



LAA TYPE ACCEPTANCE DATA SHEET
TADS 315
EV-97 AND EV-97A EUROSTAR, EUROSTAR SL

Issue 16	Addition of MOD/315/005 in section 2.6	Dated 03/04/20	JV
Revision A	MOD/315/005 raised to issue 2	Dated 11/05/20	JV

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

Light Sport Aviation Ltd, Wycombe Air Park, Booker, SL7 3DP.

Tel: 01494 524020 or 07746 373637

Email: sales@lightsportaviation.org.uk

Website: www.lightsportaviation.org.uk (also www.evektor.cz)

Note that the previous UK agent was Cosmik Aviation.

1.2 Description

The Eurostar is a small, two-seat, low-wing aeroplane of all riveted aluminium construction, manufactured by Evektor in Czech Republic and supplied in quick-build kit form by Cosmik Aviation.

The fuselage is of conventional all-metal construction with sheet aluminium skins. A single fuel tank is fitted behind the pilot's seats. A one-piece canopy is fitted, hinged at the front, allowing straightforward access to the side-by-side seating arrangement. The horizontal tail is a conventional one-piece tailplane/elevator fitted with a trailing edge trim tab. The wing is of conventional design. The wing panels are bolted to the fuselage centre-section carry-through structure at the fuselage side. Drag and torsion loads are fed from wing to fuselage via the trailing edge root-fitting. The wing panels are fitted with conventional ailerons and split-flaps. The aircraft has a fixed tricycle undercarriage with steerable nosewheel. The aircraft is manufactured from aluminium alloy for all structural components, with steel fittings where appropriate. The cowlings and other fairings and the main landing gear legs are formed from composite materials.

The Eurostar EV-97 is a microlight with a max gross weight of 450 Kg. The EV-97A model is an SEP Aeroplane (colloquially known as 'group A category') with a maximum gross weight of 480 Kg. The EV-97A model is identical to the EV-97 except that the EV-97A must be fitted with the Cosmik electric fuel pump kit. The Eurostar SL is a more



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streamlined version of the EV-97A, available only as a SEP aircraft, with a different canopy latch system.

The Eurostar is also supplied by Cosmik Aviation as a factory built microlight. The factory built model is designated a 'Team Eurostar UK' to distinguish it from the kit-built models.

The only engine models approved in the UK for use in the Eurostar is the Rotax 912-UL and the 912-ULS.

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.

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.

2.2 Build Manual

Assembly Manual – EV97 Eurostar or Eurostar SL
Build Manual Supplementary Notes, prepared by Cosmik for UK Builders

2.3 Build Inspections

Build inspection schedule 39 (Eurostar EV-97).
Inspector approval codes A-A, A-M, K or for microlight version, M. Inspector signing off final inspection also requires 'first flight' endorsement

2.4 Flight Manual

'Pilot's Operating Handbook – EV-97 teamEurostar UK'
Supplement for Aircraft in the Group A Category
Supplement for Aircraft with Auxiliary Electric Fuel Pump

2.5 Mandatory Permit Directives

Applicable specifically to this aircraft type:

2010-003	Temporary reduction in operating speeds/inspection of spar caps
2014-002	Wing/fuselage fairings – inspection for rivet damage
2015-001	Wing flaps – correct engagement of the actuator pins – inspection
2016-007-E	Fuselage – Rear fuselage bulkhead – Inspection for cracking



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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)

Five modifications were required by the LAA for acceptance of the type in the UK, as follows:

<i>Reference</i>	<i>Description</i>
LAA-315-001	Additional support for the long aileron pushrod at rib 5
LAA-315-002	Additional bracket similar to the one supporting the flap torque tube centre bearing
LAA-315-003	Two additional stiffeners added to the fin leading edge skin
LAA-315-004	Improved lap strap outer attachments with spacer tube and large washer
E4 01-2201	Shortened control columns

The manufacturer has undertaken to incorporate each of the five modifications above in all UK-supplied kits. The modifications have not been drawn up by LAA and modification leaflets are not available. This information is provided only to indicate that Eurostar parts, assemblies or complete aircraft supplied other than through Cosmik may not comply with the UK approved design standard.

On the EV-97A and Eurostar SL models, the addition of the Cosmik electric fuel pump kit is mandatory.

On the Eurostar SL model, the canopy open warning light must be a red flashing light.

The Kiev propeller is only accepted when supplied through Cosmik Aviation who supplies special replacement hub clamping bolts and propeller attachment bolts, due to unacceptability of the original Kiev-supplied hardware.

