EVEKTOR – AEROTECHNIK a.s.
Letecka 1384
686 04 Kunovice
CZECH REPUBLIC

tel.: +420 572 537 111
fax: +420 572 537 900
marketing@evektor.cz
www.evektor.cz

PILOT'S OPERATING HANDBOOK

EV-97 Eurostar SL

EVEKTOR – AEROTECHNIK a.s.

Letecka 1384
686 04 Kunovice
Czech Republic
tel.: +420 572 537 111
fax: +420 572 537 900

PILOT'S OPERATING HANDBOOK FOR ULTRA-LIGHT AEROPLANE

Model: *EV-97 Eurostar SL*

Registration: .....

Serial No.: .....

Approved by:

Signature: .....

Authority: .....

Stamp:

Date of approval: .....

This English edition of the EV-97 Eurostar SL Pilot's operating handbook has been translated with care and is accurate to best of our knowledge. However, in all official matters the original Czech text is the authoritative and definite document.

This aeroplane must be operated in compliance with information and limitations contained herein.

This Pilot's operating handbook must be available onboard the aeroplane.

0.1 Record of revisions

Any revision of the present manual, except actual weighing data, must be recorded in the following table and in case of approved Sections endorsed by the responsible airworthiness authority.

The new or amended text in the revised pages will be indicated by a black vertical line in the left hand margin, and the Revision No. The date will be shown on the left hand bottom of the page.

Rev. No.	Affected Section	Affected Pages	Date	Approval	Date	Date Inserted	Signature
1	0	ii, iii, iv	01/2009			01/2009	Manufact.
	4	4-3					
	7	7-6					
	Valid from S/N 20093511						
2	0	ii, iii	2/2010			02/2010	Manufact.
	4	4-2, 4-3, 4-4					
3	0	ii, iii, iv	3/2011			03/2011	Manufact.
	1	1-1					
	2	2-3, 2-4					
	7	7-8, 7-9, 7-10, 7-11, 7-12					

0.2 List of Effective Pages

Section	Page	Date	Section	Page	Date
			2	2-0	02/2008
	i	02/2008		2-1	02/2008
	ii	03/2011		2-2	02/2008
	iii	03/2011		2-3	03/2011
	iv	03/2011		2-4	03/2011
	v	02/2008		2-5	02/2008
				2-6	02/2008
				2-7	02/2008
1	1-0	02/2008		2-8	02/2008
	1-1	03/2011		2-9	02/2008
	1-2	02/2008		2-10	02/2008
	1-3	02/2008		2-11	02/2008
	1-4	02/2008		2-12	02/2008
	1-5	02/2008			
			3	3-0	02/2008
				3-1	02/2008
				3-2	02/2008
				3-3	02/2008
				3-4	02/2008
				3-5	02/2008
				3-6	02/2008
				3-7	02/2008
				3-8	02/2008

Section	Page	Date	Section	Page	Date
4	4-0	02/2008	6	6-0	02/2008
	4-1	02/2008		6-1	02/2008
	4-2	02/2010		6-2	02/2008
	4-3	02/2010			
	4-4	02/2010	7	7-0	02/2008
	4-5	02/2008		7-1	02/2008
	4-6	02/2008		7-2	02/2008
	4-7	02/2008		7-3	02/2008
	4-8	02/2008		7-4	02/2008
	4-9	02/2008		7-5	02/2008
	4-10	02/2008		7-6	01/2009
	4-11	02/2008		7-7	02/2008
				7-8	03/2011
5	5-0	02/2008		7-9	03/2011
	5-1	02/2008		7-10	03/2011
	5-2	02/2008		7-11	03/2011
	5-3	02/2008		7-12	03/2011
	5-4	02/2008	8	8-0	02/2008
	5-5	02/2008		8-1	02/2008
	5-6	02/2008		8-2	02/2008
	5-7	02/2008		8-3	02/2008
	5-8	02/2008		8-4	02/2008
	5-10	02/2008		8-5	02/2008
			9	9-0	02/2008
				9-1	02/2008
				9-2	02/2008

0.3 Table of Contents

SECTION 1

1. GENERAL

1.1 Introduction

The aeroplane Flight Manual has been prepared to provide pilots and instructors with information for the safe and efficient operation of the ***EV-97 Eurostar SL*** ultra-light aeroplane.

It also contains supplemental data supplied by the aeroplane manufacturer.

1.2 Certification basis

This aircraft type has been approved by the responsible airworthiness authorities listed below:

CZECH REPUBLIC	
Type Certificate No.:	ULL – 03/98/"d" 00
Date of approval:	2.10.2008
Approved by:	Light Aircraft Association of Czech Republic
Certificate of Airworthiness:	"P"

1.3 Warnings, cautions and notes

The following definitions apply to warnings, cautions and notes in the flight manual.

WARNING

Means that the non-observation of the corresponding procedure leads to an immediate or important degradation of the flight safety.

CAUTION

Means that the non-observation of the corresponding procedure leads to a minor or possible long term degradation of the flight safety.

NOTE

Draws attention to any special item not directly related to safety, but which is important or unusual.

1.4 Descriptive data

1.4.1 Aircraft description

EV-97 Eurostar SL is an aircraft intended especially for recreational and touring flying, with a limitation to non-aerobatic operation.

The EV-97 Eurostar SL is a single engine, metal-composite, low-wing monoplane of semimonocoque construction with two side-by side seats. The aeroplane is equipped with a fixed tricycle undercarriage with a controllable nose wheel.

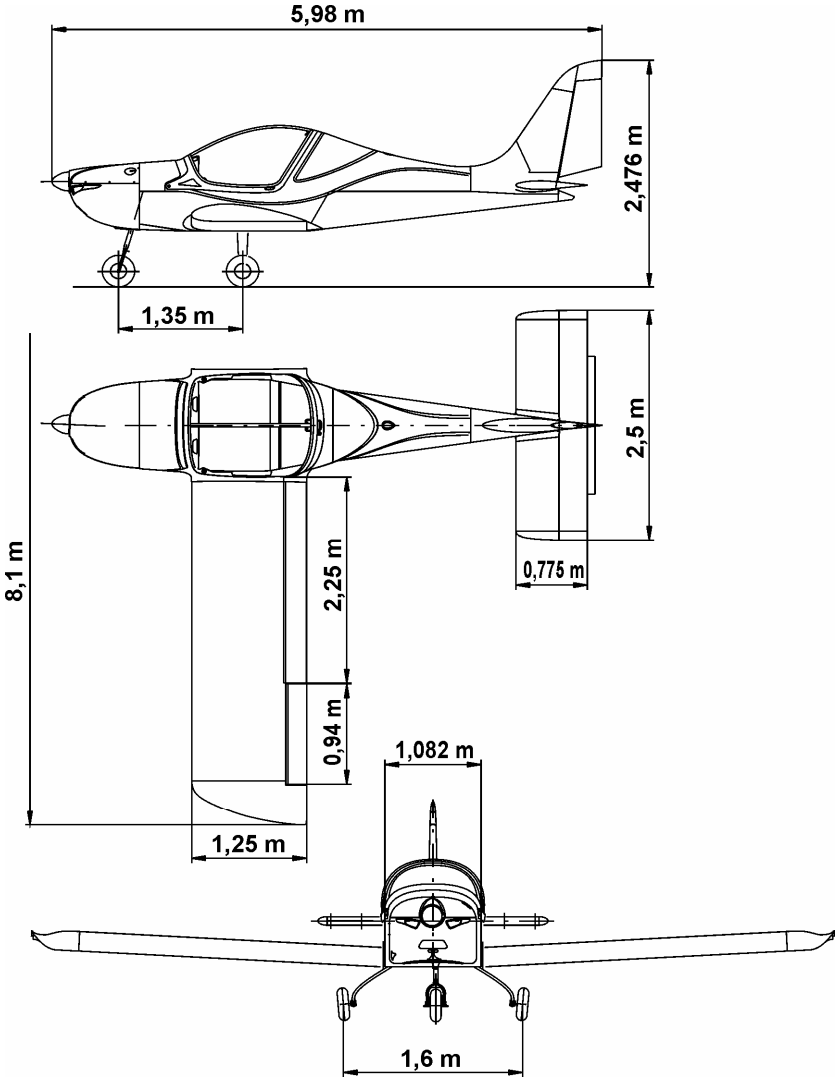
The powerplant is composed of the ROTAX 912UL (80 hp), four cylinder, four stroke engine and the three blade Klassic 170/3/R, fixed composite propeller (standard powerplant).

Alternatively it is possible to upgrade the engine to the ROTAX 912ULS (100 hp) and other propellers according to consumer's request.

