Pilot Operating Handbook

SportSTAR Aviation

SportSTAR SLM

The SportSTAR aircraft design has been assessed by the CAA against BCAR Section S or approved alternative. The aircraft is a Type Approved Microlight under the ultimate supervision of the CAA.

Type Approved Microlight Serial Number:

Aircraft Type:

Registration:

Note: MAUW is limited to 600 kgs. All performance figures in this POH are based on 600 kg MAUW

Date of Issue: 19th June 2022

Stamp, Signature

This aircraft must be operated in compliance with the information and limitations stated in this manual.

The engine installed in the Sportstar is not certified and can fail at any time. Never fly over areas on to which a safe landing cannot be made in the event of an engine failure. On cross country flights, continually update safe landing fields as the journey progresses.

CONTENTS

1.0 Log of Revisions

Any revisions or amendments to the present manual shall be issued in the form of bulletins with attached new pages. It is in the interests of every user to enter such revision into the table of revisions and to replace the existing page by the new one. The revised or corrected text shall be indicated by a vertical line on left page margin and the page shall bear the revision number and date of its issue.

Rev. No.	Date of Issue	Change	New Page Inserted	Signature SportSTAR Aviation
1.0	Feb. 2022	First issue		
2.0	June 2022	912ULS and 914 Engine added		
3.0	28/7/22	General, 1.3.3 Wing Loading corrected. Dynon Auto Pilot added (Section 8)		

	Type	Manufacturer	Serial Number:	Destination and year of production (if known)
Fuselage	SportSTAR SLM	SportSTAR AVIATION		SportSTAR Aviation Luke's Field Kent
Engine	ROTAX 912iS Sport, 912ULS and 914UL	BOMBARDIER -ROTAX GMBH AUSTRIA		
PROPELLER	DUC Swirl 1730 mm and DUC Flash 1730mm	DUC Helices, France	Blade S/N 1. 2. 3.	
Parachute Safety system (if fitted)	BRS		S/N	
Auto Pilot	Skyview	Dynon		

2.0 Flight Manual Sections

CONTENTS

1.1 Introduction

This Flight Manual has been prepared to provide pilots and instructors with information for safe and efficient operation of the SportStar SLM aircraft. It also contains supplementary information considered to be important by the aircraft manufacturer.

1.2 Warnings, cautions, notes

The following information applies to warnings, cautions and notes used in the Flight Manual:

WARNING

MEANS THAT NON-OBSERVATION OF THE CORRESPONDING PROCEDURE LEADS TO AN IMMEDIATE OR SIGNIFICANT DEGRADATION OF FLIGHT SAFETY.

CAUTION

MEANS THAT NON-OBSERVATION OF THE CORRESPONDING PROCEDURE LEADS TO A MINOR OR TO A SHORT OR LONG TERM DEGRADATION OF FLIGHT SAFETY.

NOTE

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

1.3 Descriptive data

1.3.1 Aircraft Description

The SportStar SLM aircraft is a metal-composite low-wing aircraft of semi-monocoque structure with two side by side seats and nose wheel landing gear.

1.3.2 Powerplant

The standard powerplant consists of ROTAX 912iS Sport or Rotax 912ULS (100 hp) engine and DUC Swirl 1730mm 3 blade propeller (23 degrees at 20cm from tip). Rotax 914UL (115hp) DUC Flash 1730mm 3 blade propeller (24 deg at 20cm from tip).

1.3.3 Main technical data

Wing:

Span	26.57 ft	8.1 m
Area	105.92 sq.ft	9.84 sq.m
MAC depth	4.1 ft	1.25 m
Wing loading	14.33 lbs/sq.ft	69.98 kg/sq.m
Aileron - area	2.26 sq.ft	0.21 sq.m
Flap - area	5.60 sq.ft	0.52 sq.m

Fuselage:

length	19.62 ft	5.980 m
width	3.55 ft	1.082 m
height	8.12 ft	2.476 m
cockpit canopy max. width	3.90 ft	1.188 m

Horizontal tail unit:

Span	8.20 ft	2.50 m
HTU Area	20.88 sq.ft	1.94 sq.m
Elevator area	8.40 sq.ft	0.78 sq.m

