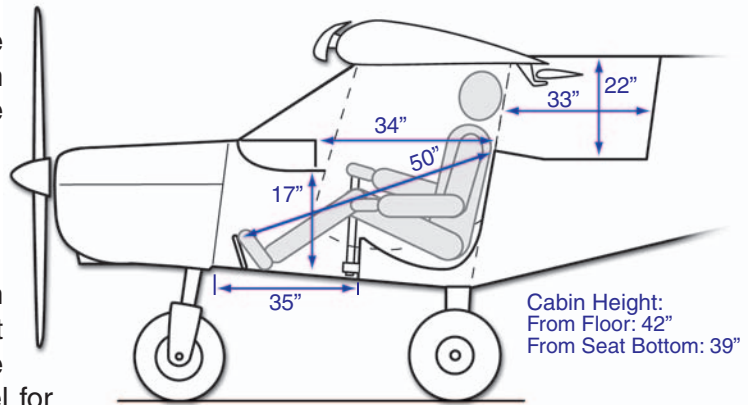
Different engines and installed options will affect performance and specification figures.

STOL CH 701

DESIGN FEATURES

CABIN: The STOL CH 701 offers comfortable two-place side-by-side seating in an ergonomically designed 41-inch wide cabin. The cabin interior is designed to provide comfort for two large adults. Large 32" x 34" doors on either side allow easy access to the cabin from both sides, and can be quickly removed.

The center-mounted control column (stick) can easily be used from either side, and does not limit visibility of the instrument panel. Throttle controls are mounted on both sides of the panel for easy access from either seat. The dual rudder pedals also steer the nose-wheel, and are equipped with standard hydraulic toe-brakes on the pilot's side. The baggage area is located directly behind the seats for easy access.



A typical STOL CH 701 Instrument Panel Layout

The cabin is fitted with a large instrument panel with dual controls accessible from both the left and right seats. The panel measures about 34 inches across by 8.5 inches tall in the center to allow for custom avionics installations.

The standard fuel system is made up of dual wing tanks located inside the wings behind the wing spars. Each welded aluminum fuel tank has a capacity of 10 US gallons, for a total capacity of 20 gallons. The STOL CH 701 is one of the few kits on the market that doesn't just come with assembly instructions: The kit includes detailed blueprints of every part of the airframe, as well as a detailed assembly manual, and two separate assembly photo guides. In fact, the STOL CH 701 can be 'scratch-built' from the Drawings and Manuals, although this requires additional skills, time and tools.

DID YOU KNOW...?

A STOL CH 701 kit has been completely built and flown within just seven days by volunteers, supervised by factory staff. Starting with a stock factory kit, a dozen volunteers spent the week assembling and completing the STOL CH 701 kit at the EAA Sun'n Fun fly-in, and designer Chris Heintz flew the completed plane during the airshow on the final day of the fly-in convention in Lakeland, Florida. This challenge, to prove how quick and easy the STOL CH 701 is to build, was successfully accomplished three times: in 1987, 1990 and in 1991.

"The fact that a flying airplane can be produced in only one week is a testament to the simplicity and completeness of the design. Chris [Heintz] has been designing aircraft for decades and is a respected and dedicated designer." – US AVIATOR magazine

STOL Utility + Versatility

Developed as a true **Sport Utility** kit aircraft, the STOL CH 801 offers exceptional rough-field short take-off and landing performance, while providing a 1,000 lbs. (half ton) useful load and a spacious passenger and/or utility cabin.

The four-seat STOL CH 801 was developed to expand the utility of the STOL CH 701 model by drastically increasing the useful load while retaining the original design's excellent short and rough field capability. Rather than 'upgrading' (and compromising) the STOL CH 701 for increased load capability, designer Chris Heintz returned to the drawing board to develop a true four-seat utility aircraft. While the two designs share many similarities in both design features and appearance, the STOL CH 801 has been completely re-engineered for its utility mission, and does not share any airframe parts with the smaller STOL CH 701.

"The CH 801 is at home on off-airport fields providing both the versatility of a four-seater and the capability of a cargo-hauling bushplane ... to offer true STOL performance and spectacular slow-flight characteristics with a huge cabin and payload."

– Aviation Quarterly magazine

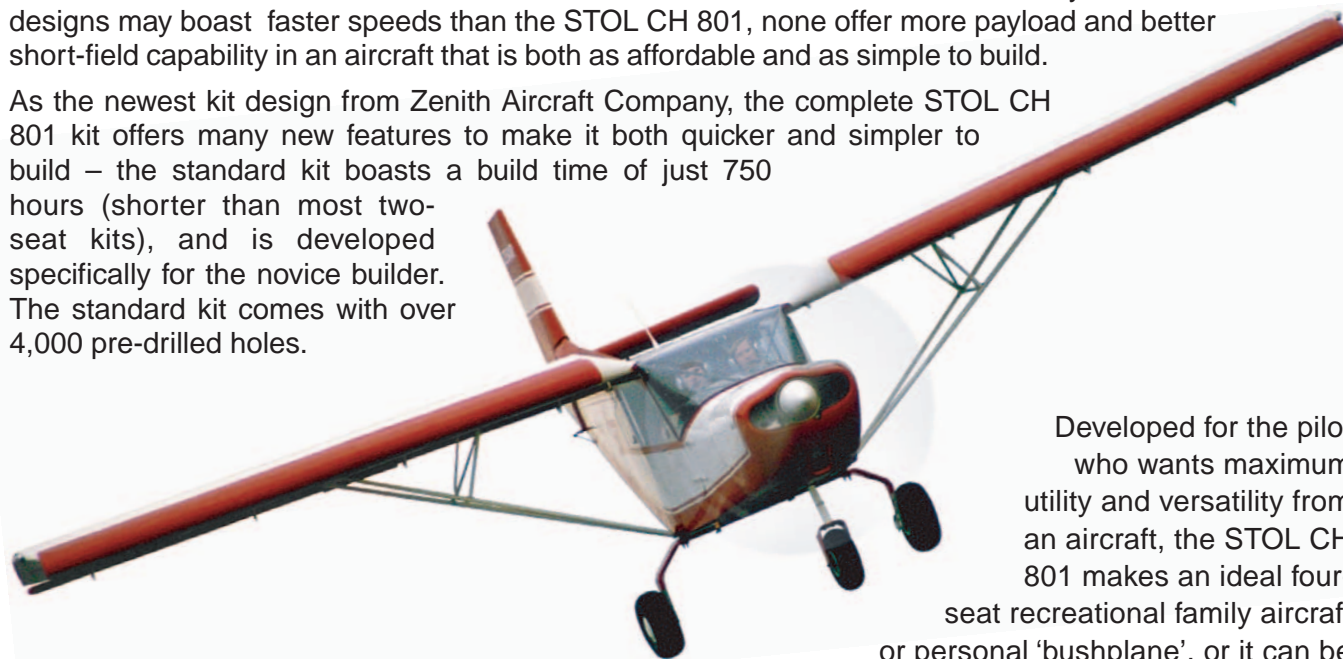
designs may boast faster speeds than the STOL CH 801, none offer more payload and better short-field capability in an aircraft that is both as affordable and as simple to build.

As the newest kit design from Zenith Aircraft Company, the complete STOL CH 801 kit offers many new features to make it both quicker and simpler to build – the standard kit boasts a build time of just 750 hours (shorter than most two-seat kits), and is developed specifically for the novice builder. The standard kit comes with over 4,000 pre-drilled holes.



The STOL CH 801 kit aircraft is ideally suited to operate from off-airport fields as well as from city airports, providing both the utility of a roomy four-seat aircraft and the capability of a half-ton off-road pickup!

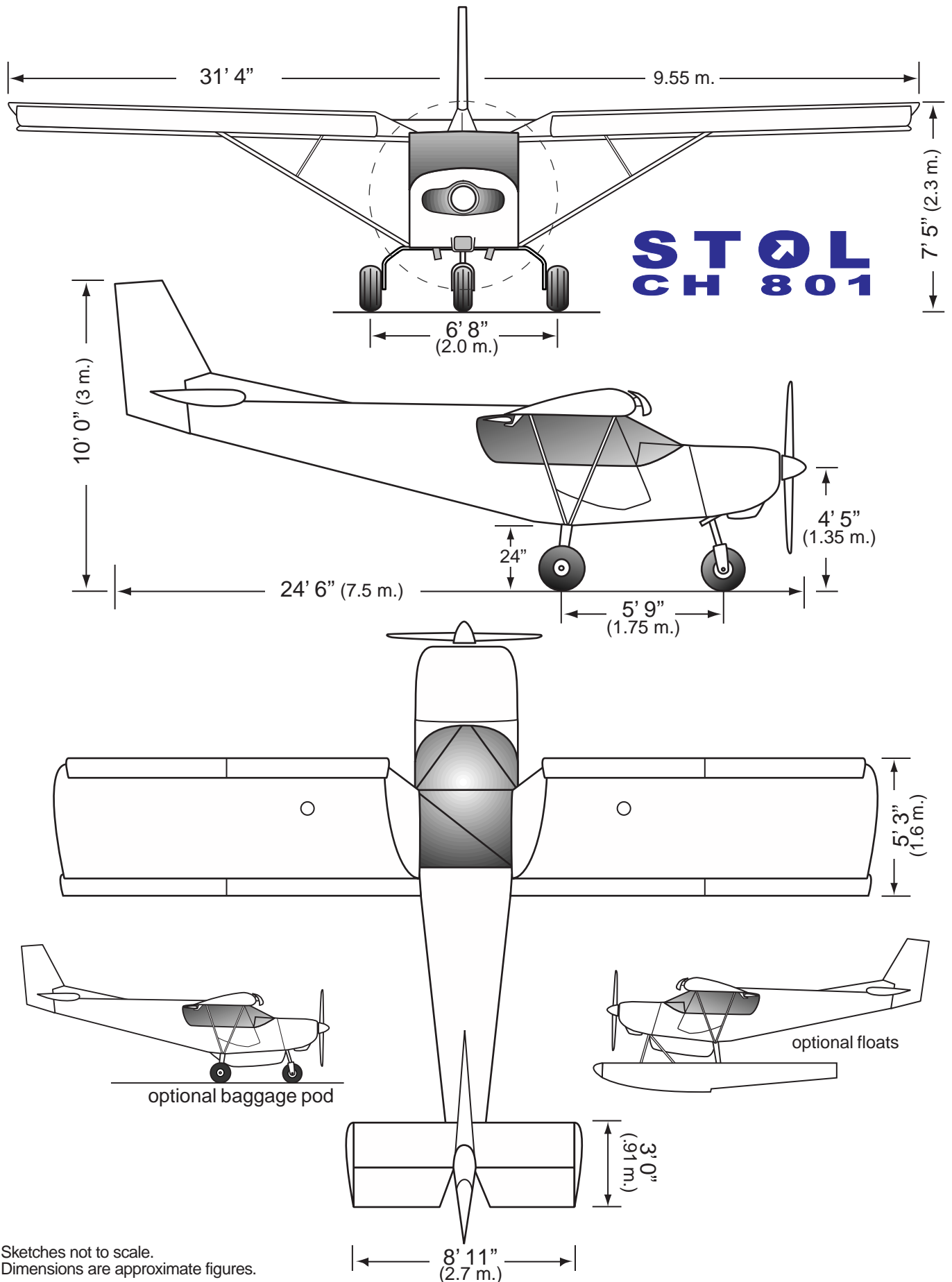
Developed as a sport utility aircraft, high speed performance has been traded for very effective high lift features to offer outstanding short take-off and landing performance and excellent slow flight characteristics. While many other aircraft



Developed for the pilot who wants maximum utility and versatility from an aircraft, the STOL CH 801 makes an ideal four-seat recreational family aircraft or personal 'bushplane', or it can be configured for custom utility applications.

SPORT UTILITY KIT AIRCRAFT

STOL CH 801



Sketches not to scale.
Dimensions are approximate figures.

SPECIFICATIONS & PERFORMANCE

LENGTH	24 Ft. 6 In.	7.5 m.
HEIGHT (rudder tip)	10 Ft. 0 In.	3.0 m.
WING SPAN	31 Ft. 4 In.	9.55 m.
WING AREA	167 Sq. Ft.	15.5 m.sq.
WING CHORD	5 Ft. 3 In.	1.6 m.
HORIZONTAL TAIL SPAN	8 Ft. 11 In.	2.7 m.
HORIZONTAL TAIL AREA	25 Sq.Ft.	2.7 m.sq.
EMPTY WEIGHT	1,150 Lbs.	522 kg.
DESIGN GROSS WEIGHT	2,150 Lbs.	975 kg.
USEFUL LOAD	1,000 Lbs.	455 kg.
FUEL CAPACITY (Standard) – FUEL WEIGHT	30 US Gal. (2 x 15) = 176 Lbs.	112 l. (2 x 56) = 80 kg.
FUEL CAPACITY (Extended Range Option) – FUEL WEIGHT	60 US Gal. (4 x 15) = 352 Lbs.	224 l. (4 x 56) = 160 kg.
DESIGN PAYLOAD – OCCUPANTS + BAGGAGE & CARGO	800 Lbs. = 200 Lbs. x 4	360 kg. = 90 kg. x 4
WING LOADING	12.9 Lbs./Ft. ²	62.9 kg./m. ²
POWER LOADING (with 180-hp)	11.95 Lbs./BHP	5.44 kg./HP
DESIGN LOAD FACTOR (Ultimate)	+6 / -3 G	+6 / -3 G
CABIN WIDTH (Shoulders)	44+ In.	112 cm.
NEVER EXCEED SPEED (V _{NE})	150 MPH	240 km/h

PERFORMANCE Lycoming O-360, 180 BHP	Typical Load: 500 Lbs. 1,650 Lbs.		Gross Weight: 1,000 Lbs 2,150 Lbs.	
	TAKE-OFF ROLL	290 Ft.	88 m.	390 Ft.
MAX. LEVEL SPEED	112 MPH	181 km/h	110 MPH	178 km/h
CRUISE SPEED (75% @ 7,000 Ft.)	106 MPH	170 km/h	105 MPH	169 km/h
STALL SPEED (Flaps Down)	35 MPH	56 km/h	39 MPH	62 km/h
STALL SPEED (Flaps Up)	43 MPH	69 km/h	48 MPH	77 km/h
RATE OF CLIMB	1,200 fpm	6.1 m/s	720 fpm	3.7 m/s
SERVICE CEILING	16000+ Ft.	4875+ m.	14000 Ft.	4265 m.
RANGE (Standard) – ENDURANCE	320 miles 3 Hours	515 km. 3 Hours	315 miles 3 Hours	507 km. 3 Hours
RANGE (Extended Range Option) – ENDURANCE	640 miles 6 Hours	1,030 km. 6 Hours	630 miles 6 Hours	1,015 km. 6 Hours

Above performance figures with the Lycoming O-360-A engine (180 BHP: 420 lbs. with accessories and fixed-pitch Sensenich 76-EM8-0-54 metal propeller). Standard atmosphere, sea level, no wind.

Performance and specification figures based on prototype flight test results; subject to change without notice. Suitable power range: 150 - 240 BHP, up to 440 lbs. installed. Different engines and options will affect performance and specification figures. Source: Zenair Ltd. (3/99)

STOL CH 801

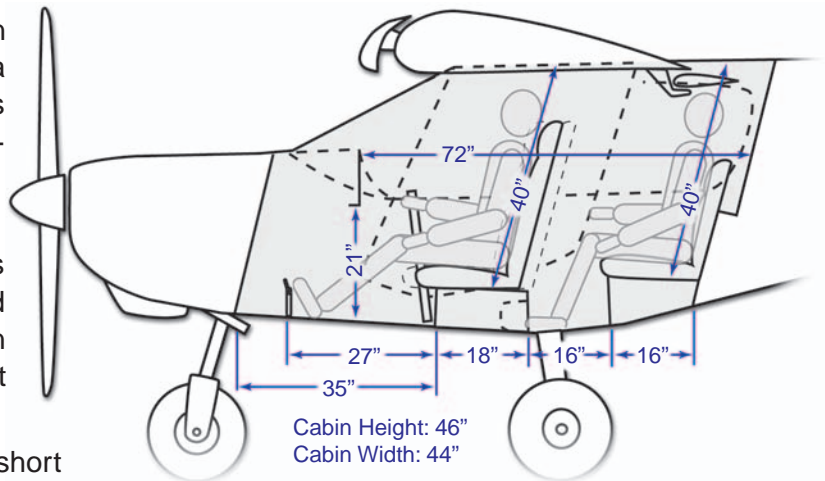
DESIGN FEATURES

CABIN: The STOL CH 801 has been developed as a true four-seater – with a roomy cabin made for four full-size adults – while being easy to convert for cargo-carrying applications.

Large doors allow easy access to the cabin from both sides. The 3' x 3' doors maximize access to both the front and rear seats, and hinge upward. They can easily be removed to operate the aircraft without the doors.

The front seats are adjustable to fit both short and tall pilots, and the seat-backs fold forward for easy access to the rear seats. The front seats can also be easily removed for custom utility applications or for unlimited access to the back of the cabin. The aircraft battery, electric flap motor, and the ELT are located under the front seats and are easily accessible.

The rear seats easily accommodate two full-size adults, or the rear seat area can be used for cargo use. An optional belly-mounted cargo pod is also available to increase the cargo-carrying capability of the STOL CH 801.



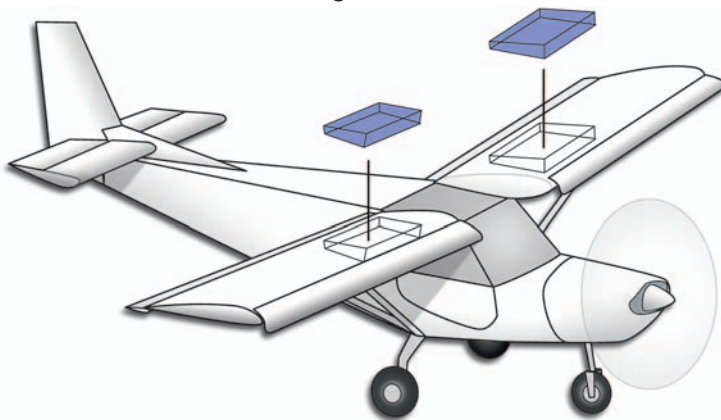
A typical STOL CH 801 Instrument Panel Layout

The large instrument panel (approx. 40.5" wide by 11" high at the center) can easily accommodate basic flight and engine instruments and full custom avionics. The center control stick is easily accessed from both the left and right seats, and does not limit visibility of the instrument panel. The dual rudder

pedals also provide direct-linkage steering to the nosewheel, and the pilot's side is equipped with standard toe-brakes.

FUEL SYSTEM: The STOL CH 801 is equipped with dual 15 US gallon (56 liters) welded aluminum wing tanks located inside the wing behind the main wing spar.

The Extended Range Option doubles the number of wing tanks to four, for a total fuel capacity of 60 gallons (224 liters).