1.4.2 Technical data

Wing				
span	8.1	m	*26.57*	*ft*
area	9.84	m^2	*105.92*	*ft^2*
MAC	1.25	m	*4.10*	*ft*
loading	45.7	kg/m^2	*9.37*	*lb/ft^2*
Aileron				
area	0.21	m^2	*2.26*	*ft^2*
Flap				
area	0.52	m^2	*5.60*	*ft^2*
Fuselage				
length	5.98	m	*19.62*	*ft*
width	1.08	m	*3.55*	*ft*
height	2.47	m	8,12	*ft*
Horizontal tail unit				
span	2.5	m	*8.20*	*ft*
area	1.95	m^2	*20.99*	*ft^2*
elevator area	0.8	m^2	*8.60*	*ft^2*
Vertical tail unit				
height	1.28	m	*4.21*	*ft*
area	1.02	m^2	*10.93*	*ft^2*
rudder area	0.43	m^2	*4.67*	*ft^2*
Landing gear				
wheel track	1.6	m	*5.25*	*ft*
wheel base	1.35	m	*4.42*	*ft*
main wheel diameter	350	mm	*14*	*in*
nose wheel diameter	350	mm	*14*	*in*

1.5 Three-view drawing



SECTION 2

2. LIMITATIONS

2.1 Introduction

Section 2 includes operating limitations, instrument markings and basic placards necessary for the safe operation of the aircraft, its engine, standard systems and standard equipment.

2.2 Airspeed

Airspeed limitations and their operational significance are shown below:

Speed		IAS		Remarks
		[km/h]	*[kts]*	
V_{NE}	Never exceed speed	270	*146*	Do not exceed this speed in any operation.
V_A	Manoeuvring speed	160	*86*	Do not make full or abrupt control movement above this speed, because under certain conditions the aircraft may be overstressed by full control movement.
V_{NO}	Maximum structural cruising speed	190	*103*	Do not exceed this speed except in smooth air, and then only with caution.
V_{FE}	Maximum Flap. Extending speed	125	*67*	Do not exceed this speed with flaps extended.

2.3 *Airspeed indicator markings*

Airspeed indicator markings and their colour-code significance are shown below:

Marking	IAS value or range		Significance
	[km/h]	*[kts]*	
White arc	58-125	*31-67*	Positive Flap Operating Range.
Green arc	75-190	*40-103*	Normal Operating Range.
Yellow arc	190-270	*103-146*	Manoeuvres must be conducted with caution and only in smooth air.
Red line	270	*146*	Maximum speed for all operations.
	58	*31*	Stall speed in landing configuration (max. extended flaps, engine on idle)

2.4 Powerplant

ROTAX 912 engine is installed in the aircraft of S/N

Engine Model:			**ROTAX 912UL**	**ROTAX 912ULS**
Engine Manufacturer:			Bombardier-Rotax GMBH	
Power	Max Take-off:		59.6 kW / 80 hp at 5800 rpm, max.5 min.	73.5 kW / 100 hp at 5800 rpm, max.5 min.
	Max. Continuous:		58 kW / 78 hp at 5500 rpm	69 kW / 93.8 hp at 5500 rpm
	Cruising:		37.7 kW / 50.6 hp at 4800 rpm	44.6 kW / 59.8 hp at 4800 rpm
Engine speed	Max. Take-off:		5800 rpm, max. 5 min.	
	Max. Continuous:		5500 rpm	
	Cruising:		4800 rpm	
	Idling:		~1400 rpm	
Cylinder head temperature:	Minimum:		60 °C *140 °F*	60 °C *140 °F*
	Maximum:		150 °C *302 °F* *(Evans coolant)* 128 °C *262 °F* *(Glycol coolant)*	135 °C *275 °F* *(Evans coolant)* 128 °C *262 °F* *(Glycol coolant)*
Oil temperature	Minimum:		50 °C *122 °F*	50 °C *122 °F*
	Maximum:		140 °C *284 °F*	130 °C *266 °F*
	Optimum:		90 °C - 110 °C *194 - 230°F*	90 °C - 110 °C *194 - 230°F*
Oil pressure:	Maximum:		7,0 bar	
	Minimum:		1.5 bar	0.8 bar
	Optimum:		1.5-5.0 bar	2.0-5.0 bar
Fuel:			see 2.13	
Oil:			Automotive engine oil of registered brand with gear additives, but not aircraft oil (refer to engine Operator´s Manual). API classification „SF" or „SG".	
Standard Propeller and Manufacturer			V 230C VZLÚ Praha, Czech Republic	
Type:			two blade fixed wooden propeller	
Propeller diameter:			$1625\ ^{+2}_{-3}$ mm	$63.98^{+0.008}_{-0.01}$ *in*
Propeller pitch:			18°20´ - 18°55´	

WARNING

The Rotax 912 UL has not been certified as an aircraft engine and its failure may occur at any time. The pilot is fully responsible for consequences of such a failure.

2.5

Powerplant instrument markings

The analogous powerplant instruments are installed in the EV-97 aeroplane model SL version R, with following colour marking

Function		Minimum Limit (red line)	Normal Operating (green arc)	Caution Range (yellow arc)	Maximum Range (red line)
Engine speed (RPM)		-	1400-5500	5500-5800	5800
Cylinder Head Tempe-rature (CHT)	R 912 UL	-	-	-	150 °C (Evans coolant) 128 °C (glycol coolant)
	R 912ULS				135 °C (Evans coolant) 128 °C (glycol coolant)
Oil Tempe-rature	R 912 UL	-		50-90 °C 110-140 °C	140 °C
	R 912ULS			50-90 °C 110-130 °C	130 °C
Oil Pressu-re	R 912 UL	1.5 bar	1.5 - 5.0 bar	5.0 - 7.0 bar	7.0 bar cold engine starting
	R 912ULS	0.8 bar	2.0 - 5.0 bar	0.8 – 2.0 bar 5.0 - 7.0 bar	

NOTE

The CHT limit with glycol coolant is 128 °C in order to not exceed coolant exit temperature limit 120 °C (Operators Manual for ROTAX Engine Type 912 Series – Part no. 899374).This limitation is based on Aircraft Manufacturer tests.

2.6 *Miscellaneous instrument markings*

Unused

2.7 Weight

Empty weight (standard equipment) ..... 275 kg ± 3 % *606 lbs ± 3 %*

NOTE
Actual empty weight is stated in SECTION 6, par. 6.2

Max. take-off weight	450	kg	*992*	*lbs*
Max landing weight	450	kg	*992*	*lbs*
Max. weight of fuel	47	kg	*104*	*lbs*
Max.baggage weight	15	kg	*33*	*lbs*

2.8 Centre of gravity

Empty aircraft C.G. position (standard)	18±2	% MAC
Operating C.G. range	20-34	% MAC

2.9 Approved manoeuvres

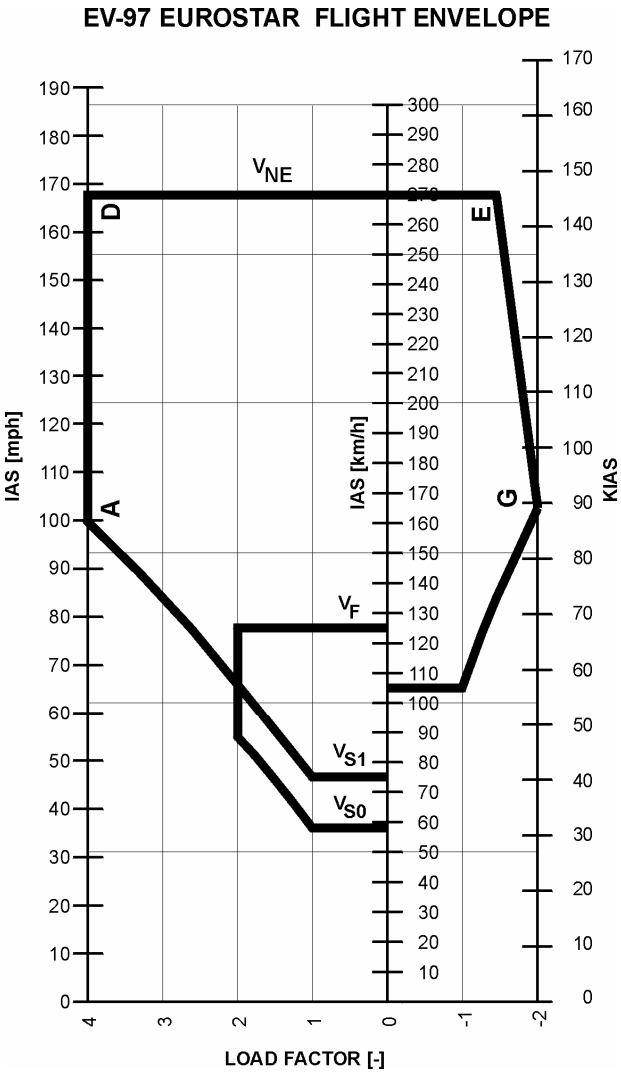
Aeroplane Category: Normal

The ***EV-97 Eurostar SL*** aeroplane is approved for normal and below listed manoeuvres:

- Steep turns not exceeding 60° bank
- Lazy eights
- Chandelles
- Stalls (except whip stalls)

WARNING
Aerobatics and intentional spins are prohibited !

2.10 Manoeuvring load factors



2.11 Crew

Minimum crew.....2
Minimum crew weight.....55 kg *121 lb*
Maximum crew weight.....see 6.2

WARNING
Abide with max. take-off weight 450 kg (992 lb)!

2.12 Kinds of operation

There are permitted day VFR flights only.

WARNING
IFR flights and flights under icing conditions are PROHIBITED!

