



LAA TYPE ACCEPTANCE DATA SHEET
TADS 187A
ZENAIR CH 701SP

Issue 4			
Revision A	New format.	Dated 07/11/11	JV
Revision B	Updated agent information. Vortex generators added to section 3.2. Minor editorial changes.	Dated 30/10/17	JV
Revision C	Addition of Safety Spot articles	Dated 27/4/10	JH

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 the aircraft in an airworthy 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.

Tel: 07502 593671 or 0121 3644437

Email: info@metalseagulls.co.uk

Website: www.metalseagulls.co.uk

Manufacturer's website: www.zenair.com

1.2 Description

The Zenair CH 701SP is a small, two-seat, high-wing, STOL Group A aeroplane of all-riveted aluminium construction, manufactured by Zenair in Canada and previously supplied by Czech Aircraft Works in the Czech Republic in standard or quick-build kit form through Lewis Aviation Sales. The aircraft may also be built from plans supplied from Zenith Aircraft Co.

The only standard engine models currently approved in the UK for use in the CH 701SP is the Rotax 912-ULS.

The CH 701SP is a Group A Aeroplane with a maximum gross weight of 499 kg. It is a development of the microlight CH 701UL, which includes several structural reinforcements and other changes.



**LAA TYPE ACCEPTANCE DATA SHEET
TADS 187A
ZENAIR CH 701SP**

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. Condition No 3 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.11 shows the contents of the accepted fast build kit. Note that it is essential that the closing skins of the fuselage and 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 – the drawings required are as follows:

- Updated version of Zenair CH 701UL drawings, 72 pages commencing addition number 5 dated 4/2003
- Construction Manual 'How to Build your own STOL CH701'
- 'Zenair STOL CH-701 Step by Step Photo Guide'

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

Flight Manual - Zenair STOL CH701 (CZAW).

2.5 Mandatory Permit Directives

None applicable specifically to this aircraft type.

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)

The following bulletins have been issued by LAA:

[MOD-187-003](#)

There has been one reported instance of cracks discovered in both front right-angled tailplane mounting brackets on a LAA CH-701. The hairline cracks were not easy to spot even though one crack stretched from the bolt hole to the bottom edge of the bracket. A thick coat of flexible paint may conceal such cracks altogether. A good visual inspection at every pre-flight of these brackets is recommended. In case of cracking, do not fly, contact LAA. A full copy of this information was sent directly to all



**LAA TYPE ACCEPTANCE DATA SHEET
TADS 187A
ZENAIR CH 701SP**

owners of affected aircraft during March 2002, and is otherwise available from LAA on request.

[MOD-187-004](#)

Zenair 701 Fuel Cocks (Andair FS20 fuel cock to be fitted if stops or detents not satisfactory with existing fuel cock) - Its been found that fuel cocks fitted to certain Zenair CH701 aircraft are not provided with effective stops or detents. This bulletin mandates fitment of fuel cocks that do meet the requirements. Effective immediately. (This bulletin is the same as MOD/162/008 applying to Zenair 601 series).

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

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

Mandatory reinforcement of central lap strap attachments per Zenair Service Bulletin (details TBD).

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: 15±1° Down: 15±1°
Elevators	Up: 32°-35° Down: 28°-30°
Elevator tab	Up: tbd Down: tbd
Rudder	Left: 23±2° Right: 23±2°
Flap	Down: 16°

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:



**LAA TYPE ACCEPTANCE DATA SHEET
TADS 187A
ZENAIR CH 701SP**

- 2.1 Aerobatic Limitations
Aerobatic manoeuvres are prohibited.
Intentional spinning is prohibited.
- 2.2 Loading Limitations
Maximum Total Weight Authorised: 499 kg
CG Range: 280 mm to 500 mm aft of datum
Datum Point is: the leading edge of the wing slat
- 2.3 Engine Limitations
Maximum Engine RPM: 5800
Maximum continuous engine RPM: 5500
- 2.4 Airspeed Limitations
Maximum Indicated Airspeed (V_{NE}): 110 mph
Maximum Indicated Airspeed, flaps extended: 60 mph
- 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.