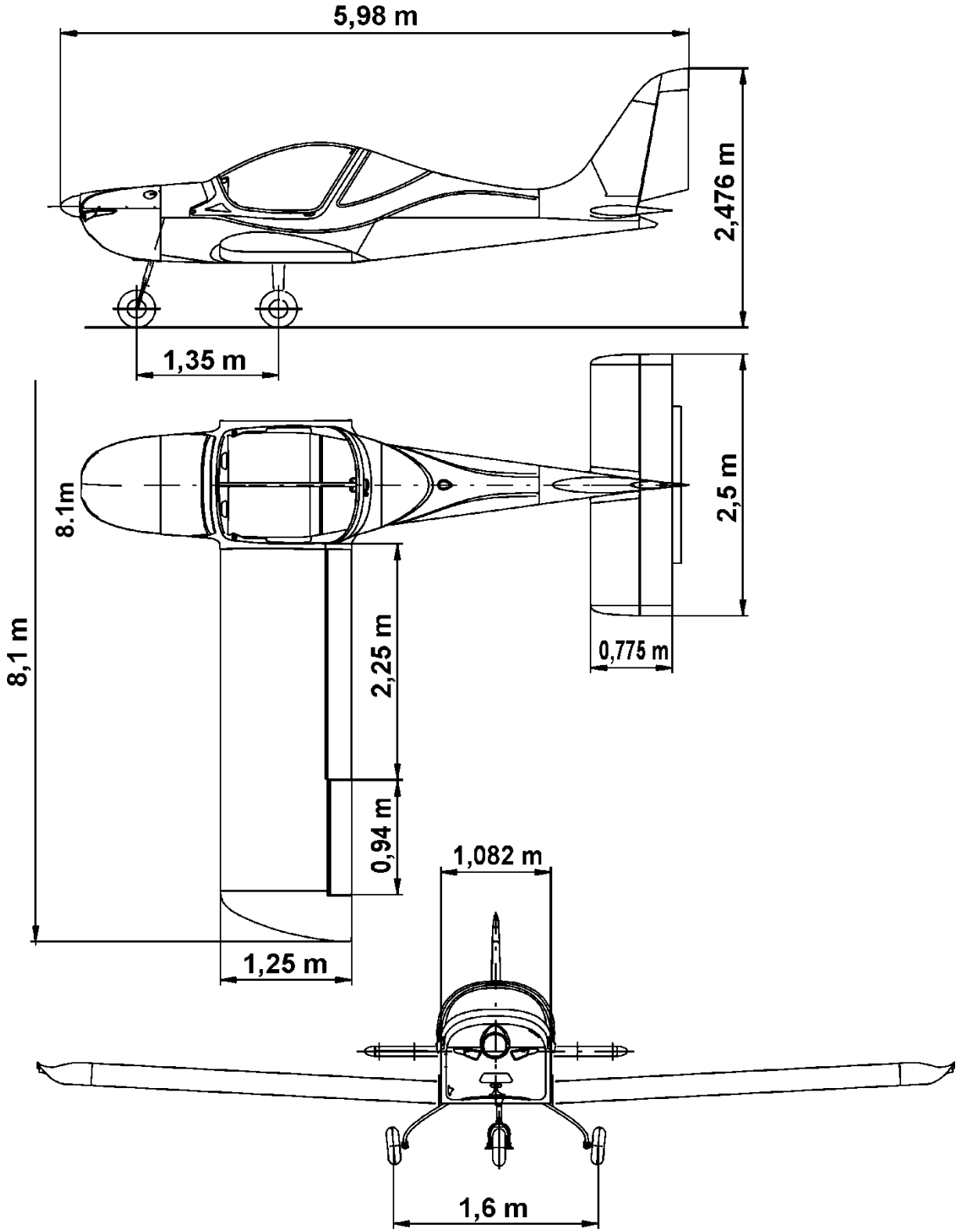
Vertical tail unit:

Height	4.21 ft	1.28 m
VTU Area	10.93 sq.ft	1.02 sq.m
Rudder area	4.67 sq.ft	0.43 sq.m

Landing gear:

Wheel track	6.39 ft	1.95 m
Wheel base	4.43 ft	1.350 m
Main and nose landing gear wheel diameter	15 in	380 mm

1.3.4 Three-view drawing



CONTENTS

2. LIMITATIONS

2.1 Introduction

Instrument marking and basic placards necessary for safe operation of the aircraft and its engine, can be found on the current BMAA TADS BM93.

Limitations for optional systems and equipment are stated in their appropriate manuals.