Instruments and equipment for VFR flights:
1 Airspeed indicator (marked according to 2.3)
1 Altimeter
1 Vertical speed indicator
1 Magnetic compass
1 Bank indicator
2 Safety harnesses

2.13 Fuel

- automotive petrol with min RON 95
- EN 228 Premium
- EN 228 Premium plus
- AVGAS 100 LL

  Due to higher lead content in AVGAS, the wear of valve seats and deposits in the combustion chamber and lead sediments in the lubrication system will increase. Therefore, use AVGAS only if you encouter problem with vapour lock or if the other fuel types are not available.

NOTE

Use only fuel suitable for the respective climatic zone.

Risk of vapour formation if using winter fuel for summer operation.

For other suitable fuel types refer to the engine Operator´s Manual.

Fuel tank volume.....65	l	*17.2*	*USgals*
Unusable fuel quantity.....2.9	l	*0.77*	*USgals*

2.14 Maximum passenger seating

Number of seats.....2

2.15 Other limitations

No smoking onboard the aeroplane.

2.16 Limitation placards

CAUTION

The owner (aircraft operating agency) of this aeroplane is responsible for the readability of placards during the aircraft service life.

This ultra-light aeroplane has been approved only for VFR day flights under no icing conditions.

Aerobatics and intentional spins are prohibited!

AIRSPEED IAS

Never exceed	270 km/h
Manoeuvring	160 km/h
Max. Flap Extended	125 km/h
Stalling	58 km/h

ENGINE SPEED

Max. Take-off (max. 5 min.)	5800 rpm
Max. Continuous	5500 rpm
Idling	1400 rpm

Unusable quantity of fuel 2.9 Litre

or

This ultra-light aeroplane has been approved only for VFR day flights under no icing conditions.

Aerobatics and intentional spins are prohibited!

AIRSPEED IAS

Never exceed	146 kts
Manoeuvring	86 kts
Max. Flap Extended	67 kts
Stalling	31 kts

ENGINE SPEED

Max. Take-off (max. 5 min.)	5800 rpm
Max. Continuous	5500 rpm
Idling	1400 rpm

Unusable quantity of fuel 0.77 USgal

Max.take-off weight						450	kg
Empty weight (without paint)						273	kg
Max.baggage weight						15	kg
PERMITTED CREW WEIGHT							[kg]
Fuelling	Fuel gauge	1	1	3/4	1/2	1/4	
	Fuel quantity ltr.	65	52	39	29	16	
Baggage weight	max. 15 kg	115	125	134	141	150	
	1/2 8 kg	122	132	141	148	157	
	No baggage	130	140	149	156	165	
Fuel reserve (yellow warning lamp)						12	liters

or

LOAD LIMITS							
Max.take-off weight						992	lbs
Empty weight						606	lbs
Max.baggage weight						33	lbs
PERMITTED CREW WEIGHT							[lbs]
Fuelling	Fuel gauge	1	1	3/4	1/2	1/4	
	Fuel quantity US gals.	17.2	12.9	10.8	7.4	4.8	
Baggage weight	max. 33 lbs	250	275	288	309	324	
	1/2 17 lbs	266	291	304	325	340	
	No baggage	283	308	321	342	357	
Fuel reserve (yellow warning lamp)						2.9	US gals

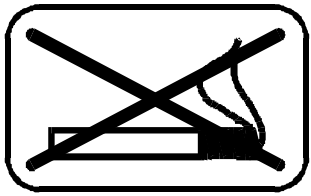
NOTE

The values stated on the placard "LOAD LIMITS," are valid for the empty weight of the aircraft with standard equipment installed. The placard with values valid for the actual empty weight of the aircraft will be placed in the cockpit.

BAGGAGE
MAX.
15 kg

or

BAGGAGE
MAX.
33 lbs



NOT TO BE USED FOR ADDITIONAL STOWAGE

CAUTION ! FINGERS OFF WHEN CLOSING THE CANOPY!

BEFORE TAKE-OFF PUSH CANOPY HANDLE UP TO CHECK CANOPY FULL CLOSING

SECTION 3

3. EMERGENCY PROCEDURES

3.1 Introduction

Section 3 provides checklists and amplified procedures for coping with various emergencies that may occur. Emergencies caused by aircraft or engine malfunction are extremely rare if proper pre-flight inspections and maintenance are practised.

However, should an emergency arise, the basic guidelines described in this section should be considered and applied as necessary to correct the problem.

3.2 Engine failure

3.2.1 Engine failure during take-off run

1. Throttle - decrease to idling
2. Ignition - switch off
3. Brake

3.2.2 Engine failure during take-off

1. Speed - gliding at 110 km/h (*60 kts*)
2. Altitude - below 50 m (*160 ft*): land in take-off direction
   - over 50 m (*160 ft*): choose landing area
3. Wind - find direction and velocity
4. Landing area - choose free area without obstacles
5. Flaps - extend as needed
6. Fuel cock - shut off
7. Ignition - switch off
8. Propeller - set to the horizontal position by means of starter (for the two blade propeller)
9. Safety harness - tighten
10. Master switch - switch off before landing
11. Land

NOTE
Skip 6-10 if necessary.

3.2.3 Engine failure in flight

1. Speed	-	gliding at 110 km/h (*60 kts*)
2. Altitude	-	below 50 m (*160 ft*): land in flight direction
	-	over 50 m (*160 ft*): choose landing area
3. Wind	-	evaluate direction and velocity
4. Landing area	-	choose free area without obstacles
5. Flaps	-	extend if necessary
6. Fuel cock	-	shut off
7. Ignition	-	switch off
8. Propeller	-	set to the horizontal position by means of starter (for the two blade propeller)
9. Safety harness	-	tighten
10. Master switch	-	switch off before landing
11. Land		

3.3 *In-Flight start*

1. Speed - gliding at 110 km/h (*60 kts, 68 mph*)
2. Altitude - check
3. Landing area - choose according to altitude
4. Master switch - switch on
5. Fuel cock - open
6. Electric fuel pump (if installed) - switch on
7. Choke - as necessary (for cold engine)
8. Throttle - for 1/3 power
9. Ignition box - switch to BOTH and activate starter

If the engine cannot be started, increase the flight speed to 200 km/h (*110 kts, 124 mph*) so that air flow can rotate the propeller, thus enabling the engine to start.

WARNING

The loss of altitude during in-flight engine starting is about 400 m (*1300 ft*) and must be taken into consideration.

3.4 *Smoke and fire*

3.4.1 Fire on ground

1. Fuel cock - shut off
2. Throttle - full
3. HOT AIR knob (if installed) - push
4. Master switch - switch off
5. Ignition - switch off
6. Abandon the aeroplane
7. Extinguish fire if it is in your power or call for a fire-brigade.

3.4.2 Fire during take-off

1. Fuel cock - shut off
2. Throttle - full
3. HOT AIR knob (if installed) - push
4. Speed - 100-110 km/h (*54-60 kts*)
5. Master switch - switch off
6. Ignition - switch off
7. Land and brake
8. Abandon the aeroplane
9. Extinguish fire if it is in your power or call for a fire-brigade

3.4.3 Fire in flight

1. Fuel cock - shut off
2. Throttle - full
3. HOT AIR knob (if installed) - push
4. Master switch - switch off
5. Ignition - switch off after using up fuel in carburettors and engine stopping
6. Choose of area - heading to the nearest airport or choose emergency landing area
7. Emerg. landing - perform according to par. 3.6.1
8. Abandon the aeroplane
9. Extinguish fire if it is in your power or call for a fire-brigade.

NOTE

Estimated time to pump fuel out of carburettors is 30 seconds.

3.5 Glide

An example of the use of gliding is in the case of engine failure.

1. Speed - ~110 km/h (*60 kts*)
2. Flaps - retracted
3. Instruments - within permitted limits

3.6 Landing emergencies

3.6.1 Emergency landing

1. Emergency landings are generally carried out in the case of engine failure and the engine cannot be re-started.
2. Speed - 110 km/h (*60 kts*)
3. Trim - trim the aeroplane
4. Safety harness - tighten
5. Flaps - as needed
6. Radio station - report your location if it is possible
7. Fuel cock - shut off
8. Ignition - switch off
9. Master switch - switch off

3.6.2 Precautionary landing

A precautionary landing is generally carried out in the cases where the pilot may be dissorientated, the aircraft has no fuel reserve or possibly in bad weather conditions.

1. Choose landing area, determine wind direction
2. Report your plan to land and land area location if a COMM is installed in the aeroplane
3. Perform low-altitude passage into wind over the right-hand side of the chosen area with flaps extended to the "TAKE-OFF" position at a speed of 110 km/h (*60 kts*) to thoroughly inspect the area.
4. Perform flight around the chosen area
5. Perform an approach at increased idling with fully extended flaps
6. Reduce power to idle run when fly over the runway threshold and touch-down at the very beginning of the chosen area
7. After stopping the aeroplane switch off all switches, shut off the fuel cock, lock the aeroplane and look for help

NOTE

Watch the chosen area permanently during precautionary landing.

3.6.3 Landing with a flat tire

1. When floating at landing, keep the damaged wheel above ground as long as possible using the ailerons
2. Maintain the direction at landing run, applying foot control

3.6.4 Landing with a defective landing gear

1. If the main landing gear is damaged, perform touch-down at the Lowest speed possible and maintain direction at landing run, if possible
2. If the nose wheel is damaged perform touch-down at the Lowest speed possible and hold the nose wheel over a runway by means of the elevator control as long as it is possible

3.7 *Recovery from unintentional spin*

WARNING

Intentional spins are prohibited! The spin characteristics of this aircraft have not been tested. The procedure bellow is only for information.