The following in-service requirements have been issued:

<i>Reference</i>	<i>Description</i>
LAA-315-005 issue 2	Inspection of fuel filler hose (see also LAA/AWA/20/06 and LAA/AWA/20/11)

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-UL engine:

Maximum CHT: 150°C

Max Coolant Temp: 120°C (with 50/50 Glycol/water coolant)

Oil Temp Limits: 50C to 140°C (Normal 90-110°C)

Oil Pressure: 2-5 Bar

Minimum Fuel Pressure: 0.15 bar



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With Rotax 912-ULS engine:

Maximum CHT: 135°C

Max Coolant Temp: 120°C (with 50/50 Glycol/water coolant)

Oil Temp Limits: 50C 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: 20° ±1° Down: 15° ±1°
Elevators	Up: 25° ±1° Down: 20° ±1°
Elevator tab	Up: 5° ±2° Down: 25° ±2°
Rudder	Left 30° ±2° Right 30° ±2°
Flap	Take-off: 15° ±2° Landing 1 st : 30° ±3° Landing 2 nd : 50° ±3°

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:

2.1 Aerobatic Limitations

EV-97A and Eurostar SL:

Aerobatic manoeuvres are prohibited.

Intentional spinning is prohibited.

EV-97:

The aeroplane is permitted to fly only for non-aerobatic operation. In this context, non-aerobatic operation includes:

i) any manoeuvre necessary for normal flying.

ii) intentional stalls from level flight.

iii) steep turns in which the angle of bank does not exceed 60 degrees.

Intentional spinning is prohibited.

2.2 Loading Limitations

Maximum Total Weight Authorised: EV-97: 450 KG; EV-97A & SL: 480 kg

CG Range: 250 mm to 425 mm aft of datum point.

Datum Point is: the leading edge of the wing.



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2.3 Engine Limitations

Rotax 912-UL:

Maximum Engine RPM: 5800

Maximum continuous engine RPM: 5500 (4800 when Kiev or Woodcomp propellers fitted)

Rotax 912-ULS:

Maximum Engine RPM: 5800

Maximum continuous engine RPM: 4500 (5000 when Woodcomp Propuls AE174 1740 mm diameter propeller fitted)

2.4 Airspeed Limitations

Maximum Indicated Airspeed (V_{NE}): 146 mph IAS*

Max Indicated Airspeed Flaps Extended: 77 mph IAS

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.

In addition, when Kiev and Woodcomp Classic propellers are fitted to the EV-97 or EV-97A with 912-UL engine, a maximum continuous engine RPM limitation of 4800 is specified. Additional engine limitation required: 'maximum continuous engine rpm 4800' to be indicated by placard on instrument panel and yellow arc on tachometer between 4800 and 5800 rpm.

On the EV-97 microlight version, additional microlight weight placard must be fitted as described in TL2.11 regarding empty weight and payload.

2.10 Maximum permitted empty weight

<i>Model</i>	<i>Engine</i>	<i>Max empty weight</i>
EV-97	Rotax 912-UL	268 kg
EV-97A/SL	Rotax 912-UL	298 kg
EV-97	Rotax 912-ULS	265 kg
EV-97A	Rotax 912-ULS	295 kg

2.11 Noise certification

For the microlight EV-97 version, a noise certificate must be issued by the CAA specific to each individual aircraft built. A new noise certificate must be obtained following any change in noise output, including change to engine type, reduction gear ratio, propeller type, propeller pitch setting, type of exhaust, exhaust after-muffler or intake silencer.

* Note that MPD 2010-003 temporarily restricts V_{NE} to 106 mph and V_A to 88 mph until the inspection has been completed and is satisfactory.



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Section 3 – Advice to owners, operators and inspectors

3.1 Maintenance Manual

'Maintenance Manual GEN/EUR/02', as part of the Owner's Manual.

3.2 Standard Options

- Cockpit Heater
- Wheel Spats (subject to empty weight)
- Electric fuel pump (mandatory on EV-97A model)
- Oil cooler kit (subject to empty weight)
- Alternative style engine cowling type E6 14-00 01 or E6 14-15 01 (original type cowling was type E6 04-15 01)
- Rotax 912-ULS engine with Woodcomp Klassic 170/3/R 22° pitch at 75% radius propeller
- CKT stainless steel exhaust system, assembly part number 87-2208 (note that if changing the exhaust system on a microlight aircraft, a new noise certificate will need to be obtained from the CAA)

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.