2.10 Maximum permitted empty weight

<i>Model</i>	<i>Engine</i>	<i>Maximum empty weight</i>
CH 701SP	Rotax 912-ULS	314 kg

Section 3 – Advice to owners, operators and inspectors

3.1 Maintenance Manual

Nil. In the absence of a manufacturer's schedule for the airframe, refer to LAMS schedule. For airframe rigging information consult build manual and drawings. For engine maintenance consult engine manufacturer's schedule.

3.2 Standard Options

- Zenair elevator vortex generator kit.

Note that wing tanks are standard on SP model.



LAA TYPE ACCEPTANCE DATA SHEET
TADS 187A
ZENAIR CH 701SP

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.

- Zenair's newsletter 'Zenair News' provides advice on building and operating Zenairs of all kinds, but Zenair have not promulgated service bulletins.
- Zenair letter regarding cracking rudder pedals dated 17.2.98, describes how rudder pedals should be uprated from 0.035" wall tubing to 0.049" or 0.058" or welded reinforcing gussets added to each side of the welded joints, to drawing included with the warning letter.
- Service bulletin (details TBD) regarding central lap strap reinforcement .

3.4 Special Inspection Points

- Check for cracks in tailplane attachments in service (see bulletin LAA-187-003).
- Check for cracks in base of rudder pedals (Zenair letter dated 17.2.98 refers).
- 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. It 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.
- If Rotax engine fitted, Rotax 912 series installation checklist to be completed (apart from flight test section) as part of final inspections prior to applying for Permit to Fly.
- Ensure that any self-locking nuts subject to angular motion are replaced with equivalent castle nuts and split pins.
- Widespread use is made of Avex rivets using riveting techniques specially developed by Zenair and NOT APPLICABLE to other types of aircraft including use of Avex blind countersunk rivets into non-countersunk holes, and solid rivets set using flat dolly on mushroom head. Zenair permit the use of non-radiused (sharp-corner) aluminium angle extrusions for primary structure (contrary to normal aviation practise using radiused material) and inspectors should be vigilant for the appearance of cracks in such structure.
- Care is required in interpreting the drawings, the dimensioning being vague in some areas with a possibility of errors creeping in on such major features as the location of the firewall bulkhead. Anticipate later construction stages and check dimensions / fit of parts carefully prior to bending, cutting or drilling.
- For UK-built examples it is recommended that suitable corrosion protection of the aluminium airframe is used throughout, e.g. epoxy primer on aluminium parts and assembly compound where steel parts assembled to aluminium parts.
- Correct rigging of wing slats per drawing sheet 7S2 critical.
- Maintenance is typical of riveted aluminium airframe.

- The only reported snag is crazing and cracking in the sharply-bent upper corners of the windshield.
- Pay attention to simple metal-to-metal bearings in control system, undercarriage etc to be kept well lubricated and checked in particular for signs of wear.
- Plastic nosewheels, if fitted, to be checked carefully for signs of overstress/failure/melting of hub.
- The build manual is not detailed regarding engine installation and inspectors should take care to check that standard UK practices have been followed with regard to engine installation, fuel system etc. Refer to Rotax installation checklist or other engine installation manual as appropriate.
- The CH701 is a very lightweight aircraft and heavy and complex instrument/avionic fits should be avoided, otherwise performance and payload will be compromised.

3.5 Operational Issues

- The type exhibits a high sink rate and 'aileron' adverse yaw when full (32 degree) flap is used, which could cause control difficulties.
- This is a STOL aeroplane with low wing loading, practically a microlight, hence those whose previous experience has only been on higher wing-loading aircraft a thorough 'dual check' is recommended. Particular care required on windy days, especially with crosswinds.

| The following *Safety Spot* articles are relevant to Zenair 701 aircraft:

| *Light Aviation* [May 2019](#) *Inspection of rudder hinge.*

| Rudder top hinge badly worn and cracks forming in it. Should it fail there is no fin to rely on and the two hinges are quite close together supporting a large rudder.

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