The aircraft has no tendency to spontaneously enter into an uncontrollable spin if normal piloting techniques are used.

This standard procedure can be used to recover from an intentional spin:

1. Throttle - reduced to idle
2. Control stick - ailerons neutralised
3. Rudder pedals - full opposite rudder
4. Control stick - forward elevator control as required to stop a spinning
5. Rudder pedals - immediately after stop of a rotation neutralise the rudder
6. Recovery of the dive

3.8 Other emergencies

3.8.1 Vibration

If any forced aircraft vibrations appear, it is necessary:

1. To set engine speed to such power rating where the vibrations are lowest.
2. To land on the nearest airfield or to perform a precautionary landing according to 3.6.2.

3.8.2 Carburettor icing

Carburettor icing mostly occurs when entering into an area of ice formation. The carburettor icing shows itself through a decrease in engine power and an increase of engine temperatures.

To recover the engine power, the following procedure is recommended:

1. Speed - 110 km/h (*60 kts*)
2. Throttle - set for 1/3 power
3. If possible, leave the icing area
4. Increase the engine power gradually to cruise conditions after 1-2 minutes

If you fail to recover the engine power, land on the nearest airfield (if possible) or, depending on the circumstances, perform a precautionary landing according to 3.6.2.

SECTION 4

4. NORMAL PROCEDURES

4.1 Introduction

Section 4 provides checklists and amplified procedures for the conduct of normal operation.

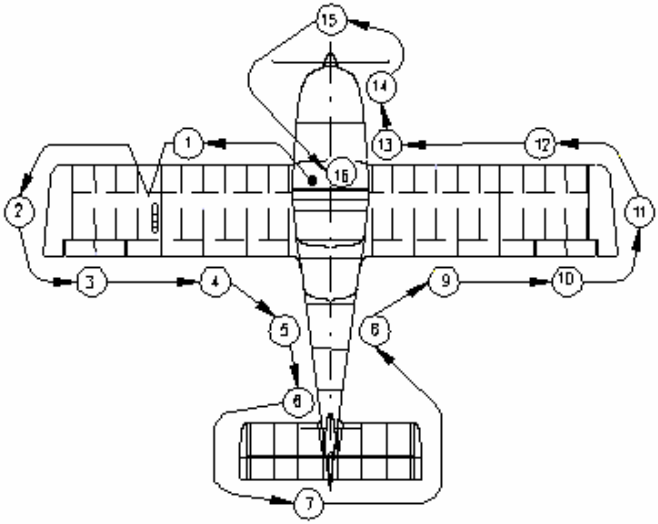
Normal procedures associated with optional systems can be found in section 9.

4.2 Assembly and disassembly

For assembly and disassembly procedures refer to the Technical Description, Operating and Maintenance Manual for the Ultra-light Aeroplane ***EV-97 Eurostar SL.***

4.3 Pre-flight inspection

The pre-flight inspection performance is very important by reason that incomplete or careless performance could cause aircraft failure. The following pre-flight inspection procedure is recommended by the aircraft Manufacturer:



⇒ Check if ignition is switched off in the cockpit

1. *Wing*
   - Wing surface condition
   - Leading edge condition
   - Pitot tube condition
   - Landing light condition (if installed)
2. *Wing tip*
   - Surface condition
   - Check of tips attachment
   - Condition and attachment of position lights (if installed)
3. *Aileron*
   - Surface condition
   - Attachment
   - Play
   - Free movement
4. *Flap*
   - Surface condition
   - Attachment
   - Play
5. *Rear part of fuselage*
   - Surface condition
   - condition of antennas (top and bottom fuselage surface) - if installed
6. *Vertical tail unit*
   - Surface condition
   - Play
   - Free movement
7. *Horizontal tail unit*
   - Surface condition
   - Attachment
   - Play
   - Free movement
   - Trim tab condition
8. see **5**
9. see **4**
10. see **3**
11. see **2**
12. see **1**

13. *Landing gear*

- Check of main and nose landing gear attachment
- Check cable control of controllable nose wheel (if it is installed)
- Condition of tires
- Condition and attachment of wheel spats

14. *Engine*

Checks before the first flight of the day – it is necessary to remove upper engine cowling:

- Engine cowlings condition
- Check of engine intake space (on cowlings)
- Engine bed condition
- Fuel and Electric system visual check
- Water radiator hoses check
- Check on cooling liquid volume in the expansion tank on the engine body (replenish as required up to max. 2/3 of the expansion tank volume)
- Fuel system draining

Checks before every flight

- Cleanness of air intakes
- Oil quantity check (between marks – flattenings on the dip stick)
- Check on cooling liquid level in the overflow bottle (volume should be approx. 0.2 litre)
- Engine attachment check
- Proper closing of the upper cowling
- Other checks according to engine manufacturer instructions

CAUTION

It is advisable to turn the propeller by hand with the ignition switched off in the case where the engine has been out of operation for a long time. Avoid excessive pressure on a blade tip and trailing edge.

15. *Propeller*

- Propeller attachment
- Blades, Hub, Spinner condition
- Other checks acc. to propeller manufacturer instructions

16. *Cockpit*

- Master switch - switched on
- Check canopy OPEN/CLOSE indication light (or a message on the EFIS display) function
- Ignition - switched off
- Master switch - switched off

- Instruments - check of condition
- Fuel gauge - fuel quantity check (for fuel quantity check switch on Switch box and Master switch, then switch off!)
- Controls 02/2010 visual check
  - check for proper function
  - check of plays
  - check of flaps extension
  - check of free movement up to the stops

- Check for free items
- Check of safety belts condition and attachment
- Canopy - Condition of attachment, cleanliness

4.4 Normal procedures

4.4.1 Before entering cockpit

1. Aeroplane surface - check of covers and caps
2. Cockpit - items inside the cockpit
3. Ignition - off
4. Master switch - off

4.4.2 After entering cockpit

1. Rudder pedals - free movement check
2. Parking brake handle (if installed) - release brakes
3. Brakes - check of function
4. Control stick - free movement check
5. Trim - check of lever movement
6. Flaps - check of function
7. Engine controls (throttle, choke) - check of movement
8. Fuel cock - shut off
9. Fuel gauge - fuel quantity check
10. Master switch - off
11. Circuit breakers - off
12. Ignition - off
13. Instruments, COMM, - condition check
14. Safety harness - check of integrity
15. Cockpit - condition and canopy lock function

4.4.3 Before engine starting and Engine starting

1. Fuel cock - open
2. Circuit breakers - switch on
3. Throttle - set for idling
4. Choke - according to engine temperature
5. Master switch - switch on
6. Propeller - set for take-off if in-flight variable prop is installed
7. Electric fuel pump (if installed) - switch on
8. Brakes - apply
9. Check of free area
10. Ignition box - switch to BOTH and activate starter
11. After starting - set throttle to idling
12. Oil pressure - within 10 sec. min. pressure
13. Choke - push to shut
14. AVIONICS - switch on
15. Engine warm - according to 4.4.4

CAUTION

The starter should be activated for a maximum of 10 sec., followed by a 2 min. pause for engine cooling.

After starting the engine, adjust the throttle for smooth running between 2500-2750 rpm. Check the oil pressure, which should increase within 10 sec. Increase the engine speed after the oil pressure has reached 2 bars (*29 psi*) and is steady.

To avoid shock loading, start the engine with the throttle lever set for idling or a maximum of 10 % opened, then wait 3 sec to reach constant engine speed before new acceleration.

Only one magneto should be switched on (off) during ignition magneto check.

4.4.4 Engine warm up, Engine check

Lock the main wheels by means of Scotch blocks before engine check. Initially warm up the engine to 2000 rpm then continue to 2500-2750 rpm till oil temperature reaches 50°C (*122 °F*). The warm up period depends on ambient air temperature.

Check both ignition circuits at 3850 rpm (4000 rpm for Rotax 912S). The engine speed drop during the time either magneto switched off should not overcome 300 rpm. The Max. engine speed drop difference between circuits R and L should be 115 rpm.

Set max. power for verification of max. speed with given propeller and engine parameters (temperatures and pressures).

Check acceleration from idling to max. power. If necessary, cool the engine at 3000 rpm before shutdown.

Check the function of the pitch setting mechanism if in-flight variable prop is installed.

CAUTION
The engine check should be performed with the aircraft heading upwind and not on loose terrain (the propeller may suck impurities which can damage the leading edges of blades).

4.4.5 Taxiing

The recommended taxiing speed is 15 km/h (*8 kts*). The direction of taxiing can be controlled by the controllable nose wheel or by brakes. Hydraulic disc brakes are controlled by pedals on the rudder control.

4.4.6 Before take-off

1.	Brakes	- fully applied
2.	Rudder pedals	- check of free movement
3.	Control stick	- check of free movement
4.	Trim	- neutral position
5.	Flaps	- „Take-off" position
6.	Propeller	- set for take-off (fine pitch) if in-flight variable prop is installed

WARNING

Control overswitch of the constant speed propeller must be set to the "MANUAL" position before take-off, and propeller pitch must be set as above.

