



LAA TYPE ACCEPTANCE DATA SHEET
TADS 162B
ZENAIR CH 601XL

Issue 7	New format. Editorial changes. Updated UK agent contact details. Additional manufacturer's options.	Dated 05/02/21	JV
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This TADS is intended as a summary of available information about the type and should be used during the build, operation and permit revalidation phases to help owners and inspectors. Although it is hoped that this document is as complete as possible, other sources may contain more up to date information, e.g. the manufacturer's website.

Section 1 contains general information about the type.

Section 2 contains information about the type that is **MANDATORY** and must be complied with.

Section 3 contains advisory information that owners and inspectors should review to help them maintain and operate the aircraft in an airworthy and safe condition. If due consideration and circumstances suggest that compliance with the requirements in this section can safely be deferred, is not required or not applicable, then this is a permitted judgement call. This section also provides a useful repository for advisory information gathered through defect reports and experience.

Section 1 - Introduction

1.1 UK contact

Metal Seagulls Ltd

Tel: 07502 593671/0121 3644437

Email: info@metalseagulls.co.uk

Website: www.metalseagulls.co.uk

(Kits were previously supplied by Gary Johnson of JMS Aero and Lewis Aviation Sales.)

Manufacturer's website: www.zenair.com

1.2 Description

The Zenair CH 601XL is a small two-seat, low-wing aeroplane of all riveted aluminium construction, manufactured by Zenair in Canada and Czech Aircraft Works in the Czech Republic and supplied in standard or quick-build kit form through Lewis Aviation Sales (no longer trading). The LAA acceptance of the type only covers the kit as supplied by CZAW. The only engine model currently approved in the UK for use in the CH 601XL is the Rotax 912-ULS. Accepted propellers with the 912-ULS engine are the Kremen SR2000 1700mm diameter, Woodcomp Varia 170-2-R 1700mm diameter and Woodcomp Klassic 170-R.

Note that the only propeller(s) approved for an individual aircraft are those listed on the individual aircraft's Operating Limitations document or in the [PTL/1](#) (Propeller Type List) for the type.

The CH 601XL is an SEP Aeroplane (colloquially known as 'group A category') with a maximum gross weight of 560 kg. It is not eligible as a microlight in the UK.



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Section 2 – Mandatory information for owners, operators and inspectors

At all times, responsibility for the maintenance and airworthiness of an aircraft rests with the owner. A Condition of a Permit to Fly requires that: *"the aircraft shall be maintained in an airworthy condition"*.

2.1 Fast Build Kit 51% Compliance

The technical leaflet TL 1.11 shows the contents of the accepted fast build kit. Note that it is essential that the fuselage turtle-decks and the closing skins for all flying surfaces are supplied in un-riveted condition so that the inspector is able to inspect the 'open' assemblies and so that the builder is tasked with riveting these skins in place as part of the 'major portion' requirements.

2.2 Build Manual

Drawings – CZAW supplied version of Zenair CH 601XL drawings
Construction Manual 'Building your own Zenair CH 601XL'

2.3 Build Inspections

Build inspection schedule 2 (metal aircraft).
Inspector approval codes A-A, A-M or K. Inspector signing off final inspection also requires 'first flight' endorsement.

2.4 Flight Manual

None available, but see 'Flight Testing of Zenair CH601XL' by Barry Tempest.

2.5 Mandatory Permit Directives

Applicable specifically to this aircraft type:

[2008-006R1](#) Structural integrity (MOD/162B/004 is the fix for this MPD, see below)

Also check the LAA website for MPDs that are non-type specific ([TL2.22](#)).

2.6 LAA Required Modifications (including LAA issued AILs, SBs, etc)

Two modifications were required by the LAA for acceptance of the type in the UK:

MOD/162B/001	Full span elevator trim tab 890 mm long (was 416 mm). CZAW drawing 6-T-6CZ refers
MOD/162B/002	Elevator bias spring per CZAW drawing 6-BO-4CZ (subsequently deleted by MOD/162B/004)

The following mandatory bulletins have also been issued by LAA:

[MOD/162B/003](#) Engine frame cracking problems - inspection



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[MOD/162B/004](#)

Addition of aileron mass balances, wing attachment reinforcements, reduced elevator trim range, removal of elevator bias spring, reduction of cg range and introduction of max zero fuel weight and additional warning placards

[MOD/PROP/04-005](#)

Mandatory change to Woodcomp Klassic Propellers to replace any blades prior to serial number 600

[MOD/162/008](#)

Zenair 601 fuel cocks (Andair fuel cock to be fitted if stops or detents not satisfactory with existing fuel cock)

Letter to owners dated 5.11.03 stating that a vapour return line must be fitted to the fuel system if unleaded Mogas fuel is to be used. This returns the excess fuel and vapour to one of the two fuel tanks. Returning it to the fuel supply pipe downstream of the tank outlet is not acceptable.