2.2 Airspeed

Airspeed limitations and their meanings for operation are stated in the table below:

Speed		IAS kts	IAS mph	Description
V_{NE}	Never exceed speed	146	168	Do not exceed this speed in any operation.
V_{SO}	Stall speed	39	45	Full flap, power off (V_{S1} 43kts no flap)
V_A	Manoeuvring speed	96	110	Do not make full or abrupt control movements above this speed, because under certain conditions the aircraft may be overstressed by full control movement. Max. speed in turbulence.
V_{FE}	Maximum flap extended speed	70	81	Do not exceed this speed with the given flap setting.

2.3 Airspeed indicator marking

Airspeed indicator markings and their colour-code significances are shown in the table below:

Marking	Value/Meaning		
	IAS Kts	IAS mph	
White arc	39 - 70	45 - 81	Operating range with extended flaps. Lower limit- V_{S0} at maximum weight (flaps 50°) Upper limit - V_{FE}
Green arc	43 - 96	53 - 110	Normal operating range Lower limit - V_{S1} at maximum weight (flaps 0°) Upper limit - V_{NO}
Yellow arc	96 - 146	110 - 168	Manoeuvres must be conducted with caution and only in smooth air
Red line	146	168	Maximum speed for all operations - V_{NE}.

ASI correction Table – KIAS Vs CAS, Clean

KIAS	45	50	55	60	70	80	90	100	110	120
CAS	47	51	56	61	69	76	87	96	103	112

2.4 Powerplant

The SportStar SLM is powered by ROTAX 912iS Sport, 912ULS (100HP) engine or the 914UL (115HP) The 912iS is a fuel-injected, four-cylinder, four-stroke, horizontally opposed-cylinder, centre-camshaft engine with over-head valves. The 912ULS is a carburettor engine, the 914UL is a turbo charged carburettor engine. Engine cooling is of a combined type, cylinder heads are water-cooled, while cylinders are air and oil cooled. The engine has dry sump lubrication. The capacitor discharge, dual electronic ignition system is a distributor less flywheel magneto type. The engine is equipped with an electric starter, AC generators and a pair of electric fuel pumps. The propeller is driven via an integrated reduction gear with mechanical damping.

Engine manufacturer. ROTAX GmbH., Austria

Engine model..... Rotax 912iS Sport (100HP)

Engine model..... Rotax 912ULS (100HP)

Engine model..... Rotax 914UL (115HP)

For all engine information and limitations please refer to the Rotax operators' manual as issued with the SportStar SLM Type Approved Microlight. As the aircraft owner, you are responsible for applying any Rotax updates or bulletins issued by Rotax.

2.5 Engine limitations

The operational range for engine temperatures and pressures and the colour-code for instruments is compliant with current Rotax recommendations. Maxima are listed on the placards as supplied with the aircraft and displayed on the instrument panel.

2.6 Weight

Empty weight (typical)	approx. 310-330 kgs depending on engine fitted
Maximum take-off weight	600 kgs
Maximum landing weight	600 kgs
Maximum weight in baggage compartment	25 kgs

WARNING

DO NOT EXCEED MAXIMUM WEIGHT. EXCEEDING MAXIMUM WEIGHT RESULTS IN AIRCRAFT OVERSTRESSING, DEGRADATION OF FLYING CHARACTERISTICS AND REDUCED MANOEUVRABILITY.

2.7 Centre of gravity

Aircraft C.G. range	250 – 425mm AOD

Reference datum is the wing leading edge.

2.8 Approved manoeuvres

The SportStar SLM is approved to perform the following manoeuvres:

- steep turns up to bank angles of 60°
- climbing turns
- lazy eights
- stalls
- normal flight manoeuvres

WARNING

AEROBATICS AS WELL AS INTENTIONAL SPINS ARE PROHIBITED

2.9 Manoeuvring load factors

Maximum positive load factor	+4
Maximum negative load factor	-2

2.10 Flight crew

Minimum crew	1 pilot
Minimum weight of crew	55 kgs
Maximum weight of crew	200 kgs (100kg per seat)

WARNING

DO NOT EXCEED MAXIMUM WEIGHT! EXCEEDING MAXIMUM WEIGHT RESULTS IN AIRCRAFT OVERSTRESSING, DEGRADATION OF FLYING CHARACTERISTICS AND REDUCED MANOEUVRABILITY.

CAUTION

IF TWO HEAVY OCCUPANTS STAND ON THE WING TRAILING EDGE **SIMULTANEOUSLY,** THERE IS A RISK THAT THE WHOLE AIRCRAFT WILL TIP BACKWARDS RESULTING IN TAIL DAMAGE.

2.11 Kinds of Operation

The aircraft is approved for VFR daylight flights only.