7.	Engine controls	- choke shut
8.	Fuel cock	- opened
9.	Fuel gauge	- fuel quantity check
10.	Circuit breakers	- switched on
11.	Engine instruments	- within limits
12.	Safety harness	- secured and tightened
13.	Cockpit	- locked

4.4.7 Take-off

By gradually increasing power, set the aircraft into motion.

The direction of take-off run can be controlled by the controllable nose wheel and by hydraulic brakes. Slightly pull the stick to unstick the nose wheel. The aircraft then takes-off at a speed above 75 km/h (*40 kts*). Slightly push the stick until the safety climb speed of 100 km/h (*54 kts*) has been reached. The Maximum Flap Extended speed is 125 km/h (*67 kts*). Refer to the par. 5.2.5 for optimum climbing speed.

WARNING

The Take-off is prohibited if:

- The engine is running unsteadily
- The engine instruments values are beyond operational limits
- The engine choke is open
- The crosswind velocity exceeds permitted limits (see 5.3.3)

4.4.8 Climb

1. Throttle - Max. Take-off Power (max. 5 min. 5750 rpm)
   - Max. Continuous Power (5500 rpm)
2. Speed - 115 km/h (*62 kts, 72 mph*)
3. Trim - adjust
4. Electric fuel pump (if installed) - switch off
5. Instruments - CHT, Oil temp. and pressure within limits

CAUTION

If the cylinder head temperature or oil temperature exceed their limits, reduce the climb angle to decrease airspeed and thus fulfil the limits.

4.4.9 Cruise

The ***EV-97 Eurostar SL*** flight characteristics are very grateful within permitted limits of airspeeds, configurations and C/G range. The aircraft is very easy to both control and manoeuvre. For more details about horizontal flight regimes, refer to the Section 5 par. 5.3.1.

4.4.10 Descent

1. Throttle - idling
2. Speed - 110 km/h (*60 kts, 68 mph*)
3. Trim - as necessary
4. Instruments - within limits

CAUTION

On the final approach and when descending from very high altitude, it is not advisable to reduce the engine throttle control lever to minimum. In such cases the engine becomes undercooled and a loss of power occurs. When descending, apply increased idle so that the engine instrument readings range are within the limits for normal use.

4.4.11 Check before landing

1. Fuel - fuel quantity check
2. Safety harness - tightened
3. Brakes - check function
4. Trim - adjust
5. Landing area check - runway area, base leg area

4.4.12 On base leg

1. Speed - 110 km/h (*60 kts, 68 mph*)
2. Flaps - extend to „Take-off" position
3. Propeller - in case of adjustable propeller set for take-off (fine pitch)

WARNING

Control overswitch of the constant speed propeller must be set to the "MANUAL" position before landing, and must stay in this position at landing, and propeller pitch must be set as above.

4. Trim - adjust
5. Parking brake (if installed) - check for lever down

CAUTION

Parking brake must be released (lever down) to prevent landing with braked wheels.

6. Electric fuel pump (if installed) - switch on
7. Throttle - as necessary
8. Instruments - within limits

4.4.13 On final

1. Speed - 110 km/h (*60 kts, 68 mph*)
2. Flaps - „Landing" position
3. Trim - adjust
4. Throttle - as necessary
5. Propeller switch - in case of constant speed prop. check setting to"MANUAL" position and set fine pitch
6. Instruments - values within limits

4.4.14 Landing

The airspeed during float is slowly reduced, so that the touch down speed is about 70 km/h (*38 kts, 44 mph*).
Gradually pull the stick after touch down to hold the nose wheel up as long as possible. Push the control stick when the nose wheel touches the ground. The landing run can be shortened by braking.

4.4.15 Balked landing

1. Throttle - full
2. Engine speed - max.5800 rpm
3. Flaps - set to the „Take-off" position at a speed of 100 km/h (54 kts, 62 mph)

4.	Trim	- as necessary
5.	Flaps	- retract at a height of 50 m (*165 ft*)
6.	Trim	- adjust
7.	Engine speed	- MTV, max.5500 rpm
8.	Instruments	- within limits
9.	Climb	- at 110 km/h (*60 kts, 68 mph*)

4.4.16 After landing

1.	Engine speed	- set as necessary for taxiing
2.	Flaps	- retracted and locked
3.	Trim	- neutral position

4.4.17 Engine shutdown

1.	Engine speed	- idling
2.	Instruments	- engine instruments within limits
3.	COMM + intercom	- switch off
4.	Electric fuel pump (if installed)	- switch off
5.	Ignition box	- turn the key counterclockwise to switch off
6.	Master switch	- switch off
7.	Fuel cock	- shut off

CAUTION

Rapid engine cooling should be avoided during operation. This happens above all during aircraft descent, taxiing, low engine rpm or at engine shutdown immediately after landing.

Under normal conditions the engine temperatures stabilize during descent, taxiing and at values suitable to stop engine by switching the ignition off. If necessary, cool the engine at 2500 – 2750 rpm to stabilize the temperatures prior to engine shut down.

4.4.18 Flight in rain

When flying in the rain, no additional steps are required. Aircraft qualities and performance are not substantially changed.

SECTION 5

5. PERFORMANCE

5.1 Introduction

Section 5 provides approved data for airspeed calibration, stall speeds, take-off performance and non-approved additional information.

The data in the charts has been computed from actual flight tests with the aircraft and engine in good conditions and using average piloting techniques.

If not stated otherwise, the performance stated in this section is valid for the max. take-off weight and flight under ISA conditions.

The performance given in this section is valid for aircraft with given engine and propeller types.

5.2 Approved data

5.2.1 Airspeed indicator system calibration

	IAS [km/h]	CAS [km/h]
vSO	58	65
	60	67
	70	76
vS1	75	80
	80	85
	90	94
	100	103
	110	112
	120	121
vFE	125	126
	130	130
	140	139
	150	148
vA	160	157
	170	166
	180	175
vNO	190	184
	200	193
	210	202
	220	211
	230	220
	235	225
	240	229
	245	234
	250	238
	255	243
	260	247
	265	252
vNE	270	256

IAS [kts]	*CAS [kts]*	
31	*35*	*vSO*
35	*38*	
40	*43*	*vS1*
45	*47*	
50	*52*	
55	*57*	
60	*61*	
67	*67*	*vFE*
70	*70*	
75	*75*	
80	*79*	
86	*84*	*vA*
90	*88*	
95	*93*	
100	*97*	
103	*100*	*vNO*
110	*106*	
115	*111*	
120	*115*	
125	*120*	
130	*124*	
135	*129*	
140	*133*	
146	*139*	*vNE*

5.2.2 Stall speeds

Stall	Flaps setting	Power setting	Warning speed	Stalling speed- IAS [km/h]	Stalling speed- CAS [km/h]
Wing level stall	"RETRACTED"	idling	No distinctive warning.	71	77
		MCP*		59	66
	"TAKE-OFF"	idling		67	73
		MCP*	Aeroplane downward motion without pitching.	54	62
	"LANDING" 1st position	idling		63	70
		MCP*		49	57
	"LANDING" 2nd position	idling		58	65
		MCP*	Aeroplane is fully controllable.	46	54
Turning flight (cord. turn with 30° banking	"RETRACTED"	idling		73	79
		MCP*		63	70
	"TAKE-OFF"	idling	No excessive loss of altitude during recovery.	69	75
		MCP*		57	64
	"LANDING" 1st position	idling		64	71
		MCP*		52	60
	"LANDING" 2nd position	idling	*) MCP – maximum continuous power	60	67
		MCP*		50	58

Stall	Flaps setting	Power setting	Warning speed	Stalling speed- IAS [kt]	Stalling speed- CAS [kt]
Wing level stall	"RETRACTED"	idling	No distinctive warning.	38	41
		MCP*		32	36
	"TAKE-OFF"	idling		36	40
		MCP*	Aeroplane downward motion without pitching.	29	33
	"LANDING" 1st position	idling		34	38
		MCP*		26	31
	"LANDING" 2nd position	idling		31	35
		MCP*	Aeroplane is fully controllable.	25	29
Turning flight (cord. turn with 30° banking	"RETRACTED"	idling		39	42
		MCP*		34	38
	"TAKE-OFF"	idling	No excessive loss of altitude during recovery.	37	41
		MCP*		31	35
	"LANDING" 1st position	idling		35	38
		MCP*		28	32
	"LANDING" 2nd position	idling	*) MCP – maximum continuous power	32	36
		MCP*		27	31

5.2.3 Take-off performance

Take-off distances stated in the following table are valid at sea level and ambient temperature of 15 °C (*59 °F*).