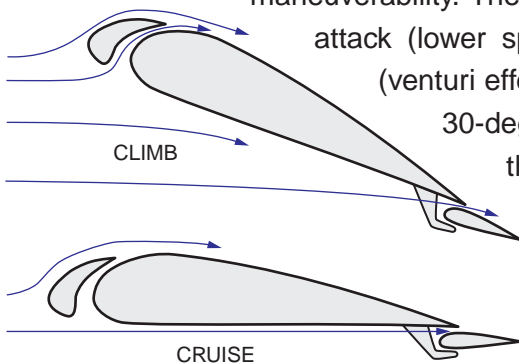
With form following function, the original STOL CH 701 and the larger STOL CH 801 look like the short take-off and landing sport / utility aircraft that they are designed to be. The STOL series kit aircraft are based on vast design experience gained by aeronautical engineer Chris Heintz – to provide the best in performance, cost, reliability and ease of construction. The designs present some highly engineered and researched features unique to both the STOL CH 701 and the STOL CH 801.

The modern designs make use of advanced technologies, while using proven design concepts and simple systems for easy assembly and maintenance. Professional designs, the structures have undergone complete and rigorous flight test and design stress analysis. Developed for the inexperienced first-time builder and demanding recreational pilot, the kit aircraft are designed to be easy to build and to maximize flight performance and efficiency.

Simple systems, modern materials, and design ingenuity minimize required maintenance, and make the STOL CH 701 and the STOL CH 801 kit planes simple to build and fly, affordable to own and operate, and very durable.

WING DESIGN: The STOL series use a special airfoil design to achieve very high lift, low stall speeds, and high strength. A thick wing, full-length

leading-edge slats and trailing edge 'junker' type flaperons develop a maximum wing lift coefficient of 3.10, while maintaining a short wing-span – for maximum strength and ground maneuverability. The leading edge slats allow the aircraft to fly at a high angle of

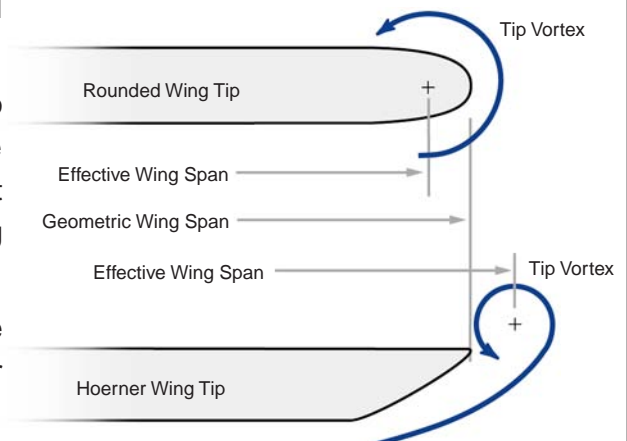
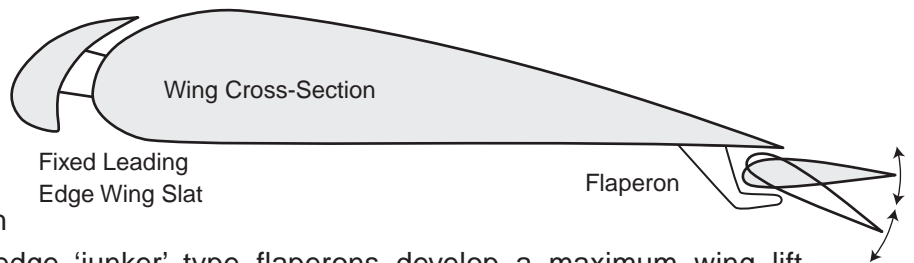


attack (lower speed) by accelerating the air between the slat and the wing (venturi effect). The leading edge slats allow for steep climb angles of up to 30-degrees. For maximum reliability and to keep construction simple, the leading edge slats are engineered to remain in a fixed position in all flight attitudes, and do not retract (in level flight, the fixed leading edge slats have minimal effect on cruise).

The full-length flaperons act as both full-span ailerons and full-span flaps. The flaperons have their own airfoil, and are hung below the wing trailing edge to supply them with fresh undisturbed air for maximum control effectiveness even at low speeds.

At the wing tip, the STOL designs utilize 'Hoerner' tips to maximize the wing's effective lift area and to minimize wing tips vortices. Hoerner wing tips provide the largest effective span for a given geometric span or a given wing weight.

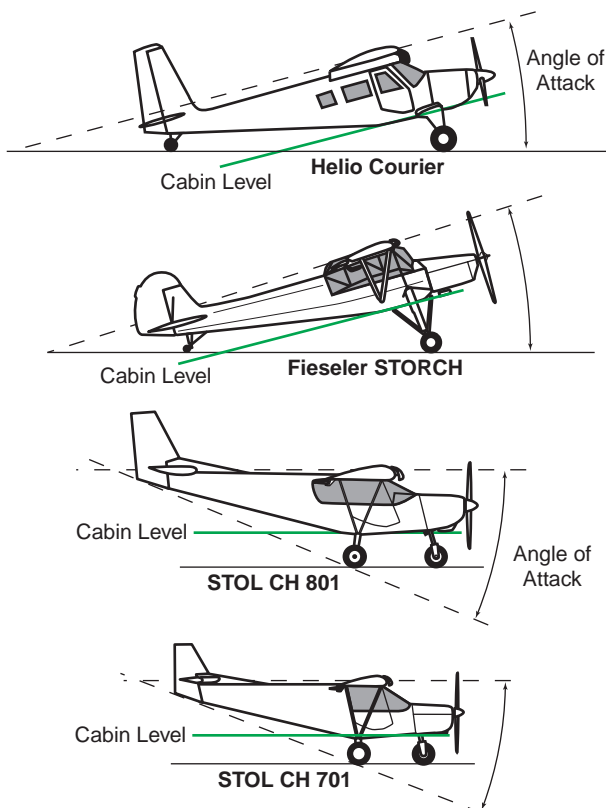
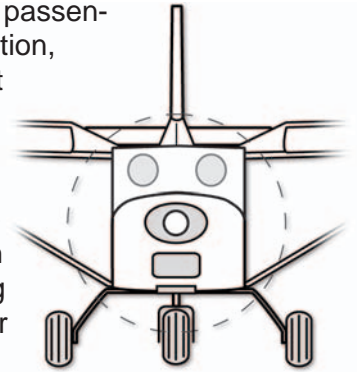
The wings are braced by dual steel wing struts, and are bolted to the fuselage at the cabin frame with four bolts for easy wing attachment and removal.





minimizes the frontal area of the aircraft to reduce drag, while also allowing the airflow to travel undisturbed from the propeller to the tail sections – further maximizing slow flight control of the aircraft.

ABOVE-CAB WINGS: The aircraft wings are positioned above the cabin and fuselage - this allows for excellent horizontal visibility as the wings are located above the pilot's head to provide pilot and passenger with superior visibility. In addition, the wings taper at the wing root to meet the 'skylight' top window – maximizing upward visibility, a feature especially useful in steep turns. While providing great visibility, the 'above-cab' wing design



The standard tricycle gear also allows for excellent forward visibility while taxiing - an important consideration when operating the aircraft in off-airport environments. The heavy-duty tricycle gear system was chosen as the standard gear configuration for the STOL series to meet the needs of today's pilots: Most pilots are not experienced 'taildragger' pilots, and a tricycle gear provides better stability and control on the ground.

The STOL aircraft use a high tail configuration to allow easy rotation of the aircraft to achieve high lift during take-offs and landings. In a tailwheel configuration this requires a tall and awkward main gear to achieve the same high angle of attack (see illustration).

Furthermore, the tricycle gear allows for a level cabin area – this makes loading and unloading the aircraft much easier than with an inclined cabin.

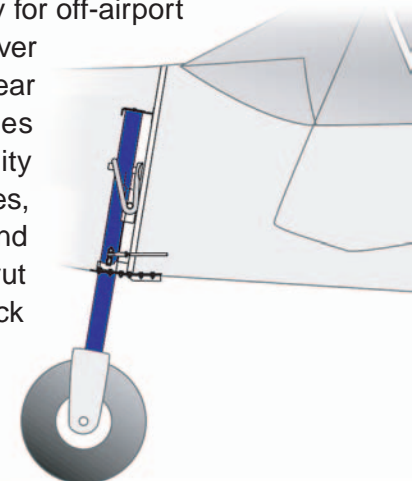
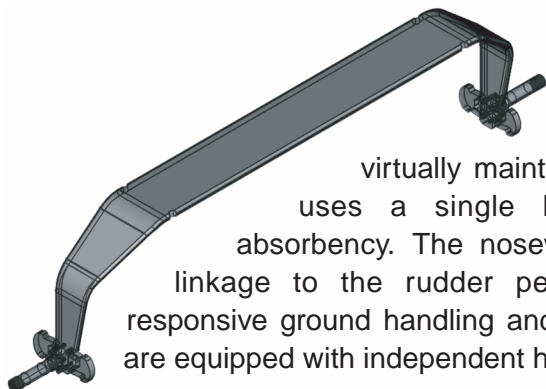
In a tricycle gear configuration, the wing is at a neutral angle of attack while the aircraft is on the ground, as opposed to a maximum lift angle with a taildragger. Tailwheel airplanes are thus more susceptible to ground wind conditions while taxiing or even while parked outdoors.

The STOL designs utilize a heavy duty gear system developed specifically for off-airport operation. The main gear utilizes a simple single-piece double cantilever aluminum spring leaf for the main gear. While it's not the lightest gear

system around, it provides excellent rough-field capability when combined with large tires, and is very durable, simple and

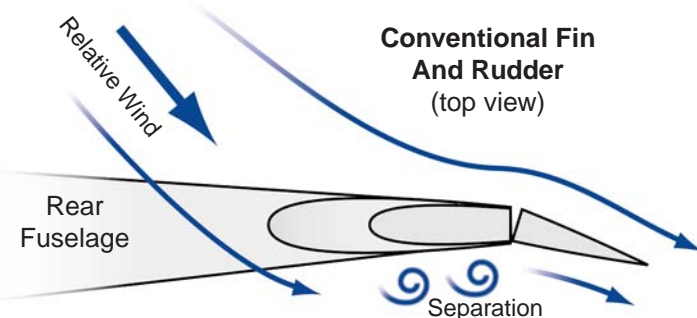
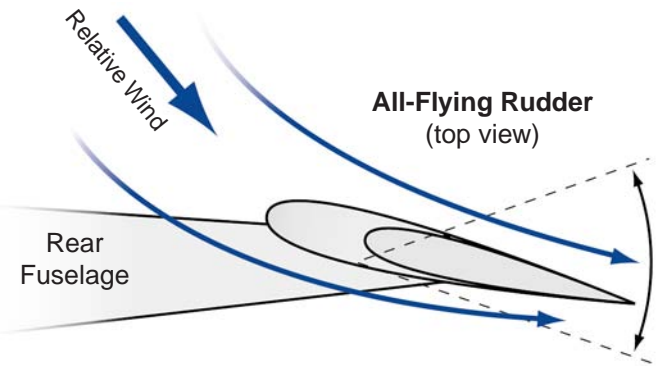
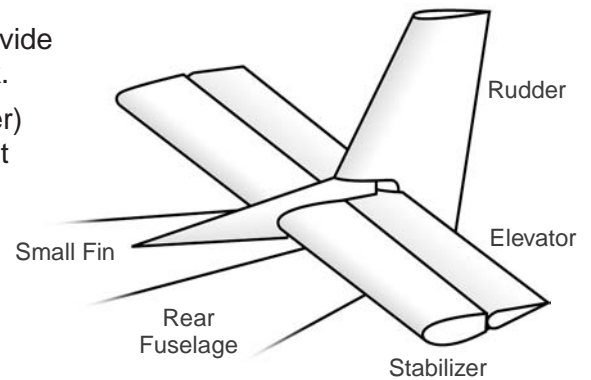
virtually maintenance-free. The nosewheel strut uses a single heavy-duty bungee for shock absorbency. The nosewheel is steerable, with direct

linkage to the rudder pedals for very effective and responsive ground handling and tight turns. The main wheels are equipped with independent hydraulic disk brakes.



TAIL: The STOL series tail sections are designed to provide maximum control at slow speeds and at high angles of attack.

The aircraft designs feature an all-flying vertical tail (rudder) section for excellent effectiveness and control, especially at low speeds. The all-flying rudder provides responsive rudder control, while also minimizing weight and complexity (there's only one vertical tail section). Two rudder bearings bolt to the rear fuselage to fix the rudder to the fuselage.



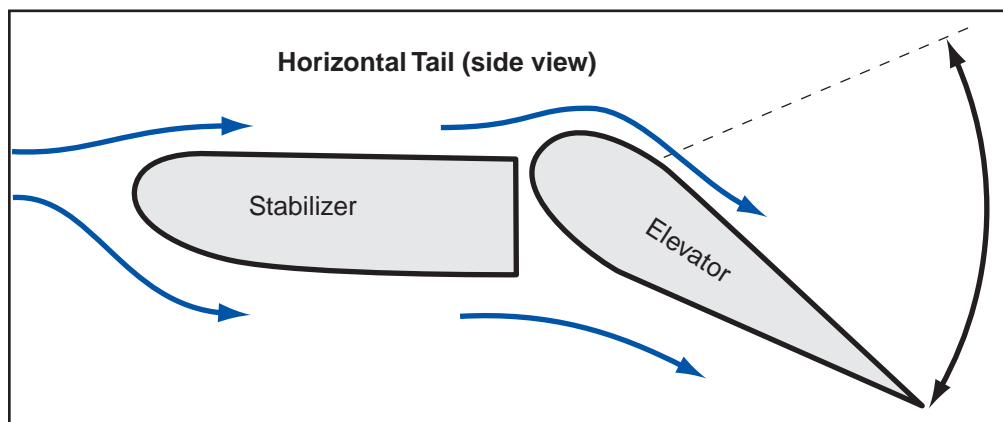
The horizontal tail sections are made up of the elevator and the stabilizer. Both these sections are unique and developed specifically for maximum effectiveness at low speeds and at high angles of attack.

The stabilizer is an inverted airfoil section to maximize downward lift to help achieve high angles of attack required for short take-off and landing performance.

The elevator is an actual airfoil section, and provides a 'virtual venturi' effect when deflected down, as illustrated below.

The unique tail sections provide maximum effectiveness for short take-off and landing performance – while also minimizing the actual size of the tail sections.

The STOL CH 701 and the STOL CH 801 make



use of highly engineered design features for excellent STOL performance, and importantly, responsive control at low speeds. While many aircraft designs often boast a low stall speed, many of these same designs have minimal control effectiveness at these lower speeds.

Control System: The control system is developed for ease of operation and simplicity / low maintenance: There are no moving parts inside the wings, and controls systems are easily accessed through a large service door on the bottom of the fuselage.

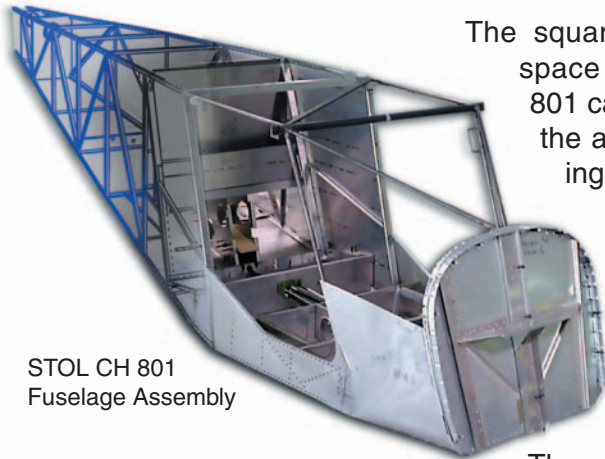
Aileron Flaperon system; push-pull rods from flaperon mixer assembly, easy disconnect for wing removal.

Flaps Flaperon system (control mixer); push-pull rods, easy disconnect for wing removal.
STOL CH 801: Electric flap actuator; STOL CH 701: Mechanical lever located on floor, pilot's side.

Elevator Control cables to elevator control horns.

Rudder Control cables from rudder pedals to rudder control horn.

Steering Direct linkage from dual rudder pedals to nosegear strut (hydraulic disk brakes on main gear wheels with individual toe-brake pedals on pilot's side).



STOL CH 801
Fuselage Assembly

The square-shaped fuselage and cabin offer maximum usable space for occupants and cargo. The four-seat STOL CH 801 cabin is designed to fit a stretcher along the right side of the aircraft (with the co-pilot seat removed), while still providing adequate space for the pilot and one passenger. The rear seat cabin area can be used for hauling bulky cargo. Of course, for those using the STOL CH 801 as a sport utility plane, there's enough room inside for two to camp in, and more than enough baggage area for extended cross-country trips. The two-seat STOL CH 701 is surprisingly roomy for an aircraft of its size and weight.

The cabin area utilizes a 4130 chrome-moly (chromium-molybdenum) welded steel tube frame top assembly. The tube frame allows for maximum visibility, and incorporates attach points for the wings. The lower cabin is made up of a factory-riveted bottom-side assembly that gets joined to the top tube frame. The cabin is fitted with two large doors for easy access to the cabin.

The square fuselage lends itself for very easy assembly, allowing each of the four 'flat' sides to be built individually on a flat workbench, and then simply 'boxed' together to form the fuselage.

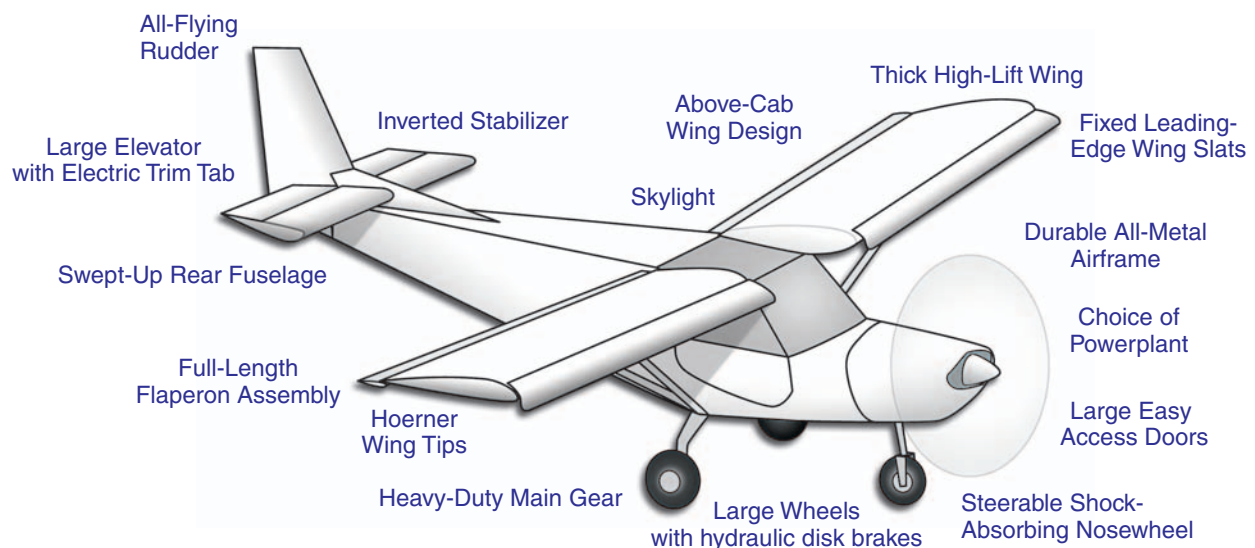
The aircraft wings are designed for quick and easy attachment and removal.