2.7 Additional engine operating limitations to be placarded or shown by instrument markings

Notes:

- Refer to the engine manufacturer's latest documentation for the definitive parameter values and recommended instruments.
- Where an instrument is not fitted, the limit need not be displayed.

With Rotax 912-ULS engine:

Maximum CHT: 135°C
 Max Coolant Temp: 120°C (with 50/50 Glycol/water coolant)
 Oil Temp Limits: 50°C to 130°C (Normal 90-110°C)
 Oil Pressure: 2-5 Bar
 Minimum Fuel Pressure: 0.15 bar

2.8 Control surface deflections

Ailerons	Up: 11.5° ±1° Down: 11.5° ±1°
Elevators	Up: 27-35° Down: 25-30° (total 52-62°)
Elevator tab	Up: 30° Down: 30°
Rudder	Left: 21° ±1° Right: 21° ±1° (total 40-44°)
Flap	Down: 23-24° (not 29-31° as shown on drawings)

2.9 Operating Limitations and Placards

(Note that the wording on an individual aircraft's Operating Limitations document takes precedence, if different.)

1. Maximum number of occupants authorised to be carried: Two
2. The aircraft must be operated in compliance with the following operating limitations, which shall be displayed in the cockpit by means of placards or instrument markings:



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- 2.1 Aerobatic Limitations
Aerobatic manoeuvres are prohibited.
Intentional spinning is prohibited.
- 2.2 Loading Limitations
Maximum Total Weight Authorised: 560 kg
CG Range: 300 mm to 455 mm aft of datum point
Datum Point is: the leading edge of the wing at the root
Maximum loaded weight, excluding fuel and wing baggage: 494 kg
- 2.3 Engine Limitations
Maximum Engine RPM: 5800
Maximum continuous engine RPM: 5500
- 2.4 Airspeed Limitations
Maximum Indicated Airspeed (V_{NE}): 140 knots
Max Indicated Airspeed Flaps Extended: 65 knots
Maximum Indicated Airspeed, Rough Air (V_{NO}): 90 knots
- 2.5 Other Limitations
The aircraft shall be flown by day and under Visual Flight Rules only.
Smoking in the aircraft is prohibited.

Additional Placards:

"Occupant Warning - This Aircraft has not been Certificated to an International Requirement"

A fireproof identification plate must be fitted to fuselage, engraved or stamped with aircraft's registration letters.

The following warning placards must be fitted in the cockpit in full view of the pilot:
"To avoid exceeding aft centre of gravity limit of 455 mm AOD, particularly when flown with two crew, minimum weight of baggage may be carried in rear baggage compartment, typically less than 5 kg. Heavy baggage must be carried in wing baggage lockers."

"The aircraft demonstrates a strong nose-down pitch when the flaps are lowered, which the elevator trimmer is not powerful enough to trim out. With full flaps, it may be necessary to hold a rearward stick force of approximately 6-10 lbs to maintain the desired attitude & speed."

"This aircraft has light stick forces in pitch and particular care is required to avoid inadvertently overstressing it when manoeuvring at airspeeds above V_a (86 KIAS)"

If Woodcomp Varia propeller installed, cockpit placard to be fitted, worded as follows:

"NO COARSE PITCH STOP FITTED. DO NOT OPERATE BEYOND 15 TURNS FROM FULL FINE PITCH"

2.10 Maximum permitted empty weight

Maximum empty weight: 375 kg



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Section 3 – Advice to owners, operators and inspectors

3.1 Maintenance Manual

A customised version of the LAA Generic Maintenance Schedule may be used. Further information on maintenance schedules can be found in the [Aircraft Maintenance](#) section of the LAA website.