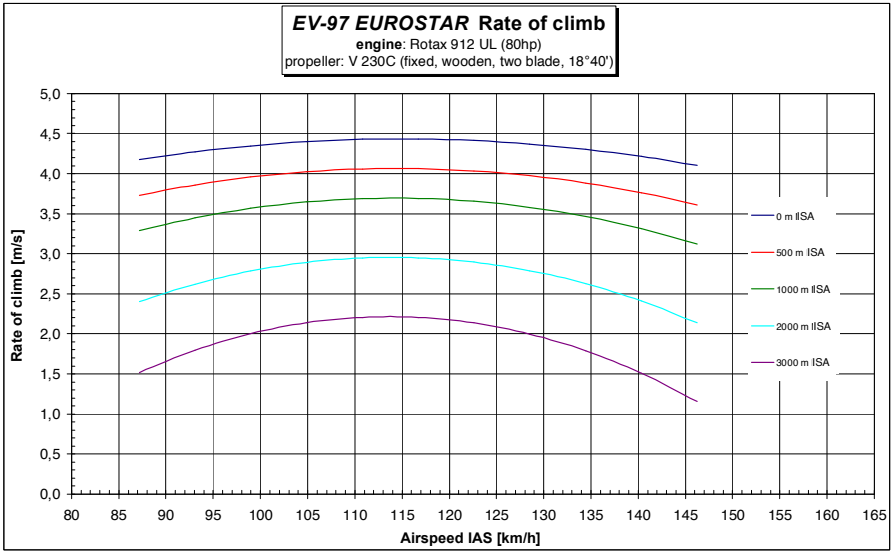
RWY	Take-off run distance		Take-off distance over 15 m (*50 ft*) obstacle	
	[m]	*[ft]*	[m]	*[ft]*
CONCRETE	145	*475*	280	*919*
GRASS	155	*509*	300	*984*

5.2.4 Landing distances

Landing distances stated in the following table are valid at sea level and ambient temperature of 15 °C (*59 °F*).

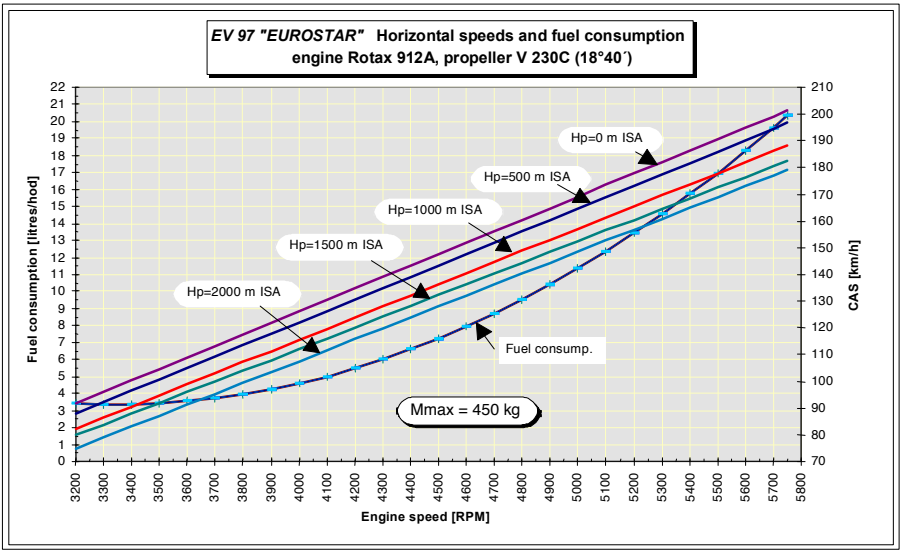
RWY	Landing distance over 15 m (*50 ft*) obstacle		Landing run distance (braked)	
	[m]	*[ft]*	[m]	*[ft]*
CONCRETE	520	*1706*	210	*689*
GRASS	500	*1640*	200	*656*

5.2.5 Climb performance



5.3 *Additional information*

5.3.1 Cruise



Horizontal speeds

In the following tables state indicated airspeeds (IAS) and corresponding True air speeds (TAS) versus altitude, all for various engine speeds.

					Cruise power				Maximum Continuous Power	Maximum Takeoff Power
Engine speed [RPM]			**4000**	**4200**	**4500**	**4800**	**5000**	**5200**	**5500**	**5750**
Altitude [m MSA]	**0**	IAS [km/h]	126	135	149	164	173	183	198	210
		TAS [km/h]	*126*	*135*	*148*	*161*	*169*	*178*	*191*	*202*
	500	IAS [km/h]	122	131	145	159	168	177	191	203
		TAS [km/h]	*126*	*134*	*147*	*160*	*168*	*177*	*190*	*200*
	1000	IAS [km/h]	118	127	140	153	162	171	184	195
		TAS [km/h]	*125*	*134*	*146*	*159*	*167*	*175*	*188*	*198*
	2000	IAS [km/h]	110	119	131	143	151	159	170	180
		TAS [km/h]	*124*	*132*	*144*	*156*	*164*	*172*	*184*	*194*
	3000	IAS [km/h]	103	110	121	132	139	146	157	165
		TAS [km/h]	*122*	*130*	*142*	*153*	*161*	*168*	*179*	*188*

5.3.2 Endurance

The following table states fuel consumptions, endurances and ranges for appropriate regimes.

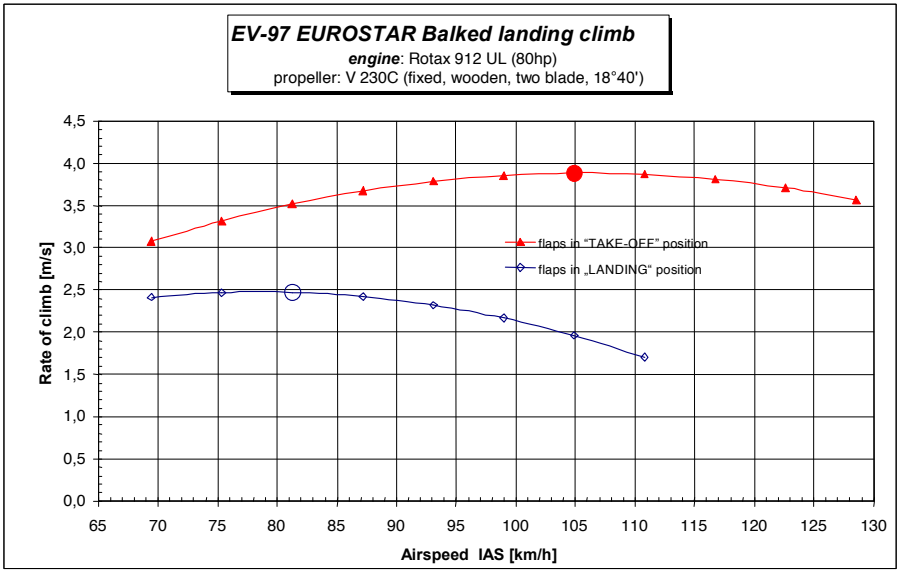
Fuel tank Volume	=	65	litres	*17,2*	*Usgals*
Fuel reserve	=	11	litres	*2,9*	*Usgals*

indicated by yellow warning lamp

Altitude 500 m ISA

Engine speed	[rpm]	4000	4200	4500	4800	5000	5200	5500
Fuel consumption	[l/h]	12,2	13,7	16,3	19,0	20,8	22,7	25,5
IAS	[km/h]	122	131	145	159	168	177	191
CAS	[km/h]	123	131	143	156	164	173	185
Total Endurance	[hour]	5,3	4,7	4,0	3,4	3,1	2,9	2,6
Total Range	[km]	660	620	570	530	510	490	470
Endurance at reserve	[hour]	0,9	0,8	0,7	0,6	0,5	0,5	0,4
Range at reserve	[km]	110	100	100	90	90	80	80

5.3.3 Balked landing climb



5.3.4 Effect on flight performance and characteristics

Flight performance and characteristics are not substantially affected by rain or accumulation of insects on the aeroplane surface.

5.3.5 Demonstrated crosswind performance

Max. permitted cross wind velocity
for take-off and landing ..... 5 m/s *10 kts*

Max. permitted head wind velocity
for take-off and landing ..... 12 m/s *23 kts*

5.3.6 Ceiling

Service ceiling.....5000 m *16500 ft*

5.3.7 Noise data

64.4 dB(A) - with Rotax 912 UL (80 hp) and V 230C prop
59.4 dB(A) - with Rotax 912 UL (80 hp) and Fiti Eco Competition prop
58.3 dB(A) - with Rotax 912 ULS (100 hp) and SR 2000 prop
59.2 dB(A) - with Rotax 912 ULS (100 hp) and Klassic 170/3/R prop.
59.1 dB(A) - with Rotax 912 ULS (100 hp) and Varia 170/2/R prop.

.

SECTION 6

6. WEIGHT AND BALANCE

6.1 Introduction

6.2 Weight and balance record / Permitted payload range

6.1 Introduction

This section contains the payload range within which the aircraft may be safely operated.

Procedures for weighing the aircraft and the calculation method for establishing the permitted payload range are contained in the Technical Description, Operating and Maintenance Manual for the Ultra-light Aeroplane ***EV-97 Eurostar SL***.

6.2 Weight and balance record / Permitted payload range

Permitted crew weight [kg] or [*lbs*]

Crew weight = Max.Take-off weight - Empty weight - Baggage weight – Weight of fuel (0.72 kg/ltr.)