The airframe itself is designed to allow maximum customization by the actual builder. The STOL series aircraft is not designed 'around' a specific engine, allowing for custom powerplant installations by builders.



Throughout, the STOL series aircraft is designed to optimize STOL performance and to provide excellent flight characteristics. However, the aircraft is also designed to be easy and quick to build, and to provide a durable airframe that is well-suited for its utility role. Finally, the STOL series is also designed to be low-cost to build, to own and to operate.

SUMMARY OF STOL DESIGN FEATURES



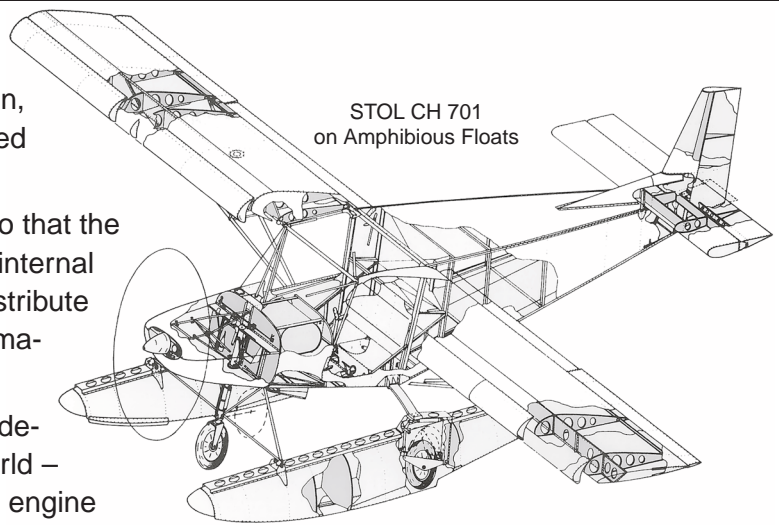
SPORT UTILITY KIT AIRCRAFT CONSTRUCTION

The STOL kit aircraft series is built of semi-monocoque stressed-skin all-metal construction, just like modern factory-built planes, but adapted specifically for the kit builder.

The airframe sections are designed and built so that the outer surface skin is part of the structure, with internal supports (ribs, bulkheads and longerons) to distribute the loads. The parts are fastened together permanently with rivets.

Sheet-metal construction is by far the most widely used aircraft building method around the world – used extensively from jetliners to light single engine airplanes and kits over the past five decades – and has proven itself as an ideal aircraft building material. Modern alloys are lightweight, strong, corrosion-resistant and durable, while being easy to work with.

Sturdy and low-fatigue aluminum alloys make the STOL's airframe very rugged and corrosion resistant, making it ideally suited for 'bushplane' operations. The modern 6061-T6 aluminum-alloy used in the construction of the STOL CH 701 and



STOL CH 801 is durable and corrosion resistant, ideal for even the harshest environment, and easy to repair and maintain on the field. The owner of a STOL kit aircraft is

COMPOSITION OF 6061-T6 ALUMINUM ALLOY (Percent of Alloying Elements in Addition to Pure Aluminum)

ALLOY	SILICON	COPPER	MAGNESIUM	CHROMIUM
6061-T6	0.60	0.25	1.00	0.25

assured of a long airframe life, with minimum required maintenance, as metal is not adversely affected by ultra-violet (UV) light and temperature changes like fabrics or composites (it's thus feasible to keep the aircraft tied-down outdoors - saving the owner ongoing hanger costs).

Unlike many other all-metal kit aircraft designs, the STOL kit aircraft series is developed specifically for the novice aircraft builder, and is simple and quick to build, requiring just basic skills, tools or jigs to assemble in a home workshop, such as a single car garage or basement workshop. Designer Chris Heintz has extensive all-metal aircraft engineering experience, and has been designing all-metal kit aircraft designs for novice builders since the early 1970s. From conception, Heintz' designs are developed for amateur builders and pilots: This is accomplished by using readily available materials and simple systems, and by designing an aircraft that will produce the desired flight performance and characteristics while also being easy to build.

For the amateur builder, sheet-metal construction offers distinct advantages: The modular construction minimizes space requirements; the requirement for assembly jigs or fixtures is minimized, and the required assembly skills and tools are minimized with a Zenith Aircraft kit. Both external and internal structures can easily be inspected during and upon completion of an assembly. Once finished, an all-metal aircraft requires minimal maintenance, and is easy to inspect. Since they're very durable and easy to inspect and maintain, an all-metal aircraft will typically maintain a good resale value for many years after they have been put in service.

"[Chris Heintz] designs have earned an excellent reputation among pilots, builders, and aviation authorities for their durable all-metal construction, normal flight characteristics, reliability, and low maintenance."

– EAA Sport Aviation magazine, December 1999

SPORT UTILITY KIT AIRCRAFT CONSTRUCTION



Measuring & Marking Tools



Hand Drill



'Cleco' temporary fasteners



Hand riveter for Avex rivets



Sheet-metal snips for trimming

The STOL series kit aircraft has been developed specifically for the amateur builder. The philosophy behind the airframe kit is to supply all the parts and components in the kit so that the builder need only basic skills and tools to assemble and build either the STOL CH 801 or the STOL CH 701 aircraft.

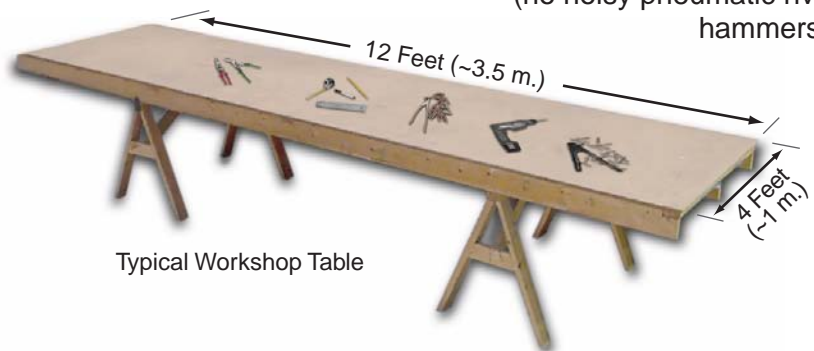


TOOLS: Simple hand tools are all that's needed for building – this means that there is minimal cost investment in tooling (most builders already have most basic required shop tools) and the basic sheet-metal tools are simple and easy to use.

WORKBENCH: Nearly all the assemblies can be built on a basic workbench table. The wings, tail and fuselage sections are all assembled individually on the workbench shop. A flat and level workbench is the main assembly 'jig' required – most assemblies require no additional fixtures or jigs other than the flat workbench (saving the builder the time and cost of fabricating assembly jigs).

WORKSHOP: The modular construction of the kit means that required workshop space is minimal – most builders construct the kit in a single-car garage or basement workshop.

Building a Zenith Aircraft kit is well-suited for 'homebuilding' – there's no need for specialized ventilation, temperature or dust control (as with composite construction), and the actual building is relatively quiet (no noisy pneumatic rivet hammers).



Typical Workshop Table

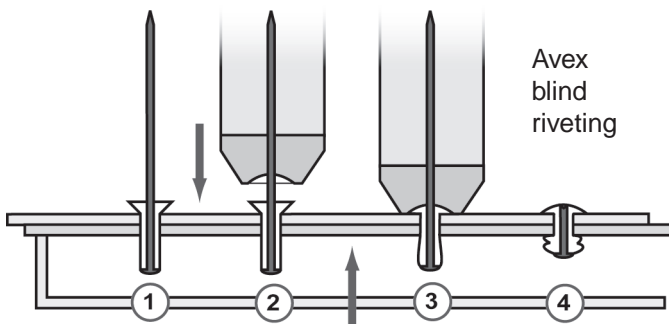
"The proven all-metal construction requires only basic tools and clecos to hold sections together. The use of Avex pull-type rivets greatly reduces the challenges associated with other forms of riveting. Chris' background as an aeronautical engineer ensures that his aircraft are solid and designed for everyday use with wear and tear kept to a minimum. Check out some of his kits with lots of flying time on them; compared to its competitors, the Zenith holds up very well. Chris is responsible for a lot of great ideas that are so logical you'll wonder why others haven't incorporated them before."

– Aviation Quarterly (Fall 1999)

SPORT UTILITY KIT AIRCRAFT CONSTRUCTION

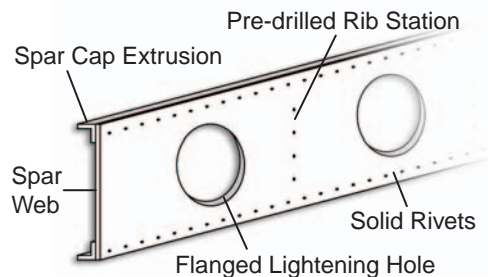
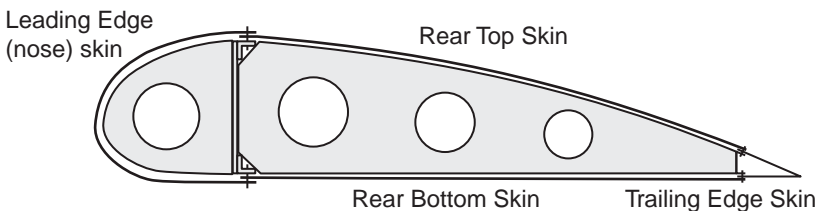
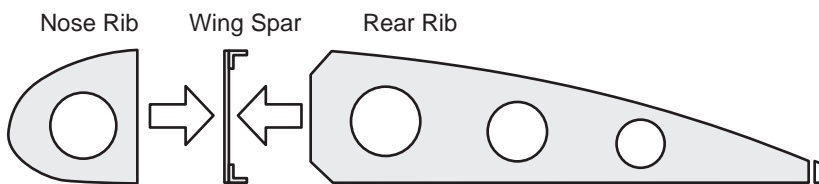
Developed for the amateur builder, the STOL series kit aircraft draws upon Zenith Aircraft's extensive kit manufacturing experience. The simple stressed-skin monocoque construction primarily uses single curvature sheet-metal skins riveted to internal structural members.

The sheet-metal skins, main wing spar, wing ribs, longerons and stiffeners are fastened together with Zenith's proven riveting method using Textron's Avex blind rivets, which are as easy to set as 'pop' rivets, requiring only a simple hand rivet puller (or a pneumatic riveter). The corrosion-resistant Avex rivets provide a permanent structural bond and tight low-profile dome finish, formed by the custom riveter head.



The rivet stem becomes locked in after being set to provide a water-tight seal. The 1/8-inch and 5/32-inch Avex rivets used are very durable fasteners, and may be used over a wide grip area. The blind rivets are much easier and quicker to set than 'bucked' rivets, and don't require the skills and tools needed to set solid 'bucked' rivets. The builder does not have to counter-sink rivet holes or put up with noisy pneumatic rivet hammering.

The sturdy main wing spar is a built up I-beam, with cap extrusions solid-riveted to the spar web. In the kit, the spar comes completely pre-assembled and finished (drilled and riveted, with flanged lightening holes). The rib stations on the spar are even pre-drilled - ready for wing assembly.



tioned to the assembly. The surface sheet-metal skins are blind riveted to the spar and rib assembly. Many flat surface skins are pre-drilled at the factory, and supplied pre-formed and cut, ready for assembly.

The wings, flaperons, leading-edge slats and the tail sections are all constructed in the same manner. Each section is built independently, minimizing space requirement.

"Attention to small details ensures that the kit can easily be completed... the ribs are not only shaped, but the lightening holes are made, beveled and smoothed to a finished state. Look at other kit manufacturers for this attention to detail. The builders of some of the 700 flying planes I've had a chance to interview tell me the company time estimates are valid and the support is unsurpassed" – Recreational Flyer magazine

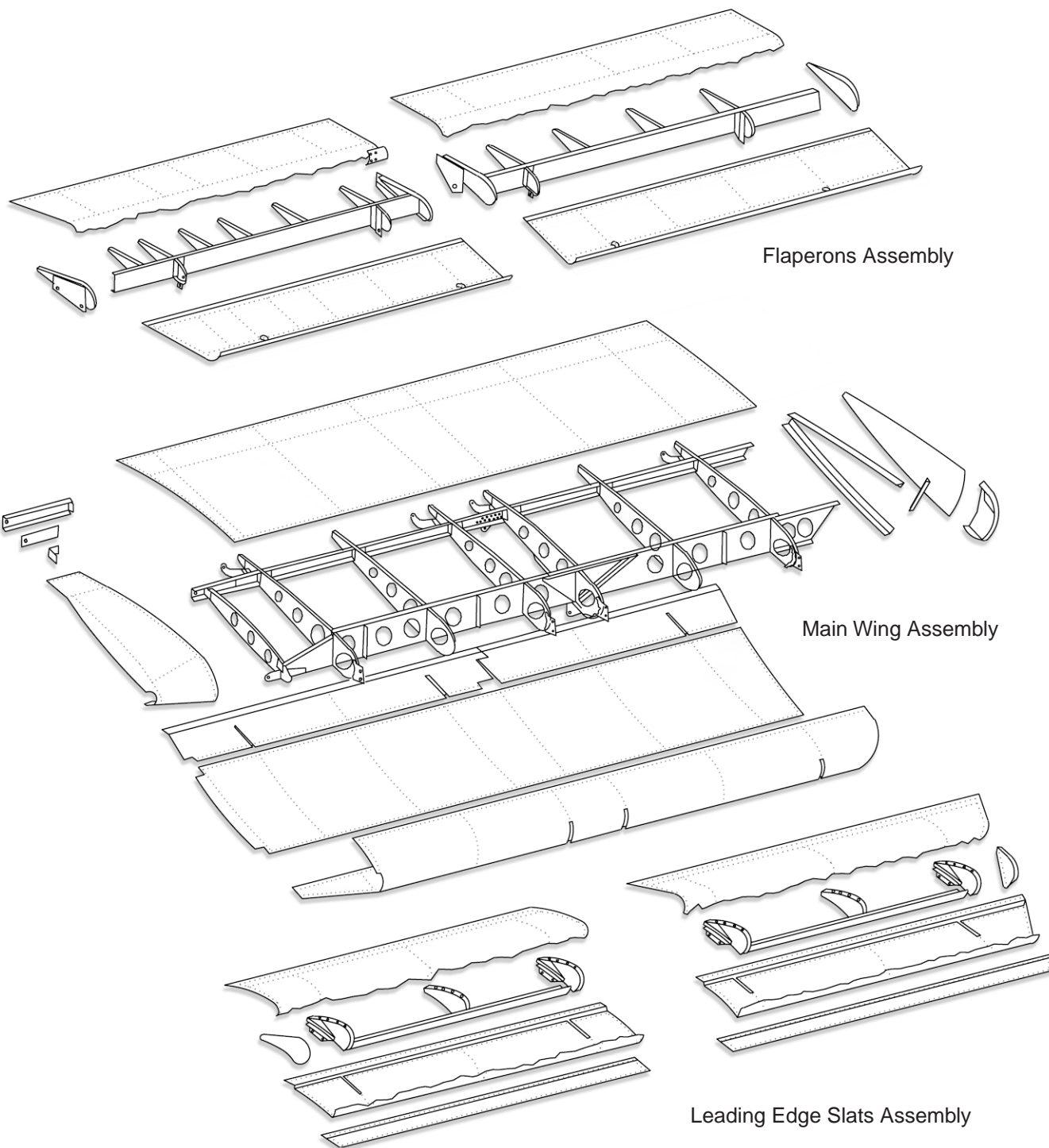


Volunteers from a Experimental Aircraft Assoc. (EAA) chapter mentor junior high school students in building an airplane.

The STOL CH 701 airframe assembly in progress.

SPORT UTILITY KIT AIRCRAFT CONSTRUCTION

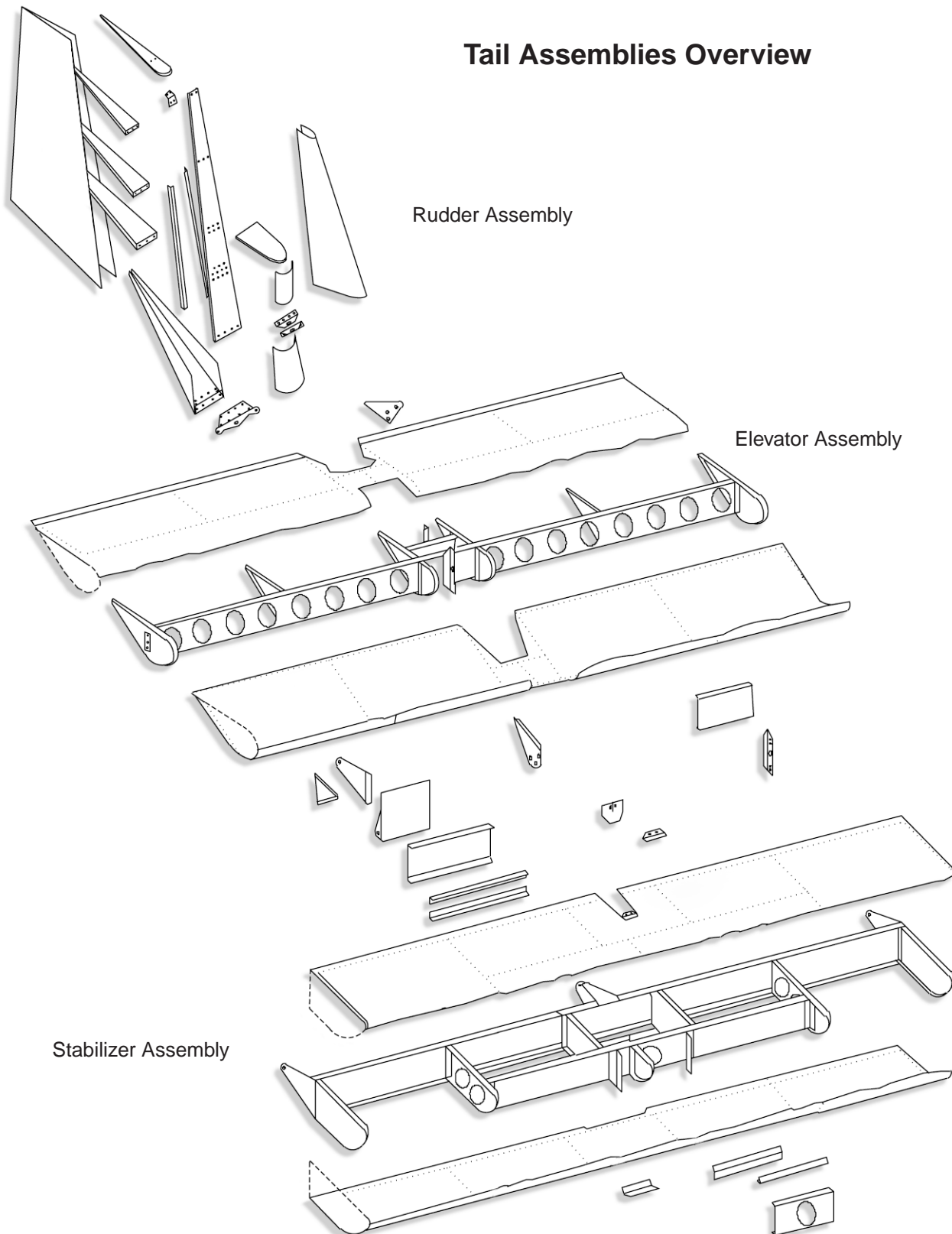
Wing Assembly Overview



STOL CH 701 Wing Assembly Shown.
STOL CH 801 Wing assemblies are similar.
Schematic: Drawing not to scale.