3.2 Manufacturer's/Standard Options

6-WO-1CZ	Landing lamp
6-BO-1CZ	Optional installations
6-BO-3CZ	Dual rudder pedals and brakes
6-CO-1CZ	Canopy lock
6-EO-10CZ	Adjustable prop control
6-GO-1CZ	Optional wheel fairings
6-GO-2CZ	Tailwheel Undercarriage Option
6-EO-3CZ	Woodcomp Varia propshaft extension
6-EO-4CZ	Propshaft Extension
6-GO-3CZ	Fibreglass undercarriage mounting and fuselage stiffeners
6-GO-4CZ	Fibreglass undercarriage mounting and fuselage stiffeners
6-GO-5CZ	Fuselage skin stiffeners
6-TO-1CZ	Optional aileron trim
6-LRO-1	Wheel fairings
6-WFO-1	Wheel fairings
6-PH-1	Piano hinged ailerons
6-WLO-1	Wing locker
6-XN-24	Dual stick
6-NSO-1	Rudder position light

3.3 Manufacturer's Information (including Service Bulletins, Service Letters, etc)

In the absence of any over-riding LAA classification, inspections and modifications published by the manufacturer should be satisfied according to the recommendation of the manufacturer. It is the owner's responsibility to be aware of and supply such information to their Inspector.

Nil known for airframe. Zenair's newsletter 'Zenair News' provides advice on building and operating Zenairs of all kinds, but Zenair have not promulgated service bulletins.

3.4 Special Inspection Points

- Elimination of undue friction in rudder control system and nosewheel steering. In order for the rudder to self-centre in flight and for the aircraft to meet normal directional stability requirements, it is essential to avoid undue friction in the rudder controls. This involves attention to the lubrication of the system, avoiding over-tight fits and the correct setting up of the rudder cable tensions, which should be carried out with the aircraft jacked up so that the nosewheel is off the ground to simulate the flight case.
- Elimination of undue friction in the elevator control system. In order to achieve positive pitch stability is important to avoid undue friction in the elevator controls. This is achieved through proper attention to lubrication, avoiding over-tight fits and correct elevator cable tensions.
- The throttle spring on the carburettor must be adjusted so that the system does not have a strong tendency to spring to 'full throttle' when the throttle knob is released, or require a strong pull to keep it in the closed position.



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- Corrosion problems have been reported in service with some airframes which had not been fully primed prior to assembly of the components. Inspect airframe for signs of corrosion developing and ensure that structural integrity has not been compromised. Treat any corrosion before it becomes widespread, if necessary by replacing corroded parts with new.
- Cracks have been found in service of the engine mounts of CH601 type aircraft at its attachment to the firewall, in the mount itself under the engine and of the brackets behind the firewall which support the engine mount bolts. Inspect these areas regularly for any signs of cracks developing. See also MOD/162B/003 regarding this problem.
- The Zenair designs feature simple metal-to-metal (often steel-on-aluminium) bearings on control system, undercarriage, etc, and some builders have opted to fit improved bearing materials for better wear characteristics.
- Plastic nose wheel hubs, and earlier-type mainwheels with welded-on brake drums, if fitted, to be treated with caution. Most builders have fitted later kit-type or other improved wheels.
- The standard drawings show a novel side-hinged canopy arrangement in which the canopy can open either to the left or right. Some builders have fitted alternative designs of canopy includes rear-hinged and forward-hinged types, and gull-wing doors.

3.5 Operational Issues

Initial flight testing of examples requires a special check on directional and longitudinal stabilities/control circuit frictions.

1. *Safety Spot* reference

The following *Safety Spot* articles are relevant to CH 601XL aircraft:

Light Aviation [Dec 2008](#) *Suspected flutter*

Grounding following suspected flutter.

Light Aviation [Dec 2009](#) *Update on flutter*

Modifications to type following suspected flutter incidents.

Light Aviation [April 2013](#) *Cracking of nose leg attachment*

Installation not to drawing.

3.6 Standard Modifications

The following Standard Modifications have been approved on the type. The Standard Modification leaflet associated with each modification (published on the website) must be followed and an [LAA/MOD1](#) form completed and return to LAA Engineering in each case (see also [TL 3.06](#)).

<i>Standard Mod no.</i>	<i>Issue</i>	<i>Description</i>
SM10366	1	Reduced friction in elevator circuit

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Please report any errors or omissions to LAA Engineering: engineering@laa.uk.com