Date	Empty weight [kg] or [lbs]	C.G. position [% MAC]	FUELLING						Approved	
			Fuel gauges	1	1	3/4	1/2	1/4	Date	Signat.
			Fuel volume	65 litre *17.2 USgalls*	54 litre *14.3 USgalls*	43 litre *11.4 USgalls*	32 litre *8.5 USgalls*	16 litre *4.2 USgall*		
			Fuel weight	47 kg *104 lbs*	39 kg *86 lbs*	31 kg *68 lbs*	23 kg *51 lbs*	12 kg *25 lbs*		
			BAGGAGE max. 15 kg *33 lbs*							
			1/2 8 kg *17 lbs*							
			No baggage							
			max. 15 kg *33 lbs*							
			1/2 8 kg *17 lbs*							
			No baggage							
			max. 15 kg *33 lbs*							
			1/2 8 kg *17 lbs*							
			No baggage							
			max. 15 kg *33 lbs*							
			1/2 8 kg *17 lbs*							
			No baggage							

CAUTION: Increasing of the empty weight above 303 kg (668 lbs) and/or C.G. position under 16 % MAC resulting from customer requirements for optional equipment/installations, will cause deterioration of the flight characteristics.
Permitted crew weight exceeding causes service life decrease of the airplane and its components.

SECTION 7

7. AEROPLANE AND SYSTEMS DESCRIPTION

7.1 Introduction

This section provides description and operation of the aircraft and its systems.

Refer to section 9, Supplements, for details of optional systems and equipment.

7.2 Airframe

The ***EV-97 Eurostar SL*** airframe is of semimonocoque, metal composite construction, formed with metal reinforcements, bulkheads and a duralumin cover.

7.2.1 Fuselage

The fuselage has a semimonocoque construction formed with reinforcements and duralumin covers.

The fuselage cross-section is rectangular in the lower section and elliptical in the upper one. The tail fin is an integral part of the fuselage. In the middle section of the fuselage there is a two-man cockpit which is accessible by unfolding the one-part perspex overlap canopy. The engine section in the nose is separated from the crew by a firewall to which the engine bed is attached.

7.2.2 Wing

The rectangular wing is a monospar construction with an auxiliary spar for the ailerons and flaps attachments. All the elements are riveted together. At the ends of the wings fibre glass wing tips are riveted. The wing can be equipped with a folding mechanism for a convenient storing in the hangar.

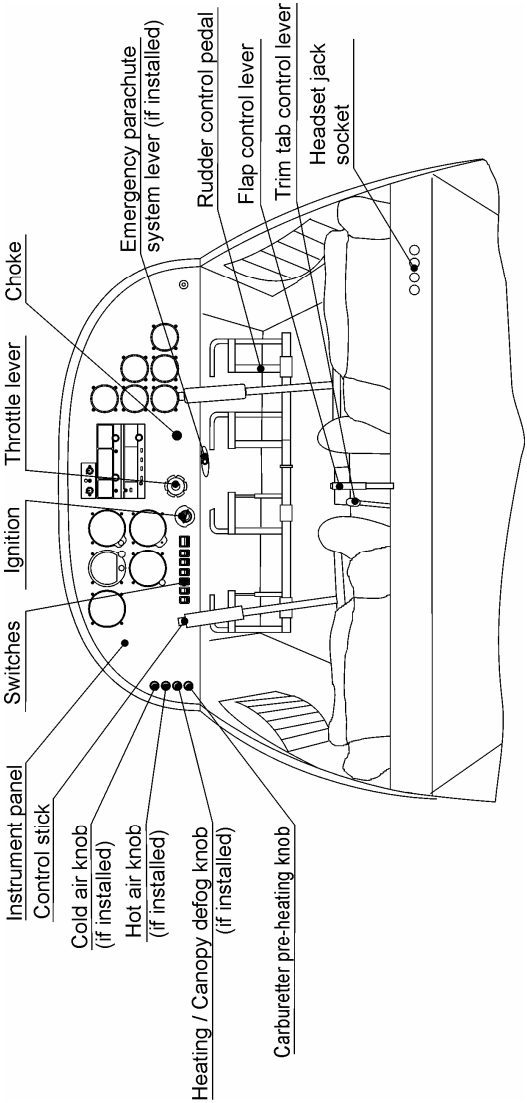
7.2.3 Horizontal tail unit (HTU)

The rectangular HTU consists of a stabiliser and elevator with a trim tab. The semimonocoque construction of the HTU consists of duralumin ribs, spar and cover.

7.2.4 Vertical tail unit (VTU)

The trapezoidal fin section of the VTU is mounted to the rear section of the fuselage. The rudder is attached on the fin by two hinges. The frame of the VTU is composed of a metal sheet spar and a duralumin cover.

7.3 Controls in the cockpit



7.4 *Instrument panel*

The aeroplane ***EV-97 Eurostar SL***, S/N XXXXXXXXXX: is equipped with the following instrument panel:

7.5 Landing gear

The plane has fixed landing gear with a controllable nose wheel. The main landing gear legs are composed of a composite spring. The wheels on both landing gear legs are equipped with 14 x 4 tyres with hydraulic disc brakes that are controlled by foot pedals on the main rudder pedals. The nose landing gear leg is welded from steel tubes and its suspension is made from rubber rope.

The nose wheel steering system is connected to the rudder control. The wheels may be equipped with aerodynamic, fiberglass covers.

7.6 Seats and safety harness

The plane has two side-by-side seats which are fixed, unadjustable and thinly upholstered. Each seat is equipped with four point safety belts attached to the side of bulkhead behind the baggage compartment and alongside the seats.

7.7 Baggage compartment

The baggage compartment is located behind the seats.

Maximum baggage weight is stated on the placard located near the baggage compartment

7.8 Canopy

The semi drop-shaped canopy consists of a composite frame to which is glued down the organic glass. The canopy is attached to the nose section of the fuselage by two pins which make it possible for the canopy to be tilted forward up. For easier manipulation, the weight of the canopy is counterbalanced by two gas struts which allow it to open effortlessly.

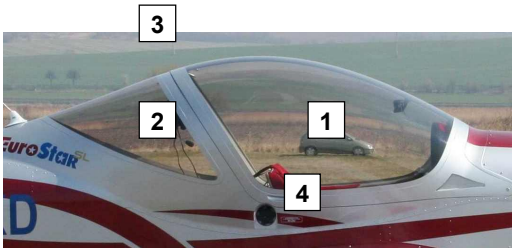


Fig. Two-parts cockpit canopy
1- front tilted canopy,
2 - rear tip-up canopy,
3 - canopy lock,
4 - fuel tank filler cap

Lock

The canopy is equipped with an automotive lock in the rear upper section of the frame.
Maintenance: Spray the lock with WD-40 spray annually from time to time for
Check: Check the lock visually for deformations
Adjustment: Release the socket wrench screws, adjust lock position and tight the socket wrench screws

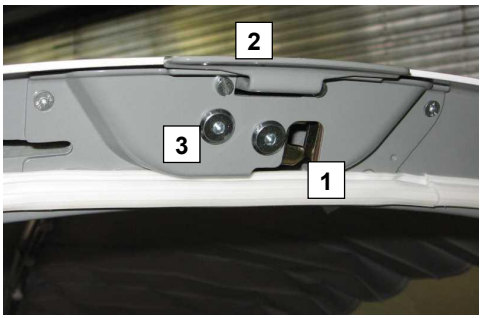


Fig. Cockpit canopy lock
1- inside lever
2 - outside lever (with a lock)
3 - screw

7.9 Powerplant

The standard powerplant of the ***EV-97 Eurostar SL*** is the ROTAX 912UL (80 hp) engine. The ROTAX 912ULS (100 hp) may be installed as option.

Rotax 912 is 4-stroke, 4 cylinder horizontally opposed, spark ignition engine with one central camshaft-push-rod-OHV.

Liquid cooled cylinder heads, ram air cooled cylinders.

Dry sump forced lubrication.

Dual breakerless capacitor discharge ignition.

The engine is fitted with an electric starter, AC generator and mechanical fuel pump. Prop drive via reduction gear with integrated shock absorber.

The two blade, fixed, propeller WODCOMP composite 3 bladed ground adjustable is installed as standard on the ROTAX 912UL engine.

7.9.1 Oil Thermostat

The aircraft can be optionally equipped with an oil thermostat installed in the engine compartment – see pictures.
Installation of oil thermostat reduces heating time of the cold engine.
Oil flows from the tank through the oil pump into the engine and only after sufficient heating thermostat switches - on and oil starts to flow through the oil cooler.
In addition, the thermostat helps to keep the oil temperature in the recommended operating limits, especially during descent with reduced engine power when the engine could be overcooled.
The thermostat switches - on approximately 80 ° C.

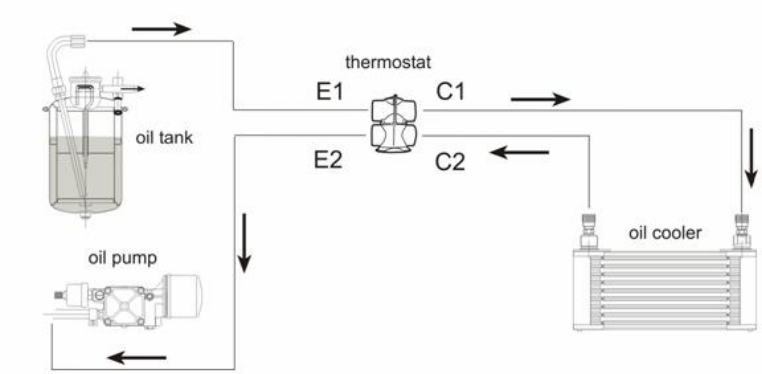
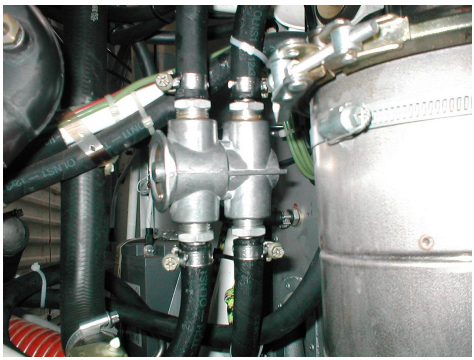


Fig. 1

Oil Thermostat



7.10 Fuel system

The fuel system consists of a 65 litre (*17.2 USgals*) tank, a fuel cock, a filter and a fuel pump on the engine. The tank is positioned in the separate space behind the seats, has a drain pocket and a drain valve. The outlet is situated below the fuselage.