SPORT UTILITY KIT AIRCRAFT CONSTRUCTION

Tail Assemblies Overview



STOL CH 701 Tail Assemblies Shown.
STOL CH 801 Tail assemblies are similar.
Schematic: Drawing not to scale.

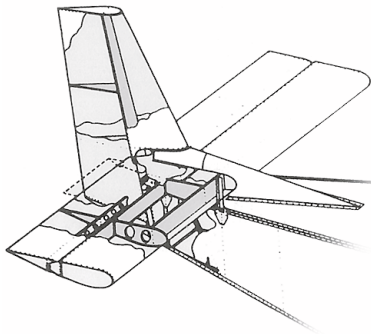
SPORT UTILITY KIT AIRCRAFT CONSTRUCTION

The square rear fuselage is easily assembled by building each of the four sides on a flat workbench and then simply 'boxing' the four sides together.

The forward fuselage (cabin) is made up of factory-riveted lower side frames, and a welded 4130 chrome-moly steel top frame. These sections are joined to the rear fuselage, and attach to the steel firewall in the front.

Fuselage and cabin parts are supplied ready for assembly as standard components of the complete kit.

The horizontal stabilizer tail is built up of two spars and internal ribs, covered with a single pre-formed sheet-metal skin.



The elevator also has internal ribs riveted to the elevator spar, covered with pre-formed sheet-metal skins. The completed elevator gets attached to the stabilizer with hinge pins at each end.

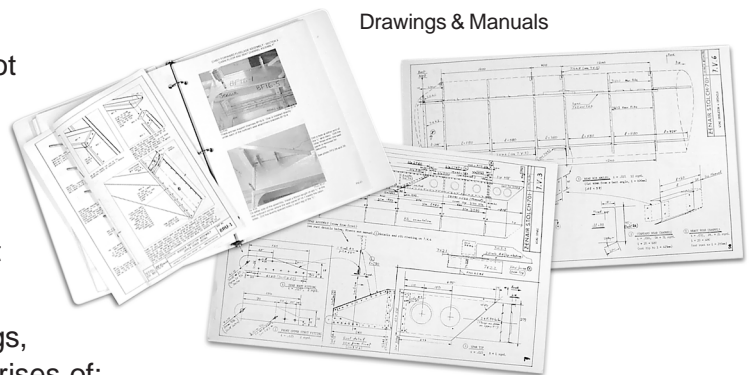
The rudder is a diminutive version of the wings - with a main spar and nose and rear ribs. The pre-formed vertical tail skins cover the internal spar and ribs.

Throughout, construction of the STOL series kit aircraft is 'modular' – each section of the aircraft is built separately on the workbench. Many builders thus choose to buy 'component kits,' purchasing kit sections as they progress through the project.

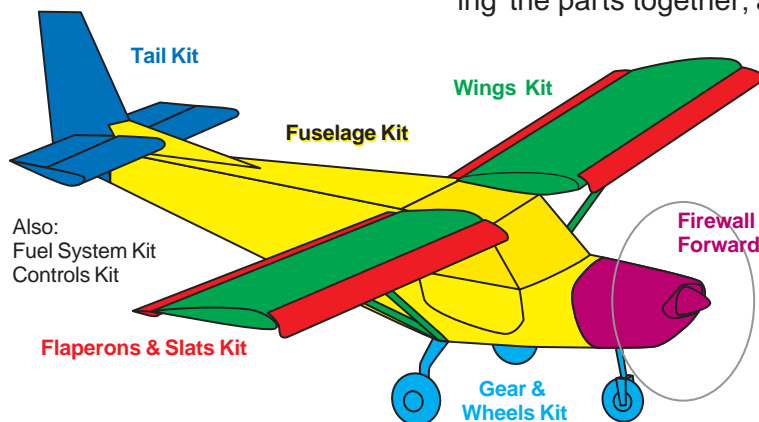
The vast majority of builders are pilots and not experienced aircraft builders or mechanics. Zenith Aircraft's kits are developed for the novice builder. Short build-times translate into high kit completion rates, and many builders can expect to complete their aircraft building project well within a year.

Guided by the assembly manuals and drawings, assembly of each section of the aircraft comprises of:

- 1) Measuring and lining-up the parts; 2) Drilling and 'cleco-ing' the parts together; and 3) Riveting the assembly together.



Drawings & Manuals



Also:
Fuel System Kit
Controls Kit

Once all the airframe sections have been assembled, the wing and tail sections are bolted to the fuselage and the landing gear, controls, and fuel system are installed.

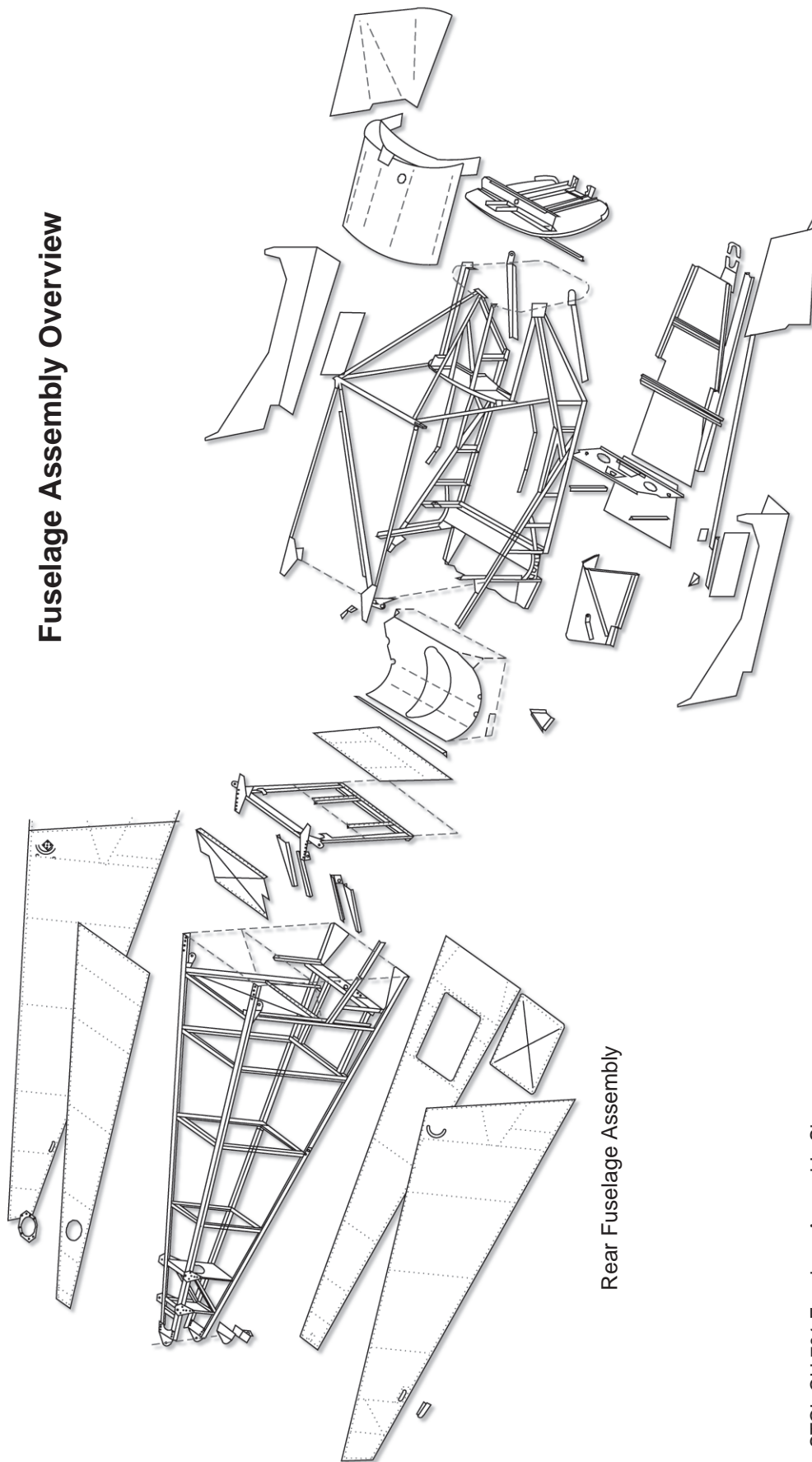
Installation of the engine and instruments completes the aircraft construction project. Since the engine installation is one of the last components in the process, most builders only purchase the engine when needed.

STOL CH 701
Fuselage
Assembly



SPORT UTILITY KIT AIRCRAFT CONSTRUCTION

Fuselage Assembly Overview



STOL CH 701 Fuselage Assembly Shown.
Schematic: Drawing not to scale.

The underlying philosophy behind the STOL series kit is to provide the builder with everything needed to complete the airframe with only basic tools and skills. Drawing upon Zenair's™ 25 year kit aircraft manufacturing and design experience, the kit is developed for maximum ease and simplicity of construction, while using only quality materials and parts.

The STOL CH 701 kit is estimated to require less than 500 hours to build from the complete factory-supplied kit, while the four seat STOL CH 801 is estimated to require about 750 hours. All you need to get started is a level workbench and basic hand tools. The detailed manuals, drawings, and instructions guide the builder through the entire kit assembly process following a logical step-by-step sequence. All kit components, parts and hardware are supplied – labeled and numbered for easy identification. Every airframe bolt, fastener, and rivet is supplied with the standard airframe kit.



STOL CH 701
Airframe Kit



The kit takes straight-forward and basic assembly work to put together using simple hand tools, such as an electric or pneumatic hand drill, a hand rivet puller, 'Cleco' temporary fasteners, a set of wrenches, a few hand files, sheet-metal snips, etc. Importantly, very few jigs and fixtures are needed in the building process, as most sections are built up from the flat workbench. A bending brake, shear or other 'sheet-metal' machinery is not needed.

Because of the modular nature of the kit assembly (each section is constructed separately) assembly is easily done in a single car garage or basement workshop. Most builders construct the tail and wing sections first, as these completed assemblies can easily be stored efficiently once completed (the assembled fuselage takes up more space). The modular construction also makes it

feasible to buy the kit in components -- with the builder taking delivery of each section as needed.

While previous aircraft building experience and sheet-metal skills are always an asset, the STOL kit and assembly instructions are developed specifically for the novice builder. The simplicity of construction, quality of parts and components, factory-direct technical support, and the completeness of the kit translates into low build-times and high kit completion rates, even for first-time builders.

Both the STOL CH 701 and STOL CH 801 kits meet the requirements for amateur-built (experimental) categories in the United States, as well as in most countries around the world.

The STOL series kit builder is buying much more than a box full of aircraft parts. Zenith Aircraft Company takes customer support seriously, and takes pride in the reputation it has developed with its growing customer base over the years.

"...simple to build, requiring just average skills and inexpensive tools.. kit prices are not exceptionally higher than what a builder would pay for the raw materials, simply because of the ease of making them. On a production line, Zenith parts can be made faster and more accurately than even the fastest, most skillful homebuilder could build them. All of Zenith's kits are quick to build by anyone's standard. [STOL CH 701] owners have reported times as low as 350 hours, with 400 hours a conservative average. That is just 20 hours a week for 20 weeks."

– General Aviation News & Flyer

In the kit, all the fabricated sheet-metal parts (such as wing ribs) are supplied pre-formed and ready for assembly. For example, the internal wing ribs are first press-formed, with lightening holes cut and flanged, and then hand finished at the factory for a perfect ready-to-install fit. The factory-built wing spars come complete with all solid (bucked) rivets already set by factory professionals. Surface skins - wings, ailerons, elevator, rudder, and fuselage - are ready for fitting.

Pre-assembled components (such as the wing spar and the lower cabin frame) are factory-treated with zinc-chromate primer for maximum corrosion resistance. Welded parts, such as the top cabin frame, control assemblies, and fuel tank(s), come factory welded and ready to install.

The STOL series kit is supplied as a complete package: the heavy-duty landing gear system, hydraulic brake system, fiberglass wing tips, control systems, welded aluminum fuel tanks, etc., are standard equipment in the complete airframe kit. Even the rivets and AN hardware (nuts and bolts) are supplied in the standard kit.

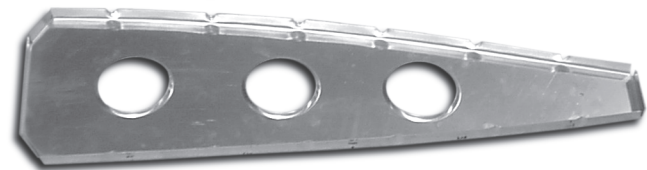
The complete kit (or component kits) can easily be crated and shipped around the world, or picked up at the Zenith Aircraft factory and packed in your vehicle or trailer. The factory kit itself can be crated and packed efficiently, as all the sections are 'broken down' - there is no large welded fuselage frame or composite shell. The large flat skins (top and bottom wing skins and fuselage skins) are rolled up together to minimize shipping size. Once a customer takes delivery of the complete kit, he or she can easily inventory and organize the kit parts in the home workshop.

The builder is able to start construction right away after taking delivery of the kit. Working from a flat workbench, the builder can immediately begin assembly - simply by measuring, drilling and riveting, and thus progressing through the whole airframe section by section, guided by the detailed manuals and drawings supplied with the kit. Building the all-metal STOL series kit aircraft is straight forward, requiring no complex jigs, and no messy (and hazardous) doping or epoxy work is involved. With the proven and simple all-metal construction technique, the STOL builder does not have to worry about having a temperature-controlled dust-free workshop environment, and does not have to mix compounds and wait for parts to cure.

Zenith Aircraft Company's relationship with the customer only begins when the kit is delivered. Direct factory support is always available - just a phone call, FAX or e-mail message away, which is promptly answered by the same professionals who build the kits. The Zenair™ Newsletter is another form of continuous builder support, providing ongoing updates, building tips and news from fellow builders, as well as Internet 'mail-lists'. Also, there are already hundreds of active Zenith builders around the world, happy to help other local builders complete their projects. Exclusive builder resources are also available at zenithair.com to provide updates and additional support to our builders.



Wing
Nose
Rib



Wing Rear Rib

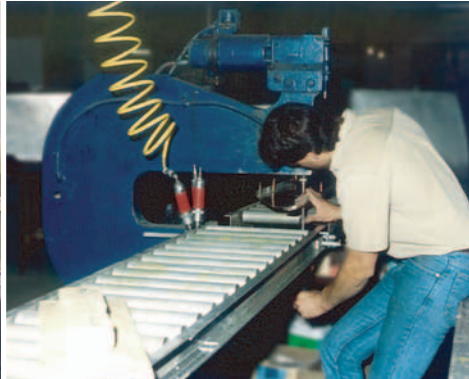
"The truest gauge by which to measure the quality of a kit and its kit manufacturing company are the number of its satisfied customers, the fine flying characteristics of all its finished aircraft, and the dedicated after-purchase support provided by the factory... By all these standards and many others too numerous to mention, Zenith Aircraft Company's excellent reputation is well deserved. We heartily recommend to every prospective homebuilt kit buyer that he or she seriously consider the excellent aircraft produced by Zenith Aircraft, a company we've always found to be competently and professionally managed by genuinely qualified, dedicated people."

— editor, Sport Pilot magazine

SPORT UTILITY KIT AIRCRAFT

THE KIT

Zenith Aircraft Company's manufacturing philosophy is to produce all the parts and components that require any special skills, machinery or processes, so that the builder's kit can easily be assembled at home with only basic tools and skills. Every part that makes up the kit is passed through a custom quality control (QC) program before being delivered, ensuring that all components received by builders are only high quality and ready to be assembled. Materials used meet Zenith Aircraft's strict requirements, and are tested in-house. The kits and building instructions undergo continuous improvements, made possible by the experiences gained from the hundreds of aircraft currently under construction.



Zenith Aircraft Company brings forward more than two decades of kit manufacturing experience; and has modern production facilities to professionally manufacture all kit parts, using only quality materials, modern production technology and skilled labor.

Further ongoing investments in production technology and employee training allow for the continuous improvement of Zenith Aircraft's high-quality kits – to make them easier and quicker to build than ever.



Visitors are welcome to tour the kit production facilities by appointment. Demonstration flights in the STOL kit aircraft may also be arranged.

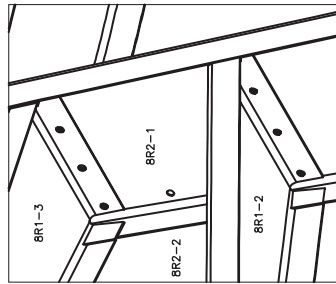
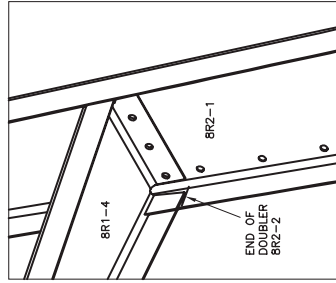
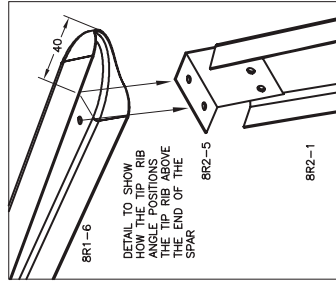
Zenith Aircraft Company holds an annual 'Open Hangar' day for visitors and customers, and hosts periodic hands-on building workshops at the factory.

"A tour of the factory demonstrates the work which goes into producing a STOL CH 701 kit. Using state of the art fabrication techniques, the skilled staff produces all kit parts with special attention to detail. All parts supplied in the kit are ready to assemble."

- Canadian Flight magazine

Sample STOL CH 801 Assembly Manual Drawing

This sample drawing is scaled to fit page. Original 11" x 17"



MARK A LINE AT 40mm FROM THE FRONT OF THE RIB. POSITION THE FRONT EDGE OF THE TIP ANGLE ON THE 50mm LINE. TO THE SPAR UNTIL AFTER THE REAR SKIN 8R3-1 IS INSTALLED, THE RIB IS POSITIONED TO MATCH THE TOP EDGE OF THE SKIN.