WARNING

NIGHT TIME VFR AND IFR FLIGHTS ARE PROHIBITED

INTENTIONAL FLIGHT IN ICING CONDITIONS IS PROHIBITED

2.12 Fuel

	Litres
Tank Capacity (each)	60
Total	120
Usable Fuel	118
Unusable Fuel (total)	2
Unusable Fuel (per tank)	1

NOTE

Keep about 4 litres of free space in the tank to prevent fuel bleed through the wing tip vents due to thermal expansion. This is particularly important when cold fuel from an underground tank is used.

2.13 Oil

As per Rotax recommendations.

Oil volume:	minimum	2.0 litres
	maximum	3.0 litres

2.14 Maximum number of passengers

Maximum number of passengers including pilot 2

2.15 Limitation placards

The following placards are located on the instrument panel:

No Smoking
Approved for flight in VFR conditions

AEROBATICS AND INTENTIONAL SPINS ARE PROHIBITED

This aircraft has not been certified to an international requirement

If parachute system is fitted:

Internal Placard

WARNING – Emergency Parachute
Pull handle to deploy.
Unapproved equipment – see POH

External placard near 'chute exit area

WARNING – Dangerous rocket exit area

CONTENTS

3. EMERGENCY PROCEDURES

3.1 Introduction

This section describes operations and procedures for emergency situation solutions that could possibly occur during aircraft operation.

3.2 Speeds for performing emergency procedures

Airspeed for the best glide angle (flaps retracted)	55-60 KIAS (63 mph IAS)
Precautionary landing (engine running, flaps in landing position – 50°)	55 KIAS (63 mph IAS)
Emergency landing (engine stopped, flaps in landing position – 50°)	55 KIAS (63 mph IAS)

3.3 Engine failure

3.3.1 Engine failure at take-off run

1.	THROTTLE lever	idle
2.	Brakes	as necessary
3.	FUEL SELECTOR	OFF
4.	Ignition	OFF
5.	Master Switch	OFF

3.3.2 Engine failure at climb-out

1. Glide speed:
   with flaps in take-off position (15°) min. 55 KIAS (63 mph IAS)
   with flaps retracted (0°) min. 60 KIAS (69 mph IAS)
2. Altitude:
   - Land in take-off direction if below 150 ft:
   - Land in take-off direction or you can perform one turn up to 90° if height is 150 - 400 ft:
   - Try to start the engine if height is above 250 ft
   - Perform a turn up to 180° if height is above 400 ft:

3.	THROTTLE lever	idle
4.	Flaps	as required
5.	FUEL SELECTOR	OFF
6.	Ignition	OFF
7.	ATC	report
8.	Master Switch	OFF
9.	After touch down	brake as needed

3.3.3 Engine failure in flight

1. Glide speed 60 KIAS (69 mph IAS)
2. Consider altitude Make a landing plan and carry it out:

- Engine starting in flight - paragraph 3.4,
- Emergency landing - paragraph 3.8.1

3.4 Engine starting in flight

NOTE

It is possible to start the engine by means of the starter within the whole range of operation speeds as well as flight altitudes. The engine will start immediately after recycling the key switch to “engine”, switching on the ignitions and fuel pumps (not fitted 912ULS) and pressing the START button.

If the engine is shut down, the altitude loss during engine starting can reach up to 1000 ft.

1. Glide speed — 60 KIAS (69 mph IAS)
2. Altitude — check
3. Master switch and fuel pumps — ON
4. Unnecessary electrical equipment — Switch off
5. FUEL SELECTOR — **LEFT**
6. THROTTLE lever — 25%

If engine does not start, then continue according to paragraph 3.8.1 Emergency landing.

3.5 Engine fire

3.5.1 Fire on the ground

1. FUEL SELECTOR — **OFF**
2. Brakes — **ON**
3. THROTTLE lever — Max power
4. HOT AIR knob (if installed) — push

After the engine stops:

5. Ignition and fuel pumps — OFF
6. Master Switch — OFF
7. Aircraft — leave
8. Manual extinguisher (if available) — use

3.5.2 Fire during climb out

1. FUEL SELECTOR — **OFF**
2. THROTTLE lever — full
3. Airspeed — 65 KIAS (75 mph IAS)
4. HOT AIR knob (if installed) — push

After the engine stops:

5. Gliding speed — 55 KIAS (63 mph IAS)
6. Ignition — OFF
7. Master Switch — OFF
8. Land
9. Aircraft — leave
10. Manual extinguisher (if available) — use

3.5.3 Fire in flight

1.	FUEL SELECTOR	**OFF**
2.	THROTTLE lever	full
3.	HOT AIR knob (if installed)	push
4.	Glide speed	60 KIAS (69 mph IAS)
5.	Ignition and fuel pumps	OFF
6.	ATC	report if possible
7.	Master Switch	OFF

NOTE

To help extinguish the engine fire, it may be possible to side-slip if you have sufficient altitude and time.

