4. NORMAL PROCEDURES

SECTION 4

4. NORMAL PROCEDURES

4.1 Introduction

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

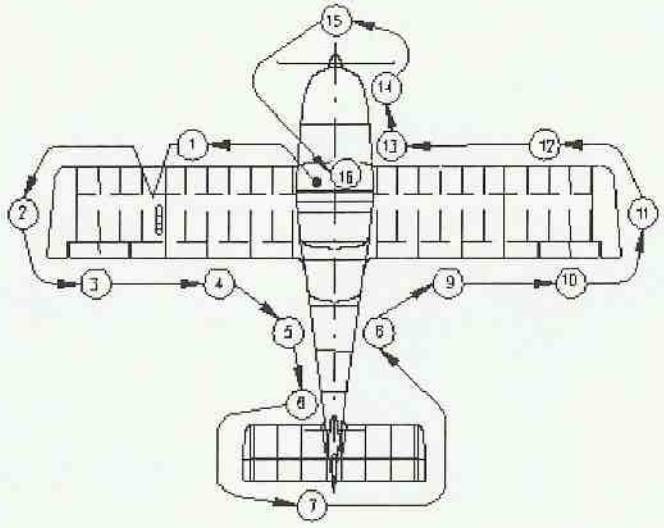
Normal procedures associated with optional systems can be found in section 9.

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" model 2000 version R.***

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
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
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*

- Engine cowlings condition
- Engine bed condition
- Engine attachment check
- Oil quantity check (between guidelines)
- Fuel and Electric system visual check
- Fuel system draining
- 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 according to propeller manufacturer instructions

16. *Cockpit*

- Turn handle clockwise to open cockpit and lift canopy

NOTE

When keyway is in handle axis, cockpit is locked. Unlock it first with key to keyway perpendicular position to the handle axis.

- 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 - 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
- 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. Brakes - check of function
3. Control stick - free movement check
4. Trim - check of lever movement
5. Flaps - check of function
6. Engine controls (throttle, choke) - check of movement
7. Fuel cock - shut off
8. Fuel gauge - fuel quantity check
9. Master switch - off
10. Circuit breakers - off
11. Ignition - off
12. Instruments, COMM, - condition check
13. Safety harness - check of integrity
14. 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. Control stick - fully pulled
6. Check of free area
7. Master switch - switch on
8. Propeller - set for take-off if in-flight variable prop is installed
9. Electric fuel pump (if installed) - switch on
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. 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.	Instruments, COMM, FLYdat	- 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" model 2000 version R*** 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. Electric fuel pump (if installed) - switch on
6. Throttle - as necessary
7. 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 - in case of constant speed prop. check setting of control overswitch to"MANUAL" position
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. Circuit breakers - switch off
7. Master switch - switch off
8. 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.
The slide window on the cockpit canopy may be used to make the visibility better under bad weather conditions and heavy rain.