RIB #4 FITS ABOVE THE END OF THE DOUBLERS. LENGTH OF DOUBLER = 950mm

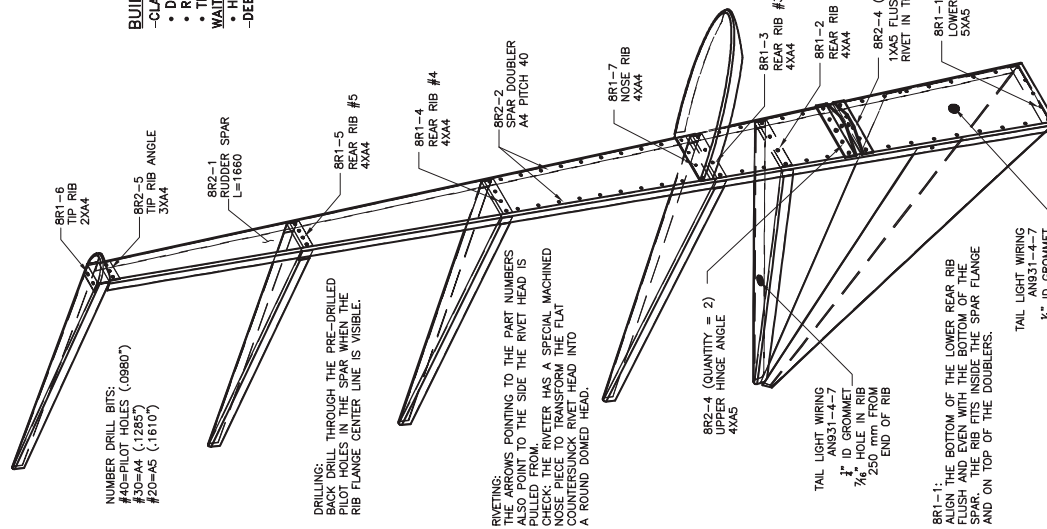
THE RIB FLANGE FITS ON TOP OF THE DOUBLERS (THE GAP BETWEEN THE RIB FLANGE WILL PULL TOGETHER WHEN RIVETED). CHECK: THE SIDES OF THE RIBS ARE CENTERED LEFT AND RIGHT ON THE SPAR.

- BUILDING SEQUENCE**
- CLAMP, DRILL, & GLECO;
 - RIBS
 - RIB ANGLE TO TIP RIB
 - WAIT TO DRILL TIP ANGLE TO SPAR
 - HINGE ANGLES
 - DEBUR & RIVET

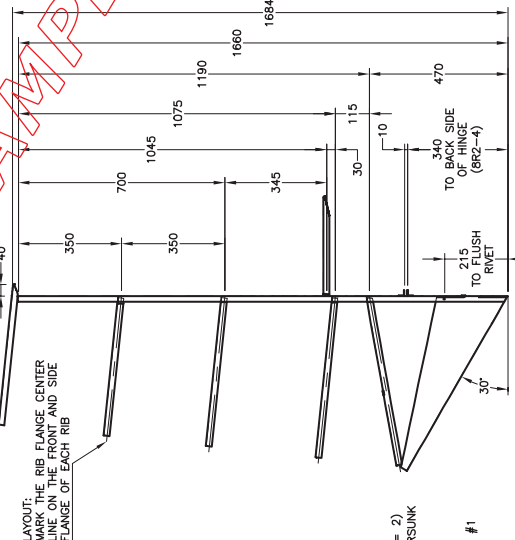
NUMBER DRILL BITS:
#40=PILOT HOLES (.0985")
#18=45 (1.1810")
#20=45 (1.1810")

DRILLING:
THE ARROWS POINTING THROUGH THE PRE-DRILLED PILOT HOLES IN THE SPAR WHEN THE RIB FLANGE CENTER LINE IS VISIBLE.

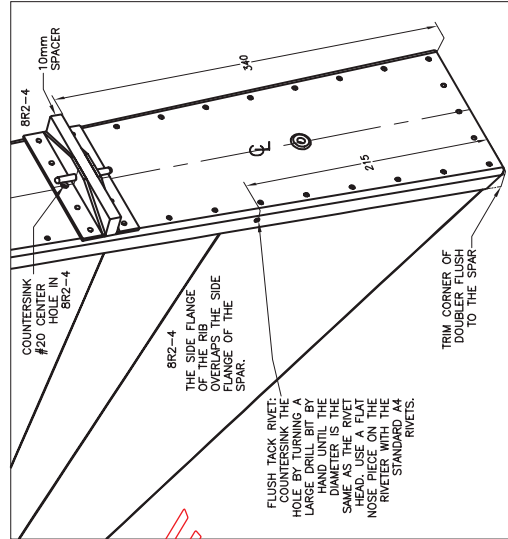
RIVETING:
THE ARROWS POINTING TO THE PART NUMBERS TO THE SIDE THE RIVET HEAD IS PULLED FROM.
CHECK: THE RIVETER HAS A SPECIAL MACHINED NOSE PIECE TO TRANSFORM THE FLAT CAP HEAD OF THE RIVET HEAD INTO A ROUND DOME HEAD.



SAMPLE



REFERENCE: DISTANCES ARE MEASURED FROM THE BOTTOM OF THE RUDDER SPAR.



FLUSH TACK RIVET: THE RIB OVERLAPPING THE SPAR. USE A LARGE DRILL BIT BY HAND UNTIL THE DIAMETER IS THE SAME AS THE RIB HEAD. USE A FLAT NOSE PIECE ON THE RIVETER WITH THE STANDARD A4 RIVETS.

CLAMP THE TWO HINGE ANGLES BACK TO BACK TO DRILL THE 1/4" HOLE THROUGH BOTH PIPES. AN ANGLE (USE AN ANGLE OR DEBUR RUNNER) MUST BE USED TO FILE THE HOLE. COUNTERSINK THE MIDDLE HOLES FOR AN AS RIVET. PLACE A 10mm SPACER BETWEEN THE TWO HINGE ANGLES AND BOLT TOGETHER (TO KEEP THEM PARALLEL) POSITION ON THE SPAR WITH THE 1/4" ON THE AIRCRAFT CENTER LINE. ONLY USE A FLAT NOSE PIECE ON THE RIVETER FOR THE COUNTERSUNK RIVET PULLED FROM THE SPAR. CHECK: THE RIB HAS THE REQUIRED CLEARANCE FOR THE BOLT WHEN THE RUDDER IS ATTACHED TO THE REAR FUSELAGE.

STOL CH 801	DESCRIPTION	RUDDER SKELETON ASSEMBLY UPPER HINGE DETAIL	ASST. NO.
	ORIGINAL INFO MAIN 02/08/00		8RU-1
	REVISION INFO		
		COPYRIGHT © 2000 ZENITH AIRCRAFT CO.	WWW.ZENITHAIR.COM

STOL CH 701 Design Features

- ✦ PROFESSIONAL, PROVEN DESIGN (since 1986)
- ✦ ALL-METAL AIRFRAME
- ✦ FULL LENGTH FLAPERONS (AILERONS & FLAPS)
- ✦ CONVENTIONAL 3-AXIS CONTROLS
- ✦ STEERABLE NOSEWHEEL
- ✦ RUGGED ALL-TERRAIN GEAR & WHEELS
- ✦ SHOCK ABSORBING 'BUNGEE' NOSE GEAR
- ✦ LARGE WHEELS WITH 16-INCH 'TUNDRA' TIRES
- ✦ HYDRAULIC DISK BRAKES
- ✦ REMOVABLE WINGS (Folding Wing Option*)
- ✦ EASY CABIN ACCESS FROM DUAL DOORS
- ✦ ALL-FLYING RUDDER
- ✦ OPTIONAL STROBE / NAV / LANDING LIGHTS*
- ✦ ADAPTABILITY TO MANY ENGINE TYPES
- ✦ PROVISION FOR FLOATS OR SKIS*
- ✦ DETAILED BLUEPRINTS & CONSTRUCTION MANUAL

CABIN AREA

- ✦ ROOMY SIDE-BY-SIDE SEATING
- ✦ 41-INCH WIDE CABIN
- ✦ LARGE INSTRUMENT PANEL
- ✦ EXTENDED BAGGAGE COMPARTMENT (REAR OF SEATS)
- ✦ EXCELLENT VISIBILITY
- ✦ EASY CABIN ACCESS FROM EITHER SIDE
- ✦ DUAL THROTTLE CONTROLS
- ✦ DUAL RUDDER PEDALS (RUDDER & NOSE WHEEL)
- ✦ ELECTRIC ELEVATOR TRIM OPTION*
- ✦ TOE BRAKES (LEFT SIDE)
- ✦ **NEW** "SWING-UP" DOORS
- ✦ CABIN HEAT (WITH ROTAX ENGINES)*
- ✦ INSTRUMENTS PACKAGE (FOR ROTAX ENGINE)*

* Optional equipment available at additional cost.

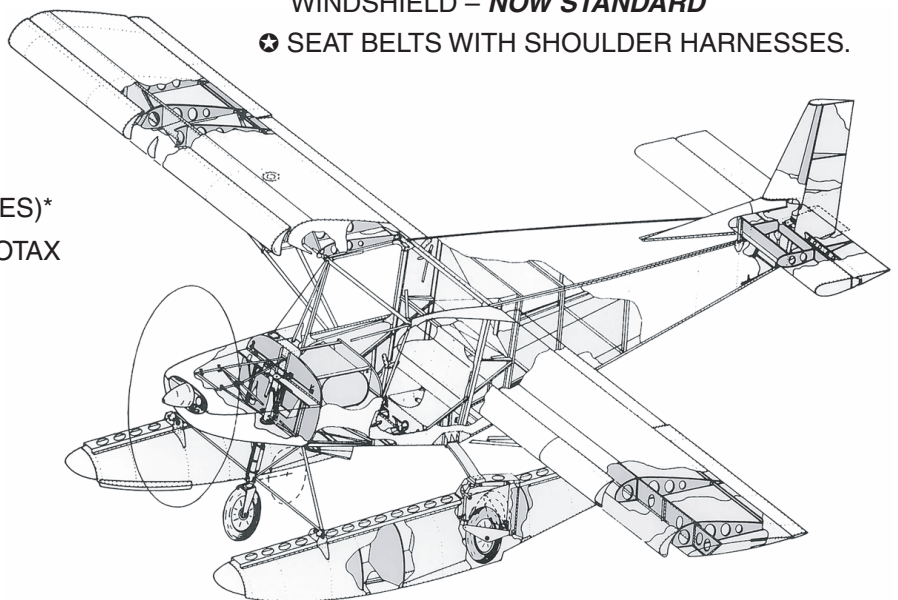
Equipment, features and availability subject to change without notice.

Kit Features & Equipment Summary

- ✦ LOW BUILD TIME
- ✦ SIMPLE BUILDING TECHNIQUE (BASIC SKILLS AND TOOLS)
- ✦ MODULAR CONSTRUCTION MINIMIZES WORKSHOP SPACE REQUIREMENTS
- ✦ QUALITY PARTS & COMPONENTS
- ✦ YOUR CHOICE: COMPLETE KIT, COMPONENT KITS OR PLANS-ONLY
- ✦ **NEW** DETAILED CAD DRAWINGS (complete blueprints) – NOT JUST INSTRUCTIONS.
- ✦ LIFETIME TECHNICAL SUPPORT FROM THE FACTORY
- ✦ DURABLE ALL-METAL CONSTRUCTION
- ✦ SUITABLE FOR DIFFERENT ENGINE TYPES
- ✦ NO MESSY & HAZARDOUS DOPING OR COMPOSITE WORK

STANDARD KIT EQUIPMENT

- ✦ MANY PRE-DRILLED SKINS! Most flat fuselage and wing skins are supplied pre-drilled from the factory.
- ✦ WELDED ALUMINUM FUEL TANKS: Kit includes all basic fuel system plumbing, including gascolator and fuel level senders and gauges.
- ✦ FACTORY-RIVETED WING SPARS AND LOWER CABIN FRAME SIDES
- ✦ FORMED FIBERGLASS TIPS: Wings, flaperons, slats tips.
- ✦ FULL LANDING GEAR SYSTEM: Kit includes wheels, tires, and hydraulic brakes.
- ✦ **NEW** ACRYLIC (PLEXIGLASS) FORMED WINDSHIELD – **NOW STANDARD**
- ✦ SEAT BELTS WITH SHOULDER HARNESSSES.



STOL CH 701

DESIGN VERSATILITY



Most of the 500+ flying STOL CH 701s won't be found tied-down or hangared at an airport. Made for off-airport runways, most owners base their aircraft in 'backyard' strips or short grass fields.

A one-man caravan:
STOL CH 701 with the folding wing option and a touring car on a trailer behind the motor home.



Swiss Alps



One in a fleet of STOL CH 701s used for anti-poaching in Ghana wildlife reserves.

Visit www.zenithair.com for more photos...



A custom STOL CH 701 taildragger equipped with low-volume ag spray system (South America).



STOL CH 701 custom-configured with a low-volume ag spray system and a belly pod.

AgAirUpdate:

"Our takeoff roll was absolutely unbelievable. The only two other aircraft that I can think of that possibly could take off shorter would be a helicopter or Wayne Handley's Turbo Raven. With a high nose pitch the CH 701 literally climbed out with two adults and full fuel at 1,000 feet per minute with about 100 feet of ground roll, breaking ground approaching 30 knots indicated airspeed!

"With its slotted leading edges and clear sun roof, the CH 701 makes for a good turning "ag plane." It's not really an ag plane, per se, but it sure has a place in an ag operation. I really like the STOL CH 701 AG. Flying over the corn at 100 mph, making 30-second or less safe turns, an exceptional climb rate and short take-off and landing capability, deems the CH 701-AG a viable aircraft for many spraying operations." – Bill Lavender, editor, AgAirUpdate, October 1999.

STOL CH 801 Design Features

- ✦ PROFESSIONAL DESIGN BASED ON THE PROVEN STOL CH 701
- ✦ ALL-METAL AIRFRAME
- ✦ FULL LENGTH FLAPERONS (AILERONS & FLAPS)
- ✦ CONVENTIONAL 3-AXIS CONTROLS
- ✦ STEERABLE NOSEWHEEL
- ✦ RUGGED ALL-TERRAIN GEAR & WHEELS
- ✦ SHOCK ABSORBING 'BUNGEE' NOSE GEAR
- ✦ LARGE WHEELS WITH 'OFF-ROAD' TIRES
- ✦ DUAL HYDRAULIC DISK BRAKES
- ✦ REMOVABLE WINGS
- ✦ EASY CABIN ACCESS FROM DUAL DOORS
- ✦ ALL-FLYING RUDDER
- ✦ OPTIONAL STROBE / NAV / LANDING LIGHTS*
- ✦ SUITABLE FOR MANY ENGINE TYPES
- ✦ PROVISION FOR FLOATS OR SKIS*
- ✦ DETAILED CONSTRUCTION MANUALS

CABIN AREA

- ✦ ROOMY CABIN FOR 4 LARGE ADULTS
- ✦ 44-INCH WIDE CABIN
- ✦ ADJUSTABLE FRONT SEATS
- ✦ LARGE INSTRUMENT PANEL
- ✦ EXCELLENT VISIBILITY
- ✦ EASY CABIN ACCESS FROM EITHER SIDE
- ✦ DUAL CONTROLS
- ✦ DUAL RUDDER PEDALS
- ✦ ELECTRIC TRIM CONTROL
- ✦ ELECTRIC FLAP CONTROL
- ✦ TOE BRAKES (LEFT SIDE)
- ✦ CABIN HEAT*



Kit Features & Equipment Summary

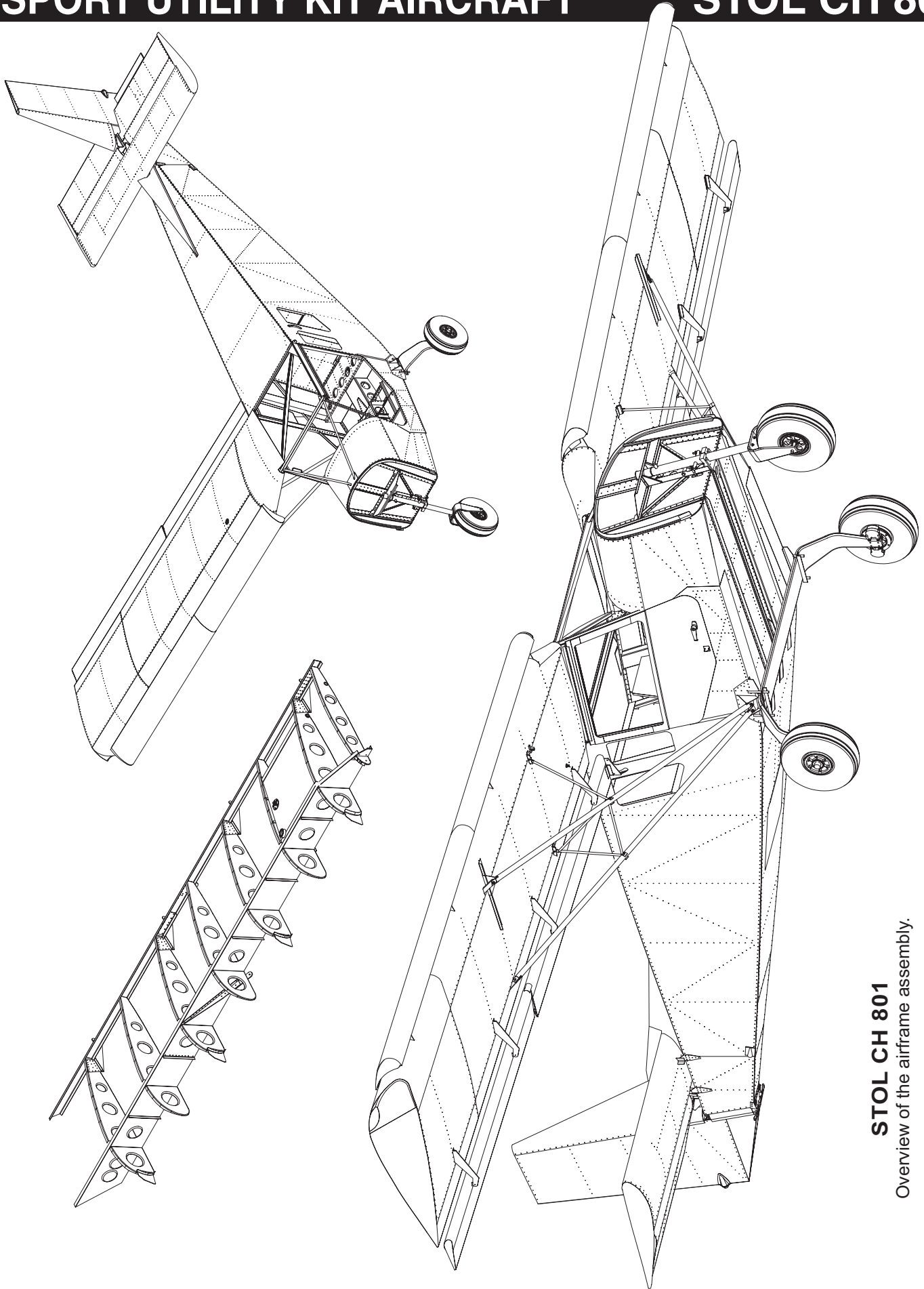
- ✦ LOW BUILD TIME (shorter than most two-seaters)
- ✦ SIMPLE BUILDING TECHNIQUE (BASIC SKILLS AND TOOLS)
- ✦ MODULAR CONSTRUCTION MINIMIZES WORKSHOP SPACE REQUIREMENTS
- ✦ QUALITY PARTS & COMPONENTS
- ✦ YOUR CHOICE: COMPLETE KIT OR 'BUY-AS-YOU-BUILD' COMPONENT KITS
- ✦ DETAILED & ILLUSTRATED ASSEMBLY INSTRUCTIONS
- ✦ LIFETIME TECHNICAL SUPPORT FROM THE FACTORY
- ✦ DURABLE ALL-METAL CONSTRUCTION
- ✦ SUITABLE FOR DIFFERENT ENGINE TYPES
- ✦ NO MESSY & HAZARDOUS DOPING OR COMPOSITE WORK

STANDARD KIT EQUIPMENT

- ✦ MORE THAN 4,000 PRE-DRILLED HOLES! As the newest kit from Zenith Aircraft Company, the STOL CH 801 kit is more complete and easier to build than ever.
- ✦ WELDED ALUMINUM FUEL TANKS: Kit includes all basic fuel system plumbing, including gascolator, electric fuel sender units (instrument panel gauges are not included).
- ✦ Position switches and wiring included for electric trim tab and electric flaps.
- ✦ FACTORY-RIVETED WING SPARS AND LOWER CABIN FRAME SIDES
- ✦ FORMED FIBERGLASS TIPS: Horizontal tail, wings, flaperons, slats.
- ✦ FULL LANDING GEAR SYSTEM: Kit includes wheels, tires, and hydraulic brakes.
- ✦ ACRYLIC (PLEXIGLASS) FORMED WINDSHIELD
- ✦ FRONT ADJUSTABLE SEAT FRAMES AND REAR SEAT BENCH INCLUDED IN KIT (non upholstered).
- ✦ SEAT BELTS WITH SHOULDER HARNESSSES.