Fuel quantity is indicated by a fuel-sight gauge or by an electric float fuel gauge. The electric fuel gauge indicates the relative quantity of fuel in the tank (corresponding quantity in litres is shown in the table 6.2 and on placard "LOAD LIMITS" in the cockpit).

7.11 Electrical system

The electric system is single-wire type with the negative connected to the chassis. Both the single-phase generator integrated to the engine and the 12V/16Ah maintenanceless battery located on the firewall serve as power sources. The system is protected by the main circuit breaker (ACCU) positioned on the instrument panel. The circuits of the particular sections are each guarded separately by circuit breakers.

The engine dual ignition is a separate part of the electric system. Each ignition circuit is has its own position on the ignition box to allow ignition check and position BOTH for normal operation.

Piper type external power socket can be installed optionally. Socket is located on the right side of the fuselage, behind the firewall.

7.12 *Pitot and static pressure systems*

The Pitot static head serving to read dynamic and static air pressure is located under the left half of the wing. Pressure distribution to individual instruments is done through flexible plastic hoses.

Keep the system clear to assure its right function.

Both the dynamic and static hose systems are equipped with dirt pockets. The dirt pockets are located inside the cockpit just before the pilot´s seat.

In the case where water is inside the system, unscrew the covers from the dirt pockets and blow into the Pitotstatic head. Then screw the covers back and check the sealings.

CAUTION
Avoid blowing into the Pitot static system with dirt pocket cover closed - it may cause instrument damage.

7.13 Miscellaneous equipment

Besides the instruments stated in par. 0, the ***EV-97 Eurostar SL*** aeroplane, S/N XXXXXXX:
is fitted with the following equipment:

- vybavení dle zakázkového listu

7.14 Avionics

- *Flight instruments:*
  (standard equipment)
  1 Airspeed indicator ..... LUN 1106-8
  1 Altimeter BG-3E
  1 Compass ..... C 2300
  1 Variometer ..... LUN 1147.15-8

  The ***EV-97 Eurostar SL***, S/N XXXXXXX
  is additionally equipped with the following instruments:

NOTE
Refer to the documentation supplied with "non-standard," instruments for operating instructions.

- *Engine instruments*
  The following powerplant instruments are installed in the EV-97 Eurostar SL aeroplane, S/N xxxx xxxx:
  1 Engine RPM indicator ..... Mitchell
  1 Engine cylinder head temperature (CHT) indicator..... Mitchell
  1 Oil temperature indicator..... Mitchell
  1 Oil pressure indicator ..... Mitchell

  The ***EV-97 Eurostar SL***, S/N XXXXXXXX
  is additionally equipped with the following engine instruments:
  1 Electric Float Fuel Gauge..... SW 13.803

SECTION 8

8. Aeroplane handling, servicing and maintenance

8.1 Introduction

This section contains factory-recommended procedures for proper ground handling and servicing of the aeroplane. It also identifies certain inspection and maintenance requirements which must be followed if the aeroplane is to retain that new-plane performance and dependability. It is wise to follow a planned schedule of lubrication and preventive maintenance based on climatic and flying conditions encountered. This should be done according to the Technical Description, Operating and Maintenance Manual for Ultra-light Aeroplane ***EV-97 Eurostar SL***

8.2 Aircraft inspection periods

Periods of overall checks and contingent maintenance depends on the condition of the operation and on overall condition of the aeroplane. The manufacturer recommends that maintenance checks and periodic inspections should be carried out in the following periods, at least:

a) after the first 25 ± 2 flight hours
b) after every 50 ± 3 flight hours
c) after every 100 ± 5 flight hours or at least annual inspection. Every other annual inspection should be performed by the manufacturer.

Refer to the Rotax 912 Operator´s Manual for engine maintenance.

Maintain the prop according to its manual.

Refer to the Technical Description, Operating and Maintenance Manual for the Ultra-light Aeroplane ***EV-97 Eurostar SL*** for more details about maintenance.

8.3 Aircraft alterations or repairs

It is essential that the responsible airworthiness authority and the aircraft manufacturer be contacted prior to any alternations to the aircraft to ensure that the airworthiness of the aircraft is not violated.

If the aircraft weight is affected by that alternation, a new weighing is necessary to take note of the new empty weight. Then the Weight and balance record / Permitted payload range 6.2 and up-date the placard "Load Limits," have to be filled in.

Refer to the Technical Description, Operating and Maintenance Manual for Ultra-light Aeroplane ***EV-97 Eurostar SL*** for aeroplane repairs.

8.4 Ground handling / Road transport

8.4.1 Towing

It is easy to tow the aircraft a short distance by holding the prop blade at the root since the empty weight of this aeroplane is relatively low.

Suitable surfaces to hold the aeroplane airframe are the rear part of the fuselage before the fin and wing roots.

A tow bar may be used to tow the aeroplane a long distance.

CAUTION

Avoid excessive pressure at the aeroplane airframe - especially at the wing tips, elevator, rudder, trim etc.

CAUTION

Handle the propeller by holding the blade root - never blade tip! If starting the engine manually - always handle the propeller on a blade surface i.e. do not hold only an edge.

8.4.2 Parking

It is advisable to park the aeroplane inside a hangar or alternatively inside any other proof space (garage) with stable temperature, good ventilation, low humidity and dust-free environment.

It is necessary to moor the aeroplane when it is parked outside a hangar. Also when parking for a long time, cover the cockpit canopy, possibly the whole aeroplane by means of a suitable tarpaulin.

8.4.3 Mooring

If the aircraft is parked outside a hanger then it requires to be moored securely. The mooring is necessary to protect the aeroplane against possible damage caused by wind and gusts.

For this reason the aircraft is equipped with mooring eyes located on the lower surfaces of the wings.

Mooring procedure:

1. Check: Fuel cock shut off, Circuit breakers and Master switch switched off, Switch box switched off.
2. Block the control stick up e.g. by means of safety harness or connect the control stick with rudder pedals by means of a suitable rope.
3. Shut all the ventilation windows.
4. Close and lock cockpit.
5. Moor the aircraft to the ground by means of a mooring rope passed through the mooring eyes located on the lower surfaces of the wi ngs. It is also necessary to moor the nose wheel landing gear and the tail skid to the ground.

NOTE

In the case of long term parking it is advisable to cover the cockpit canopy, or possibly the whole aircraft, by means of a suitable tarpaulin attached to the airframe.

8.4.4 Jacking

Because the empty weight of this aircraft is relatively low, two people can lift the aircraft easily.

First of all prepare two suitable supports to support the aircraft.

It is possible to lift the aircraft by handling the following parts:

- Press on the rear part of the fuselage, just before the fin, to lift the front of the aircraft. Then support the weight under the firewall.
- To jack the rear part of the aircraft, handle the fuselage near the auxiliary tail skid, lift it upward and support.
- To lift the wings, push from underneath the wings only at the main spar. Avoid lifting the wings by means of handling the wing tips.

8.4.5 Levelling

Refer to the Technical Description, Operating and Maintenance Manual for the Ultra-light Aeroplane ***EV-97 Eurostar SL*** for more details about levelling.

8.4.6 Road transport

The aircraft may be transported after its loading by a suitable car trailer. It is necessary to dismantle the wings before road transport. The aircraft and dismantled wings should be fastened down securely to ensure these parts against possible damage.

8.5 *Cleaning and care*

Use efficient cleaning detergents to clean the aircraft surface. Oil spots on the aircraft surface (except the canopy!) may be cleaned with petrol.

The canopy may only be cleaned by washing it with a sufficient quantity of lukewarm water and an adequate quantity of a detergents. Use either a soft, clean cloth sponge or deerskin. Then use suitable polishers to clean the canopy.

CAUTION
Never clean the canopy under "dry" conditions and never use petrol or chemical solvents!

Upholstery and covers can be removed from the cockpit, brushed and eventually washed in lukewarm water with an adequate quantity of detergents. Dry the upholstery thoroughly before insertion into the cockpit.

CAUTION
In the case of long term parking, cover the canopy to protect the cockpit interior from direct sunshine.

SECTION 9

9. Supplements

9.1 Introduction

9.2 List of inserted supplements

9.3 Supplements inserted

9.1 Introduction

This section contains the appropriate supplements necessary to safely and efficiently operate the aircraft when equipped with various optional systems and equipment not provided with the standard aeroplane.

9.2 List of inserted supplements

Date	Doc.No.	Title of inserted supplement

9.3 Supplements inserted