<i>Ref</i>	<i>Date</i>	<i>Description</i>	<i>Factory compliance status</i>	<i>Applicability</i>
SB EV97-UK-01	23/9/02	Attachment of Flap Control Lever		All variants
SB EV97-UK-02	23/9/02	Throttle Control Locking Screw		All variants
SB EV97-UK-03	03/03	Fuel tank Venting		Kit numbers 03-1198 and lower
SB EV97-UK-04	10/03	Rivets for Control Stick Bearing Support Brackets		All variants
SB EV97-UK-05	10/03	Sealing of Fuel Tap Inlet Connection		All variants
SB EV97-UK-06	16/12/03	Installation of Exposed Starter Solenoid Terminals & Battery +ve Terminals		EV97
SB EV97-UK-07	4/11/04	Coolant Overflow Bottle	Recommended	EV97
SB EV97-UK-08	12/8/07	Trim cable attachment	Recommended	EV97 & EV97A
SB EV97-UK-09	27/2/08	Trim cable water ingress	Recommended	EV97



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SB EV-97-10	24/8/09	Inspection and rectification of rudder top bearing	Recommended	EV97 & EV97A
SB EV97-UK-011	29/4/10	Checking the strength of the lower wing spar caps	Essential	All variants
SB EV97-UK-012	04/11	Change of cylinder head temp limit	Recommended	EV97 & EV97A
SB EV97-UK-013	30/8/11	Rudder stop swages	Recommended	All variants
SB EV97-UK-014	1/6/12	Aileron rose joint	Recommended	All variants
SB EV97-UK-015	24/6/13	Inspection of undercarriage leg support for cracks	Recommended	All variants
SB/EUR/016	7/5/15	Flap actuator drive pin inspection	Essential	All variants
SB/EUR/018	23/6/16	Canopy lock safety catch	Recommended	All variants
SB/EUR/019	12/7/16	Cracking of rear fuselage bulkhead	Essential	All variants

3.4 Special Inspection Points

- Correct shank length of bolts. Metric bolts must be carefully chosen of correct length to ensure that the threaded portion doesn't bear on holes in components, using an additional washer if required to accommodate a longer bolt. Pay particular attention to checking that bolts are of correct length. UK build manual supplement refers.
- Bolts provided are not corrosion proofed using conventional plating, and must be corrosion proofed on assembly using suitable grease. UK Build manual supplement refers.
- Note that many of the structural riveted joints are assembled using Enfirmastic, which provides additional strength as well as acting as a sealant. UK Build Manual supplement refers.
- 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.

3.4.1 Operational issues

1. *Safety Spot* references

The following *Safety Spot* articles are relevant to Eurostar aircraft:

Light Aviation issue [January 2009](#) *Electrical cable chafing*

Electrical cable chafing allowing arcing across cables started small engine fire as cables were touching the carburettor drip tray.

Light Aviation issue [January 2010](#) & *Wing failure and material quality*
[April 2010](#)

Fatal accident in Switzerland from wing failure lead to temporary reduction of VNE by MPD. Investigations in other examples showed some lower spar caps were understrength. Rectified by [SB EV97-UK-011](#)



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Light Aviation issue [October 2010](#)

Engine Mount Bolt

Engine mounting bolt failed due to corrosion. Clarification on the method of inspection for these bolts.

Light Aviation issue [August 2010](#)

Brake actuator corrosion

Electrolytic corrosion on Eurostar brake packs. A four year old pack was very close to failure and would not have been spotted without disassembly.

Light Aviation issue [September 2012](#)

Burst tyre

Incorrect sized bolts to hold the brake disc in place were protruding into the wheel hub and likely causing numerous burst tyres.

Light Aviation issue [February 2014](#)

Damaged rivets in fuselage

EV97 found with damaged rivets in fuselage. Critical in holding the structure together around the undercarriage and wing trailing-edge connections.

Light Aviation issue [April 2015](#)

Mandatory check of flap drive pins

EV97 found with large lateral movement in flap torque tubes risking loss of control of flaps. Manufacturer released SB mandating a check of engagement SB/EUR/016

Light Aviation issue [August 2016](#)

Structure cracking at rear bulkhead

High hours EV97 found with serious cracks in the structure that compromises the attachment of the tailplane. MPD [2016-007-E](#) released mandating inspection.

Light Aviation issue [December 2016](#)

Lower spar cap inspection

Spar cap inspection from [LAA/AWA/16/06](#) after a fatal incident and cracks found in paint on spar cap. Paint cracks were discovered to just be poor paint adhesion.

Light Aviation issue [February 2017](#)

Engine mounting bolt failure

Increased engine vibration lead to investigation to find the front lower port engine bolt had failed.

Light Aviation issue [February 2018](#)

Canopy Catch

Evector service bulletin regarding installation of additional canopy safety catch. LAA Engineering deemed it not proportionate to the risk of canopy opening in flight and the requirement for pilot to remember additional safety catch.

2. Canopy opening in flight – Should the canopy open in flight it does not pose a great threat on the controllability of the type. Early testing of the type showed that the opened canopy in flight did so only about six inches and stabilised. The aircraft demonstrated it had sufficient power to overcome the additional drag.



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3.6 Additional weighing information

Levelling datum:	canopy sill horizontal
Moment arm of crew:	500 mm
Moment arm of fuel:	920 mm
Moment arm of baggage:	1270 mm

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