* Optional equipment available at additional cost.

Equipment and features subject to change without notice.



STOL CH 801
Overview of the airframe assembly.

STOL CH 801

DESIGN VERSATILITY



Optional equipment developed specifically to expand the STOL CH 801's capabilities include a belly-mounted cargo pod and floats (straight floats or amphibious floats).



Aircraft shown are conceptual configurations with custom and/or optional equipment. Custom applications and/or modifications will affect performance and characteristics of the aircraft, and may not meet the builder's intended purpose.

The STOL CH 801 has been designed to provide spectacular short-field performance and a high useful load without the need for excessive power. A lighter engine weight increases the payload and slow-flight capabilities of the aircraft (lower aircraft empty weight) and more utility is obtained with an increased range and endurance (lower fuel burn).

To offer the builder maximum flexibility and to keep costs as affordable as possible, the STOL CH 801 has been developed with an 'open design' to allow for a wide choice of different engine installations: The suitable power range is 150 - 220 hp, with a maximum recommended powerplant weight of 440 lbs. The large firewall will easily accommodate most conventional and custom engines within the stated power and weight recommendations.

The recommended standard powerplant for the STOL CH 801 is the 180-hp **Lycoming O-360** engine.

Over the past 65 years, Lycoming has produced more than 260,000 piston aircraft engines. With a reputation for performance and reliability, Lycoming piston engines power more than 85% of the new general aviation aircraft produced worldwide. Whether you buy a factory-new, remanufactured or overhauled engine, Lycoming engines provide a history of performance and reliability, with worldwide parts and warranty support from Textron Lycoming.



Lycoming
O-360

For simplicity, reliability and economy, the standard Lycoming O-360 is equipped with a fixed-pitch propeller (Sensenich metal 72") and a normally aspirated carburetor. Thanks to the popularity of this engine over the past four decades, there are many rebuilt / overhauled engines available on the used market. The Lycoming O-360 has a reputation for meeting or exceeding the 2,000 hour TBO.

ALTERNATIVE ENGINES: Designer Chris Heintz developed the STOL CH 801 with an 'open design' to allow the builder to select alternative engine installations. Heintz stated: "I've designed the STOL CH 801 to be suitable for different engine types – both conventional aircraft engines as well as custom engine conversions. In response to demand, I've developed the aircraft with auto-conversions in mind. Operators in remote parts of the world may want an engine made to run on automotive fuels and they want spare parts availability. Additionally, many modern automotive conversions minimize the engine cost and fuel consumption, while maximizing performance thanks to lighter design weights and other innovations."

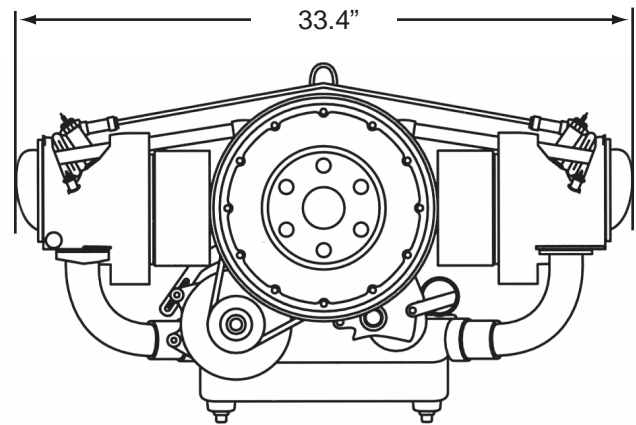
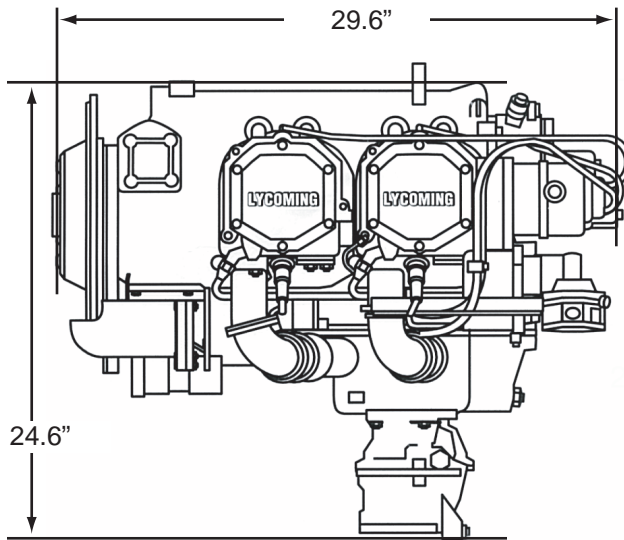
Alternative engines that are being or have been installed in the STOL CH 801 include **Subaru** automotive conversions (150 - 200+ hp), the 220-hp six cylinder **Franklin** aircraft engine, the smaller **Lycoming O-320** (140-160 hp), **Walter-LOM** engines (160 - 210 hp), as well as other custom installations. Alternative engines will affect performance, specifications and flight characteristics of the aircraft. Also, the weight and balance of the aircraft may be adversely affected by alternative engines, and the original fuel system may not be adequate or suitable for some engines. Most alternative engines will require a custom engine mount and engine cowl. Zenith Aircraft Company does not manufacture or directly support engines nor their installation. The high-lift features of the airplane give the STOL CH 801 its excellent short take-off and landing capability. Designed as a Sport Utility kit aircraft, the top speed of the aircraft is limited by these high-lift design features, and more power will not yield significant top speed gains.

For more information on engines: lycoming.textron.com and www.zenithair.com



TEXTRON Lycoming

O-360-A1A 180-HP



PERFORMANCE	
Max Continuous HP	180
Max RPM @ full power	2700
Max Recommended TBO	2000
CYLINDERS	
Number of cylinders	4
Bore (inches)	5.125
Stroke (inches)	4.375
Displacement (cubic inches)	361
Compression ratio	8.50 : 1
FUEL	
Aviation Grade (Octane)	100 or 100 LL
gph consumption @ 75% power	9.7
gph consumption @ 65% power	8.3
WEIGHT	
Dry weight (pounds)	257

EQUIPMENT
The Lycoming O-360-A engine uses a Type 1, dynafocal 30-degree engine mount. It can have controllable propeller compatibility, when equipped with a prop governor (located at the rear of the engine).
STANDARD EQUIPMENT
<ul style="list-style-type: none"> ● Impulse Magneto system ● Shielded ignition harness ● Tachometer drive ● Exhaust gaskets and attach. hardware ● Spark plugs ● Intercylinder baffles ● Oil screen ● Oil cooler thermostatic bypass valve ● Operator's Manual ● MA-4-5 carburetor (bottom air inlet)
OPTIONAL EQUIPMENT
<ul style="list-style-type: none"> ● Single or dual vacuum pump drives ● 12 or 24 volt starter ● Lightweight starters ● Alternator (multiple voltage / amperage) ● Electronic ignition system ● Diaphragm type fuel pump ● Primer system ● Full flow oil filter

Zenith Aircraft Company offers firewall-forward accessories for installing the Lycoming O-360-A engine in the STOL CH 801, including the engine mount, fiberglass cowl, and propeller.

Source: Textron-Lycoming. For more information on engines: lycoming.textron.com



80-HP ROTAX 912 AIRCRAFT ENGINE

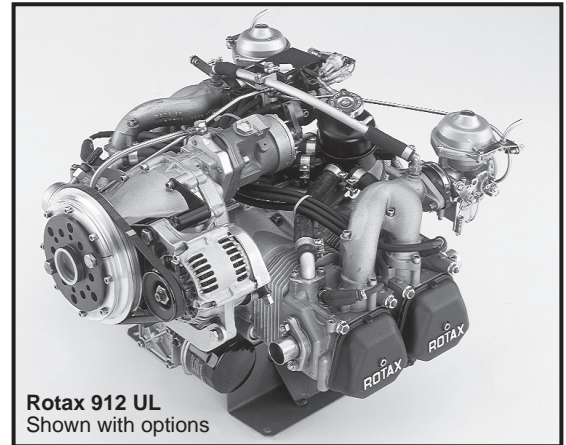
ENGINE DESCRIPTION: ROTAX 912 UL

4-cylinder, 4-stroke liquid / air cooled engine with opposed cylinders, dry sump forced lubrication with separate oil tank, automatic adjustment by hydraulic valve tappet, dual CD carburetors, mechanical diaphragm pump, electronic dual ignition, electric starter, integrated reduction gear 1 : 2.273

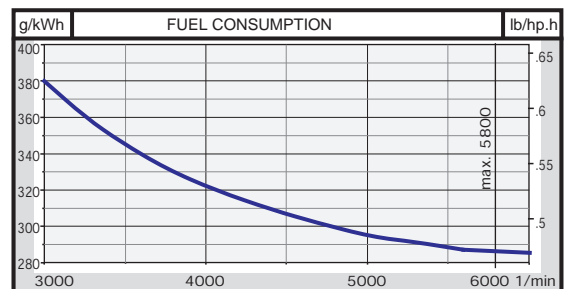
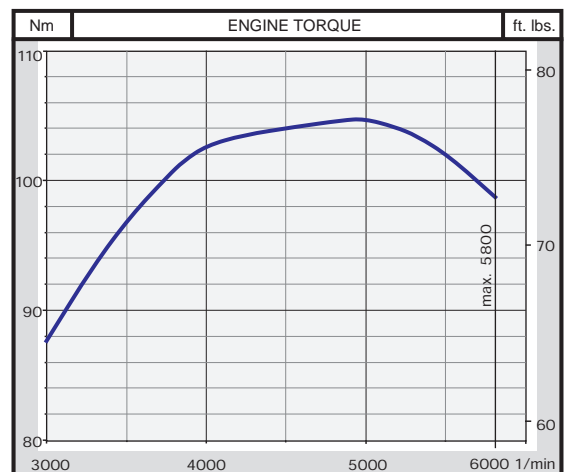
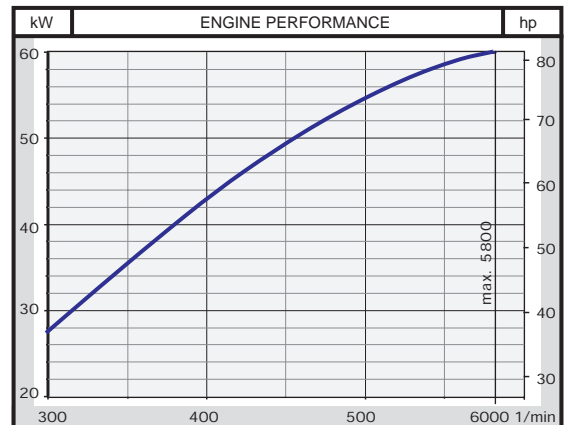
BORE / STROKE	3.13 in (79.5 mm.) 2.40 in. (61 mm.)
DISPLACEMENT	73.91 cu. in. (1211.2 cc)
POWER OUTPUT	Approx. 80 HP (59 kW) @ 5500 RPM
TORQUE MAX.	Approx. 76 ft.lbs. (103 Nm) @ 4800 RPM
WEIGHT	132 lbs. (60 kg) with electric starter, carburetors, fuel pump, air filters and oil system
MAX RPM	5,800 RPM (1/min.)
CYLINDER	light alloy cylinders, NIKASIL plated
PISTON	aluminum cast; three piston rings
VALVE TRAIN	OHV, hyd. lifters, pushrods, rocker arms
CYLINDER HEAD	4 separate cylinder heads
COMPRESSION	9 : 1
VALVE GAP	auto adjustment by hydraulic valve
CAM SHAFT	steel, heat treated, nitrated
CRANKSHAFT	case hardened with 5 bearings
COOLING	liquid cooled cyl. heads, air cooled cyl.
LUBRICATION	dry sump with trochoid pump, camshaft driven
OIL	.08 US Gal. (3 liters); high performance auto (SAE 15W40)
FUEL	premium unleaded: 90 oct. or higher leaded or unleaded or AVGAS 100 LL
GENERATOR	13.5 V, 250 W DC @ 5500 RPM

Source: **Bombardier-Rotax**. For information only.
The Rotax 912 UL does not comply with federal safety regulations for standard aircraft. This engine is for use in experimental uncertified aircraft only and only in circumstances in which an engine failure will not compromise safety.

For more info: www.kodiakbs.com and www.rotax-owner.com



Rotax 912 UL
Shown with options



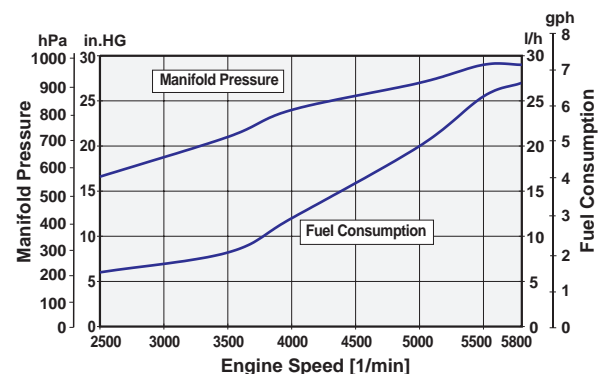
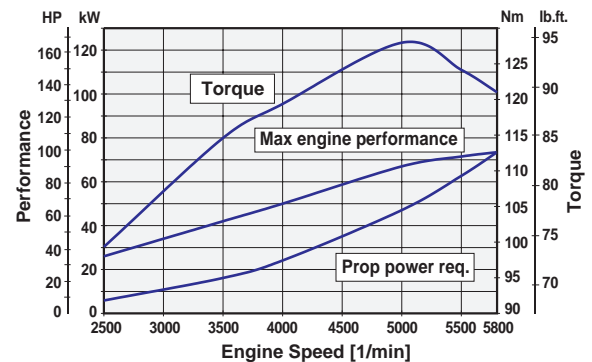
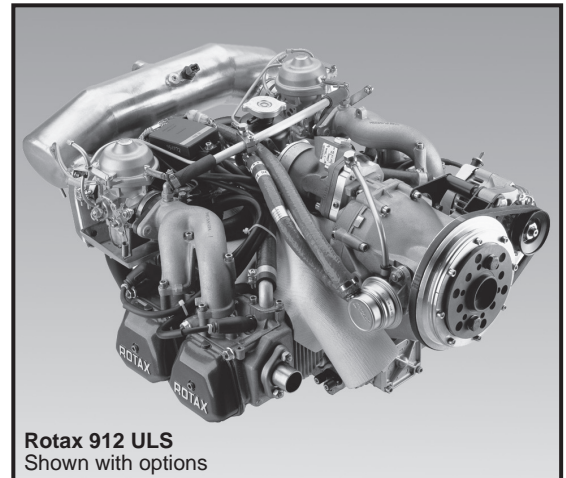


100-HP ROTAX 912S AIRCRAFT ENGINE

ENGINE DESCRIPTION: Rotax 912 ULS

4-cylinder, 4-stroke liquid / air cooled engine with opposed cylinders, dry sump forced lubrication with separate oil tank, automatic adjustment by hydraulic valve tappet, dual CD carburetors, mechanical diaphragm pump, electronic dual ignition, electric starter, integrated reduction gear 1 : 2.43

BORE / STROKE	3.31 in (84 mm.) 2.40 in. (61 mm.)
DISPLACEMENT	82.6 cu. in. (1352 cc)
POWER OUTPUT	Approx. 95 HP (69 kW) @ 5500 RPM 100 HP (73.5 kW) @ 5800 RPM* * with Rotax airbox and exhaust system
TORQUE MAX.	Approx. 94 ft.lbs. (128 Nm) @ 5100 RPM
WEIGHT	136 lbs. (62 kg) with electric starter, carburetors, fuel pump, air filters and oil system
MAX RPM	5,800 RPM (1/min.)
CYLINDER	light alloy cylinders, NIKASIL plated
PISTON	aluminum cast; three piston rings
VALVE TRAIN	OHV, hyd. lifters, pushrods, rocker arms
CYLINDER HEAD	4 separate cylinder heads
COMPRESSION	10.5 : 1
VALVE GAP	auto adjustment by hydraulic valve
CAM SHAFT	steel, heat treated, nitrated
CRANKSHAFT	case hardened with 5 bearings
COOLING	liquid cooled cyl. heads, air cooled cyl.
LUBRICATION	dry sump with trochoid pump, camshaft driven
OIL	.08 US Gal. (3 litres); high performance auto (SAE 15W40)
FUEL	premium unleaded: 90 oct. or higher leaded or unleaded or AVGAS 100 LL
GENERATOR	13.5 V, 250 W DC @ 5500 RPM



Source: **Bombardier-Rotax.**

For information only.

The Rotax 912 ULS does not comply with federal safety regulations for standard aircraft. This engine is for use in experimental uncertified aircraft only and only in circumstances in which an engine failure will not compromise safety.

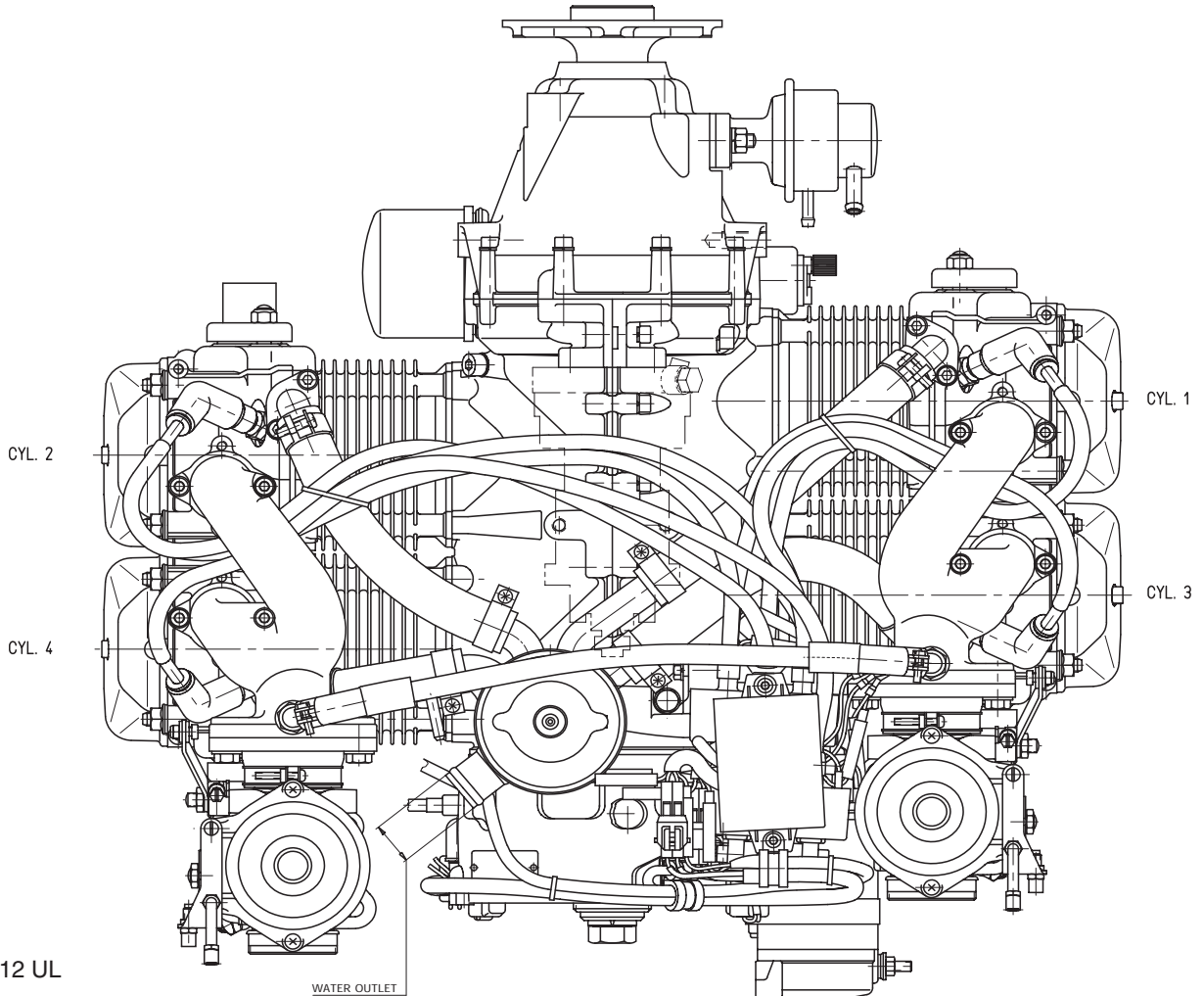
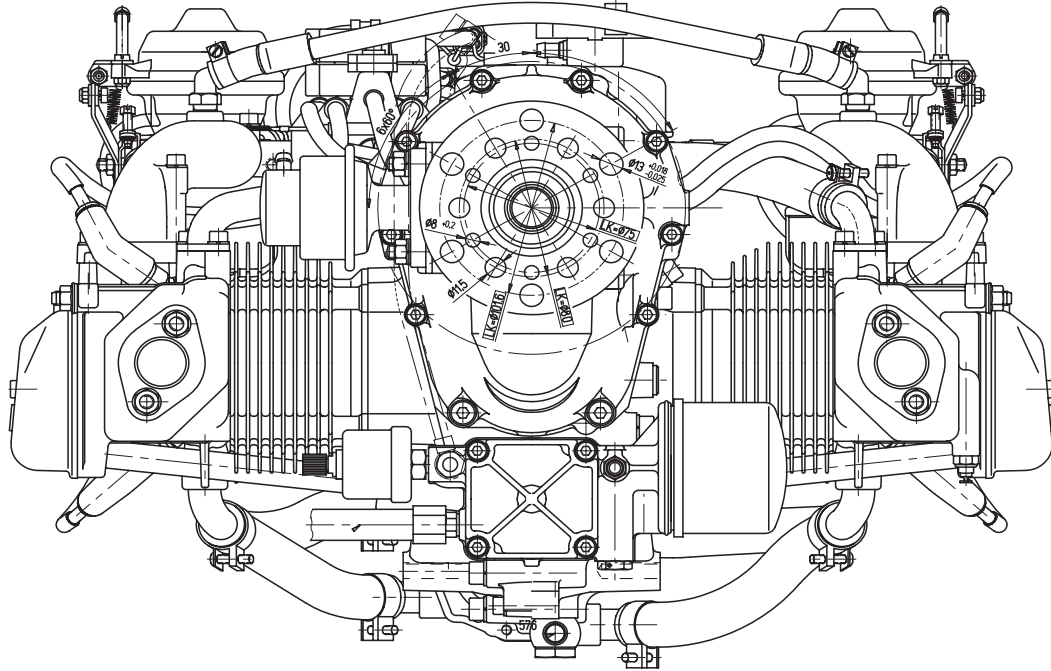
For more info:

www.kodiakbs.com

www.rotax-owner.com



ROTAX 912 AIRCRAFT ENGINE



Rotax 912 UL

WATER OUTLET



The STOL Series kit aircraft offer utility rarely found in recreational planes:

- ★ S.T.O.L. performance and rough field capability
- ★ Comfortable side-by-side seating
- ★ Great visibility and slow-flight characteristics
- ★ Durable yet simple all-metal construction



STOL CH 801 with a 220-hp Franklin aircraft engine installation. This aircraft was built by Vince Butner of Marshall, Missouri in less than one year. Since completing his first one, Vince has taken delivery of a second STOL CH 801 kit.



"After a year of research on STOL aircraft, I decided on the ZENITH STOL CH 701. The 'SkyJeep,' with the heavy gear and tundra tires has proven it can handle any grass strip (or most of the farm fields). It has a Rotax 912 with a 3-blade Warp Drive prop. The 701 was built for personal use but it also serves as a law enforcement search & rescue vehicle. With 70 hours TTSN, the aircraft has certainly met all our expectations."

— Pete Weatherhead, Birchwood, Wisconsin

"I now have more than 20 hours of flight time on my STOL CH 701... Its STOL flying characteristics are truly amazing..."

— STOL CH 701 builder Rob Hunker of Redstone, Colorado

"I went out and measured a short takeoff distance, at an elevation of 2,500 ft, on a 22-degree Celcius day (a density height of 3,700 ft), with only me (at 82 kg), and 40 litres of fuel: the take off run was FOURTEEN METRES with no wind!!"

— Mike Watson, Australian Ultralights magazine.



SPORT UTILITY KIT AIRCRAFT

FLOAT FLYING!



Enjoy the added capability and freedom of Float Flying with all-metal Zenair™ Floats made specifically for the STOL CH 701 and the STOL CH 801

Going fishing? Visiting your summer retreat? Exploring the lakes? ... or just getting away from it all for a weekend of peace and quiet? A float plane is the definitive way to bring back FUN to recreational flying. Float flying adds a whole new perspective to flying – with exciting new challenges, and peaceful quiet interludes on the water.



Designer Chris Heintz developed the STOL CH 701 and STOL CH 801 kit aircraft to be 'float-ready' so that these designs could easily be equipped with floats for water flying. Heintz has designed his own all-metal aircraft floats specifically for the STOL series kit aircraft – to provide maximum performance, low weight and cost,

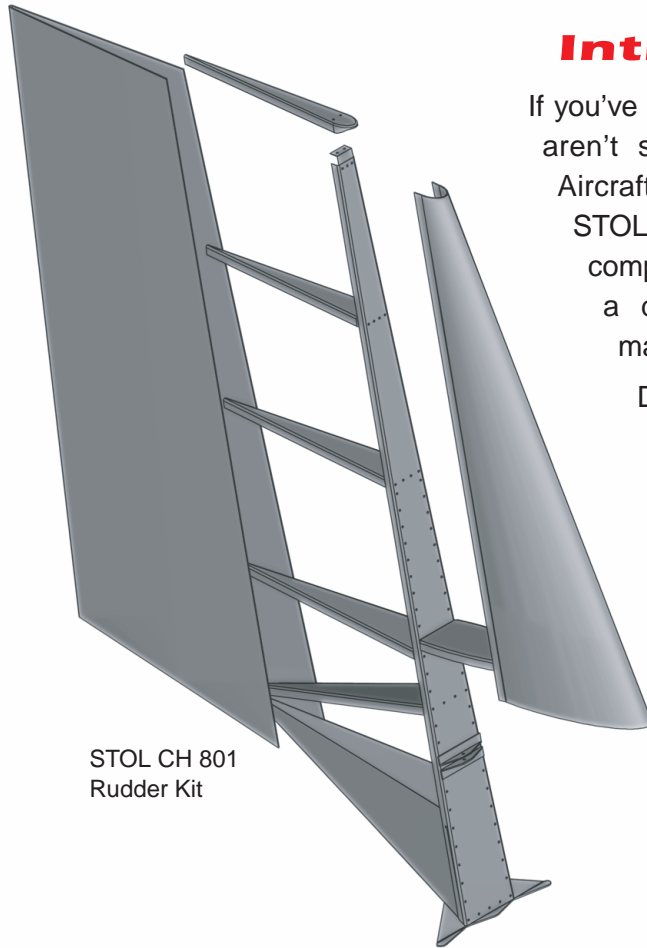
and all-metal durability. To best suit your needs and your budget, floats for the STOL series aircraft are available in kit form or factory-assembled. Straight floats or amphibious versions are available, as well as rigging / installation kits.



The amphibious floats for the STOL CH 701 utilize an ingenious tri-gear retractable gear system: It uses the stock steerable nosegear with the addition of a folding extension adapter located between the wheel fork and the gear strut. On land, the aircraft thus uses the standard steerable nosewheel system. With the gear retracted, the nosewheel folds back to clear the water. The main wheels retract into the wheel wells located inside the floats.

Whether you need a floatplane, or are just thinking of adding floats to your aircraft later, both the STOL CH 701 and the STOL CH 801 are 'float-ready.' The Heintz-designed floats are manufactured by Czech Aircraft Works S.R.O. in the Czech Republic. See www.zenithair.com for details.

START BUILDING FOR JUST A FEW HUNDRED DOLLARS!



STOL CH 801
Rudder Kit

Introductory Starter Kit

If you've always dreamed of building your own airplane, but aren't sure that you have the required skills, Zenith Aircraft's exclusive Rudder Starter Kit is for you. The STOL CH 801 or STOL CH 701 Starter Kit includes the complete kit for the rudder tail section and comes with a detailed and illustrated step-by-step assembly manual – everything you need to get started!

Developed specifically for the first-time builder, the starter kit costs just a few hundred dollars, and includes everything you need to start building your own STOL kit aircraft, including:

Complete Rudder Tail Kit:

- Pre-Formed Ribs, Spar, etc.
- Rivets & Hardware Needed To Assemble The Rudder.
- Detailed Rudder Assembly Manual
- Step-By-Step Assembly Instructions
- Building Tips And Hints...

Putting together the rudder Starter Kit is just a weekend project, and will provide you with an excellent 'hands-on' introduction to building your own aircraft. Once you've completed the rudder kit, you'll have the skills and tools to continue with the rest of the STOL kit – and you'll also have part of your aircraft completed. We'll even deduct the cost of the rudder kit off the price of the complete kit when you're ready to continue.

You'll need the following to assemble the rudder kit:

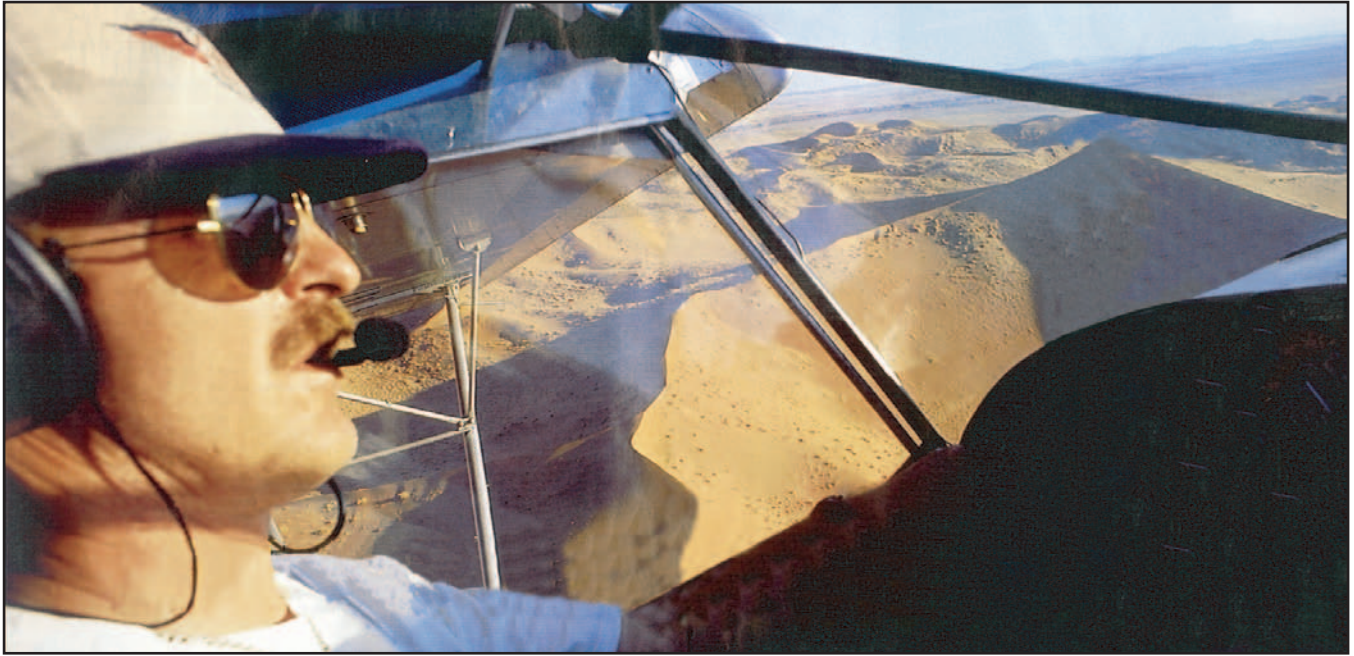
- Workshop: a sturdy 4' x 8' flat table.
- Tools: Basic hand sheet-metal tools: electric hand drill, metric tape measure, 'Cleco' pliers and fasteners, sheet-metal snips, hand 'pop'-type riveter with custom heads, and a few files. You won't need a bending brake or shear, or other power tools.

The complete rudder Starter Kit can easily be shipped by UPS right to your door (in the United States). Most required basic hand tools can also be purchased from Zenith Aircraft Company.

Zenith Aircraft Company also holds workshops at the factory - where workshop participants build the rudder kit with the help and guidance of factory staff. The factory workshops also allow participants to tour the factory and see the company's demo aircraft.

See www.zenithair.com for more information about attending a factory workshop.

BUILDING YOUR SPORT UTILITY KIT AIRCRAFT



If you've dreamed of building and flying your own sport utility kit aircraft the STOL series kit is the answer to your dreams – offering you outstanding short take off and landing performance, and unmatched capabilities:

Developed as a true **Sport Utility** kit aircraft, the **STOL CH 801** offers exceptional rough-field short take-off and landing performance, while providing a half-ton useful load and a spacious cabin.

The original **STOL CH 701** offers exceptional short-field performance in an aircraft that is both easy and fun to fly, combining the advantages of an 'ultralight' aircraft with those of a 'real' airplane.



Built of sturdy all-metal construction, the STOL series kit aircraft is designed to provide the durability and ruggedness required of 'off-airport' bushplanes, while being simple and quick to build. Developed as true sport utility kit aircraft, the STOL designs offer many modern features for truly outstanding short-field performance and overall versatility and utility.



Building your own aircraft is going to be one of the most challenging and rewarding undertakings you'll ever accomplish: Imagine, you'll be enjoying the thrills of flying an aircraft that you've built yourself! Few people get to experience the sensation and freedom of being at the controls of an aircraft. Even fewer are also rewarded by flying an airplane that they've built themselves. The STOL series kit aircraft will help you realize your dreams like no other kit aircraft!

Zenith Aircraft Company is a leader in the kit aircraft manufacturing industry, with extensive experience designing and building quality aircraft kits for both first-time builders and demanding sport pilots. With this invaluable experience, Zenith Aircraft provides builders with award-winning designs and kits, and ongoing and direct factory service and support.

BUILDING YOUR SPORT UTILITY KIT AIRCRAFT

The STOL series kit aircraft is designed for pilots seeking maximum **sport** and **utility** from a kit plane.

While building your own airplane is both a challenge and a commitment, complete kits from Zenith Aircraft Company make it quicker and easier than ever for you to get in the air in your own personal 'bushplane.'



The high quality of the STOL series design and kit assures you that this is one project you'll be proud to own and fly for many years...

Zenith Aircraft Company has made it easy for you to start building your own STOL kit aircraft:

- **Rudder Starter Kit / Factory Workshops**
- **Complete Kit or Component 'buy-as-you-build' Kits**
- **Drawings & Manuals** (STOL CH 701 model only)

Now that you know all about the STOL kit aircraft series from Zenith Aircraft Company, the next step is yours: to undertake the unique opportunity of building your own sport utility kit airplane. Remember, the sooner you start building, the sooner you'll be enjoying the thrills of flying your own personal Sport Utility kit aircraft!

To place your order, see the enclosed ORDER FORMS for complete ordering information. When we receive your order, a company representative will contact you to confirm your order and to arrange shipping and any other details. The complete kit can be crated and shipped right to your door, or you can arrange to pick up the kit at the factory. Order lead-times vary – contact us for the next available ship date.

Zenith Aircraft Company is committed to working with every builder with ongoing customer service and support. Feel free to contact us should you have any questions about building and flying the STOL CH 701 or the STOL CH 801, or if you require help or additional information to place your order.



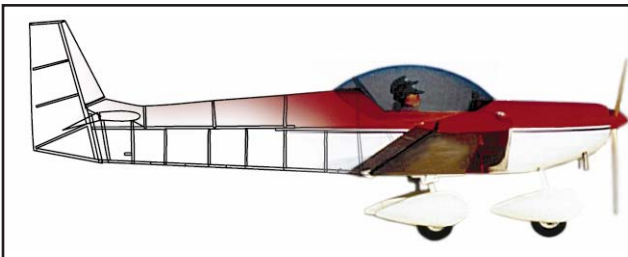
Mailing Address:	P.O. Box 650, Mexico, MO 65265-0650 USA
Physical Address:	Mexico Airport, Mexico, MO 65265 USA
Telephone:	573-581-9000 – Monday - Friday, 8:00 AM - 5:00 PM Central
Fax:	573-581-0011
Internet:	E-mail: info@zenithair.com World Wide Web: http://www.zenithair.com

Compare the value and quality of the STOL series kit to the competition for completeness, pre-manufactured parts and components, standard equipment, low build time, building ease and required skills and tools!



Zenith Aircraft Company is in the exclusive business of developing, manufacturing and marketing kit aircraft. The independent, privately-owned company was formed in 1992 in Mexico, Missouri. Centrally located in the United States, the company is based in 20,000+ sq.ft. production facilities at Mexico Memorial Airport. Zenith Aircraft Company manufactures and markets Zenair™ kit aircraft designs under license from Zenair Ltd.

Zenith Aircraft Company serves more than 2,000 customers around the world in more than 42 different countries. Zenith Aircraft Company is a proud member and supporter of the Experimental Aircraft Assoc. (EAA), the Small Aircraft Manufacturers Assoc. (SAMA), and other organizations dedicated to the advancement of sport aviation. Zenith Aircraft Company is continuously involved in projects devoted to aviation education and the advancement of sport aviation around the world. Zenith Aircraft Company was named the winner of the first-ever Missouri **Industry of the Year Award** (small business), presented by Associated Industries of Missouri, the Missouri Department of Economic Development, and the Missouri Department of Elementary and Secondary Education.



Zenith Aircraft Company also manufactures the ZODIAC series kit aircraft – a line of sleek low-wing all-metal cross-country planes designed by Chris Heintz. ZODIAC kits are also simple and affordable to build and have been popular with sport pilots since 1984. Visit www.zenithair.com for more information about the ZODIAC.

What better way to learn more about Zenith Aircraft's kit planes than by actually visiting the factory where the kits are made? Personal factory tours can be arranged, and factory demonstrator kit aircraft are available for demonstration flights to potential builders. Demo flights are available, by appointment, to demonstrate the normal operating envelope and characteristics of the aircraft.

The Zenith Aircraft factory is located on Mexico Memorial Airport, making it easy to drive or fly-in to visit the factory. **BY AIR:** See Kansas City Sectional. Mexico Memorial Airport (MYJ). **BY ROAD:** Mexico Memorial Airport is located on Hwy. 54, three miles east of the City of Mexico. From I-70, Exit 148 northbound on Hwy. 54, and follow Hwy. 54 right to the airport (approximately 15 miles from I-70). Before making travel arrangements to visit the factory, please make an appointment, and schedule appointments during our regular business operating hours.



Zenith Aircraft Company also hosts an annual OPEN HANGAR DAY at the end of August every year. The Open Hangar day is popular with builders, potential customers and the general public.

Factory workshops are held periodically at the factory to allow potential builders to gain hands-on aircraft building experience right at the factory. Participants also get the chance to tour the factory and go up for a demo flight in a factory demonstrator kit plane. Visit www.zenithair.com for the next workshop date.

CHRIS HEINTZ Designer

An accomplished aeronautical engineer, Chris Heintz is a graduate of the E.T.H Institute in Switzerland. After serving in the Air Force, Heintz worked for Aerospatiale and later became chief engineer at Avions Robin (France) where he designed several fully-certified two and four seat production aircraft.

In his spare time, Heintz began to design and build his own aircraft, which he named the ZENITH, anagram of Heintz. Being an engineer and not a craftsman, his all-metal homebuilt aircraft incorporated simple construction methods throughout. After a little more than a year's work, the two-place low-wing Zenith was rolled out and successfully flown in 1969. Soon after, detailed blueprints and construction manuals of the aircraft were drawn up and offered to the growing number of interested builders and flyers.

In 1973, Chris Heintz, his family and the Zenith moved to Canada, where Heintz worked for de Havilland (in Toronto) as a stress engineer on the Dash 7 commuter. Chris decided to form his own aircraft company in 1974, and under the name of Zenair Ltd. started to manufacture Zenith kits himself from his two-car garage. Through the company, Heintz has introduced more than twelve successful kit aircraft designs over the years. In 1992, Heintz licensed the kit manufacturing and marketing rights to Zenith Aircraft Company for the STOL CH 701 and the ZODIAC CH 601 designs, and has developed the new STOL CH 801 and the new ZODIAC XL for Zenith Aircraft Company.

As founder, president and chief engineer of Zenair Ltd. since 1974, Mr. Heintz has designed and developed more than 12 new aircraft models, which have been marketed as kit aircraft around the world. More than 800 aircraft are presently flying around the world in 48 different countries. Heintz designs have earned an excellent reputation among pilots, builders, the press, and aviation authorities for their durable all-metal construction, normal flight characteristics, reliability, and low maintenance requirements.

With a career-long dedication to aviation, Chris Heintz is a past recipient of the EAA's coveted Dr. August Raspert Memorial Award "for outstanding contribution to the advancement of the design of light aircraft," and his designs have been honored with numerous awards around the world. In 1995 the Federation Aéronautique Internationale (FAI) awarded Zenair Ltd. the prestigious Honorary Group Diploma for "greatly contributing to the progress of aviation" and Chris Heintz was inducted into the EAA "Hall of Fame" in 1999. In July 2001, Chris Heintz was recognized with the "2001 President's Award for Outstanding Individual" awarded by Kitplanes magazine and the Light Aircraft Manufacturer's Association.

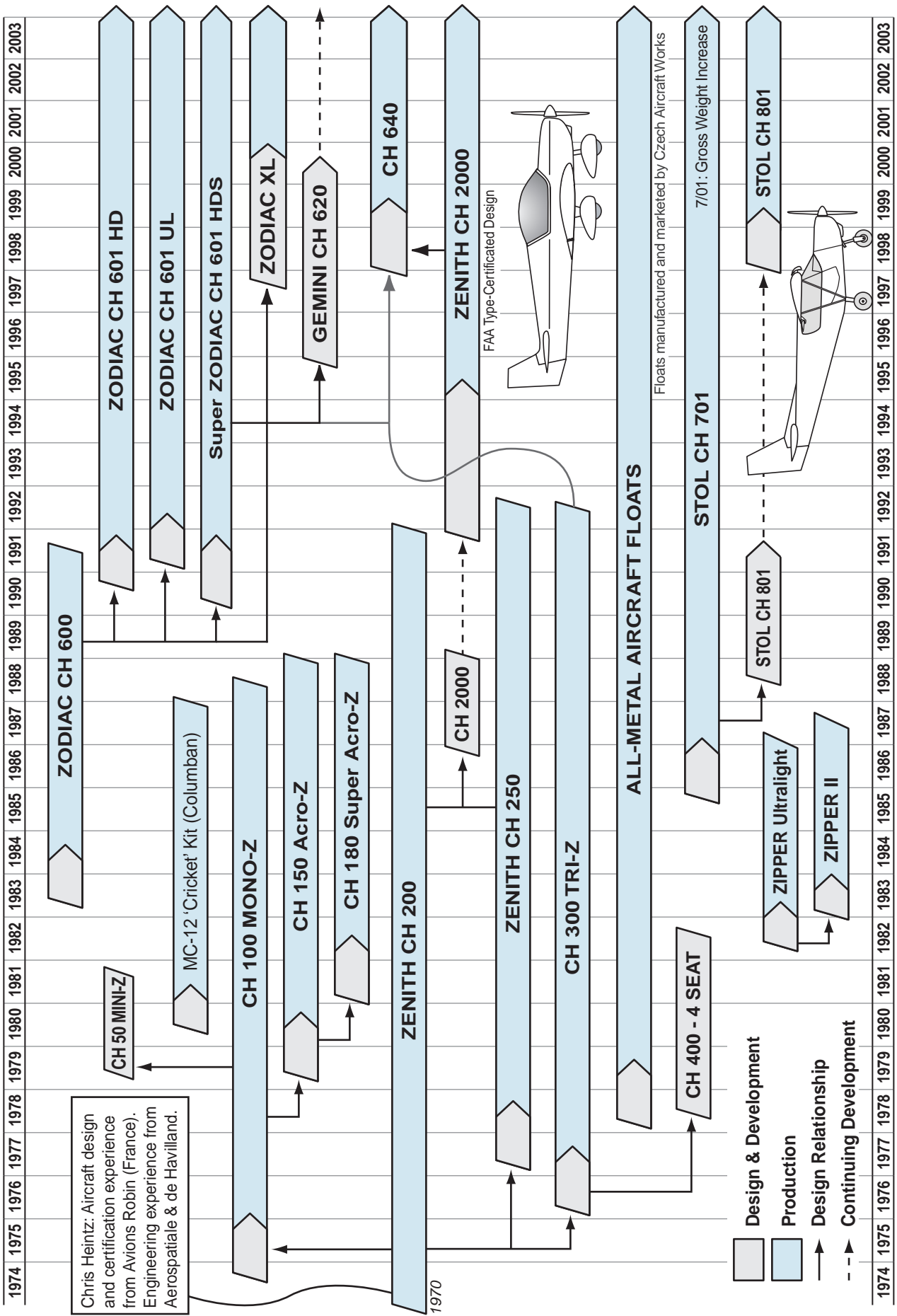
"Chris Heintz, designer extraordinaire, not only provides fine safe designs... he is also a tremendous source of philosophical information and forecasts of recreational aircraft market direction."

— "Choosing Your Homebuilt" by Kenneth Armstrong (Butterfield Press)



Designer Chris Heintz seated in the STOL CH 801

CHRIS HEINTZ: LIGHT AIRCRAFT DESIGN HISTORY



Zenith Aircraft Company produces the STOL and ZODIAC CH 601 series kit aircraft under license from designer Chris Heintz.

Designer Chris Heintz and the companies that manufacture and market his kit aircraft designs are dedicated to the advancement of sport aviation and recreational flying, and have been recognized on numerous occasions for their contributions to the industry, including:

- 1974 **'Best New Design'** (EAAC) for the prototype Zenith CH 200, Chris Heintz' first kit aircraft design.
- 1975 Winner of the Pazmany efficiency contest (two seat category).
- 1975 NASAD (National Assoc. of Sport Aircraft Designers) Seal of Quality (Drawings).
- 1976 **'The Eight Day Wonder'** – a Zenith was constructed and flown in just eight days during the 1976 EAA Oshkosh convention. EAA president Paul Poberezny presented Zenair Ltd. with certificate for *"service and dedication."*
- 1978 **FAI World Record:** A Tri-Z CH 300, piloted by Red Morris, was flown non-stop from the Pacific Ocean to the Atlantic Ocean (2,800 miles in 22.75 hours).
- 1978 The Dr. A. Raspet Memorial Award was presented to Chris Heintz **"for outstanding contribution to the advancement of the design of light aircraft"** by then EAA president Paul Poberezny.
- 1979 NASAD Seal of Quality awarded to all Zenair kits.
- 1984 'Best New Design' (EAA Sun'n Fun) for the ZIPPER ultralight.
- 1984 'Best New Design' (EAAC) for the prototype ZODIAC CH 600.
- 1985 NASAD Seal of Quality awarded to ZODIAC drawings and kits.
- 1986 A ZODIAC kit was completely assembled in only ten days at the World EXPO'86 in Vancouver.
- 1987 A STOL CH 701 kit was completely assembled and flown in just seven days at the EAA Sun'n Fun fly-in by volunteers, supervised by Zenair staff. This feat was repeated at the 1990 and 1991 EAA Sun'n Fun fly-ins, and honored *'Best Workshop'* by *Sport Pilot* magazine.
- 1991 EAA Sun'n Fun Convention presented Zenair Ltd. and Chris Heintz with award for **"dedication and generous support"** of light aviation.
- 1992 Zenith Aircraft Company begins manufacturing Heintz designs under license in Mexico, Missouri, centrally located in the US.
- 1993 **'The Seven Day Challenge'** – a ZODIAC kit was completely assembled and flown within seven days at the Sun'n Fun fly-in convention by volunteers, supervised by company staff.
- 1994 Heintz' ZENITH CH 2000 design receives FAA and Transport Canada type-certification. Not a kit aircraft, the new design is marketed only factory-assembled as an affordable all-purpose two-seat trainer.
- 1995 Federation Aéronautique Internationale (FAI) awarded Zenair Ltd. the prestigious 1995 Honorary Group Diploma for **"greatly contributing to the progress of aviation."**
- 1996 Zenith Aircraft Company introduced the GEMINI CH 620 twin-engine concept kit aircraft, the first "personal twin-engine" kit design in the industry.
- 1988 Introduction of the new 4-seat STOL CH 801 and the ZODIAC XL prototypes. *US Aviator* magazine awarded the ZODIAC XL its "Best Aircraft of Show" award following the introduction of the new design at EAA AirVenture (Oshkosh).
- 1999 Zenair Ltd. celebrated its 25th anniversary as a kit aircraft manufacturer: A quarter century of excellence and leadership in the kit aircraft industry.
- 1999 Zenith Aircraft Company was presented with a silver anniversary plaque *"in appreciation of 25 years support"* to the EAA Sun'n Fun fly-in convention.
- 1999 Zenith Aircraft Company was named the winner of the first-ever **Missouri Industry of the Year Award** (small business), presented by Associated Industries of Missouri, the Missouri Department of Economic Development, and the Missouri Department of Education.
- 1999 Chris Heintz inducted to the EAA **Hall of Fame**
- 1999 Introduction of the ZODIAC CH 640 design, a four-seat kit based on the certified CH2000 aircraft.
- 2001 Designer Chris Heintz awarded the **"2001 President's Award for Outstanding Individual"** by LAMA and Kitplanes magazine.
- 2001 For the third consecutive year, Zenith Aircraft Company was named to Deloitte & Touche's prestigious **"Technology FAST 50"** Program for Kansas/Missouri, a ranking of the 50 fastest growing technology companies in the area.
- 2002 Heintz awarded with the Recreational Aircraft Assoc. of Canada (RAAC) **"Aircraft Designer's Award."**

Chris Heintz designs have been featured in numerous aviation publications around the world, with reports consistently praising the performance of the aircraft, their ease and simplicity of construction, and high level of customer satisfaction and support.

“STOL CH 701: An honest-handling, good performing short-field star - constructed using simple tools.”

Tested by Peter Underhill, condensed from Pilot magazine (UK), December 1993.

Heintz' design philosophy has focused over the past 20 years on ease and speed of construction; thus build time for his fully developed aircraft is usually much shorter than for similar, sometimes only partly developed competitors. For several years Zenair have demonstrated how quickly their pre-fabricated kits can be assembled by building one from scratch at the week-long EAA Oshkosh and Sun'n Fun conventions - the complete, unpainted machine takes to the air before the end of the show.

The STOL CH 701 follows typical Zenair construction methods, employing 6061-T6 aluminum sheeting riveted to aluminum angles, using aviation quality Avex rivets, which work much like ordinary pop rivets. The fuselage is a box-section, there are no compound curves anywhere, and construction is straightforward using simple hand tools.

The 45-percent kit comes complete with all necessary components and materials, from prop spinner to rear fuselage tie-down bracket - the only exceptions are paint, battery and upholstery. Wing and tail ribs, and fuselage bulkheads, are pre-formed, and skins are pre-drilled. The wing spar is pre-riveted at the factory using solid rivets, and all surface skins are pre-cut ready for fitting. All pre-assembled parts are treated with zinc chromate protection, and any welding, cutting, forming or molding is done by the factory before shipment.

Flying off a grass strip on a lovely autumn afternoon, the STOL CH 701 was very much in its element. Take-off, normally flapless, requires nothing more than complicated than pointing the 701 along the airstrip, opening the throttle and easing back on the stick. The thing will be flying within a hundred feet - and that's with two aboard. Solo, it can get airborne within seventy feet in nil wind, then climb steeply away at an angle which is quite incredible when seen from the outside. Experiencing it inside the cockpit, I wondered whether we shouldn't have a Lexan floor as well as roof panel! Leveling out gave an indicated cruise of 75 mph.

Pitch controls is silky-smooth, the all-flying rudder powerful - indeed, at one stage I was flying the 701 semi-sideways pointing directly at the camera plane - and the general harmonization in all three axes was light and very acceptable. With its low wing-loading and high-lift wing design the 701's forte is its twiddlability. Point a wing-tip steeply towards the

ground and, at speeds as low as 40 mph, with a gentle roll and very little supporting rudder, the 701 will happily cavort like a horsefly on heroin, going round and round until told otherwise; I'd swear the turn radius was the same as the ground feature I was rotating around. The airframe, though strictly non-aerobatic, is stressed to +6/-3g, and thus will suffer no ill effects from such entertaining maneuvers.

The power-on stall is another exercise provoking a good deal of hilarity. With the fuselage pointing upwards at an incredible angle - I estimate about forty degrees from the wing's angle on the horizon - the aircraft can be kept flying down at around 35 mph or less indicated, even less solo. Once it stops flying the 701 simply nods and mushes down with the stick still fully aft. To unstall takes the merest forward movement of the stick and the application of power, whereupon the 701's slats seem to grab the air and it flies unconcernedly away. Even after several attempts, both with and without flaps, I could not discover any nasty characteristic. The 701 is indeed a stable, almost gentle airplane.

Back in the circuit, my first landing was flapless. Over the threshold all power was removed and the nose-wheel supported with progressive aft stick in the approved manner. The 701 simply plopped onto the grass at under 40 mph, and with judicious use of brakes a ground roll of no more than 150 feet was recorded. With one stage of flaps, approaching at 50 mph, this can be reduced to less than 100 feet.

The STOL CH 701 is a functional, honest handling, good performing short-field star, with an acceptable cruise and range. With a maximum weight of 960 pounds it can lift 490 pounds of useful load - slightly more than its own empty weight. Thus two average people plus full fuel still leaves a margin of 115 pounds for overnight baggage, flight cases, even an emergency can of fuel and some camping gear. When almost any small meadow is like Heathrow to the 701, it will make an ideal "rough tourer" - a sort of 4X4 of the air - able to overnight almost anywhere. Imagine taking a 701 on a summer beach-hopping tour of the Scottish Isles or Eire.

With the STOL CH 701, Chris Heintz has come a long way in his thinking, design and market research skills. The STOL CH 701 is just about as perfect a solution for its target marketplace as any. Builders' comments on ease of construction, support level and after-sales service rate Zenair among the best kitmakers going.

"The controls are a true delight. I had expected some slow, maybe sloppy results, but the balance is exquisite and the movement smooth and silky. I actually have to compare it somewhat to the feel of the stick in a LoPresti SwiftFury – and that's no joke. The airplane will turn on a dime. Throttle input is instantaneous."

– General Aviation News & Flyer



"I am delighted with my STOL CH 701. It performs exactly as predicted and the Rotax 912 is smooth and quiet. It has taken 7 months to build and every step of the way it has been most enjoyable." – Dr. M. Charette, Cairns, Australia.

"It vacates planet Earth like a cork out of a champagne bottle!" – Niol Lockington, New Zealand.



"To put it simply, aeroplanes just shouldn't do what this one does, dammit!"

"...If I want to really show off in a 25 knot wind, I can put the brakes hard on, apply power, raise the nose and take off without the wheels even rotating, however I've noticed that this causes other pilots to get a little upset and mutter the odd expletive, whilst helicopter drivers take to the bottle and go back to riding horses. Aah well, who wants sympathy anyway?" – Australian Ultralights magazine



"The drawings and kit were both great – I had no trouble putting the aircraft together. Factory support has been and continues to be far beyond what they have to do. This is the most fun aircraft I have ever flown."

– Phil Asselyn, Durham, ME.

"I chose the STOL CH 701 because it beats the competition: all-metal, short-field and high altitude performance. Kit quality and ease of construction are excellent. A great way to top off my flying career - to build and fly my very own airplane."

– George Meshko, Denver, CO.

SPORT UTILITY KIT AIRCRAFT