WARNING

AFTER EXTINGUISHING THE ENGINE FIRE, START THE ENGINE ONLY IF NECESSARY FOR A SAFE LANDING. A FUEL LEAK IN THE ENGINE COMPARTMENT COULD CAUSE THE FIRE TO RESTART.

8.	If you start the engine again, switch off all switches, switch on the Master Switch, and then subsequently switch on only equipment necessary for a safe landing.	
9.	Emergency landing	carry out according to paragraph 2.8.1
10.	Aircraft	leave
11.	Manual extinguisher (if available)	use as needed

3.6 Fire in the cockpit (if extinguisher available on board)

1.	Fire source	identify
2.	All electrical switches in case the source of the fire is electrical equipment.	OFF
3.	Manual extinguisher	aim at base of fire
4.	After fire extinguishing	ventilate the cockpit
5.	Carry out emergency landing according to 2.8.2	

WARNING

NEVER SWITCH ON A DEFECTIVE ELECTRICAL SYSTEM.

NOTE

If a defective electrical system circuit was detected as the fire source, then switch off the appropriate circuit breaker and switch Master Switch to ON position.

3.7 Gliding flight

NOTE

Gliding flight can be used in case of engine failure.

Wing flaps position	Retracted (0°)	Take-off (15°)
Airspeed	60 KIAS (69 mph IAS)	55 KIAS (63 mph IAS)

3.8 Emergency landing

3.8.1 Emergency landing - with non-operating engine

1. Airspeed	60 KIAS (69 mph IAS)
2. Landing area	choose, determine wind direction
3. Safety harness	tight
4. Flaps	landing position (50°)
5. Airspeed	60 KIAS (69 mph IAS)
6. ATC	notify situation to ATC (if possible)
7. FUEL SELECTOR	**OFF**
8. Ignition and fuel pumps	OFF
9. Master Switch	OFF before touch down

3.8.2 Safety landing- with engine operating

1.Landing Area	Select area, determine wind direction, carry out low pass at 60 KIAS (69mph) to check surface and wires. Set flaps to 15º
2.ATC	notify situation to ATC (if possible)
3.Safety harness	tighten up
4.Flaps	landing position (50°)
5.Airspeed	60 KIAS (69 mph IAS)

3.8.3 Landing with burst tyre

CAUTION

WHEN LANDING, KEEP THE WHEEL WITH BURST TYRE CLEAR OF THE GROUND AS LONG AS POSSIBLE BY MEANS OF THE AILERONS. IN CASE OF THE NOSE WHEEL, BY MEANS OF THE ELEVATOR.

DURING ROLL OUT, MAINTAIN AIRCRAFT DIRECTION USING THE RUDDER PEDALS AND BRAKES.

3.8.4 Landing with damaged landing gear

1. In case of nose landing gear damage, touch down at the lowest possible speed and try to keep the aircraft on the main landing gear wheels as long as possible
2. In case of main landing gear damage touch down at the lowest possible speed and if possible maintain direction during roll out.

3.9 Recovery from unintentional spin

NOTE

When using normal flying techniques, the aircraft has no tendency to spin spontaneously.

Standard procedure of recovery from spin:

1.	THROTTLE lever	idle
2.	Control stick	ailerons - neutral position
3.	Pedals	kick the rudder pedal against spin rotation direction
4.	Control stick	push forward and hold it there until rotation stops
5.	Pedals	immediately after rotation stops, set the rudder to the neutral position
6.	Control stick	recover from the dive

CAUTION

ALTITUDE LOSS FOR ONE TURN AND RECOVERY FROM THE SPIN IS BETWEEN 500 AND 1000 FT.

3.10 Other emergency procedures

3.10.1 Vibration

If abnormal vibrations occur on the aircraft then:

1. Set engine RPM to the mode in which the vibrations are the lowest;
2. Land at the nearest possible airport, possibly perform safety landing according to para. 3.8.2. Safety landing.

CONTENTS

4. NORMAL PROCEDURES

4.1 Introduction

This section describes operations and recommended procedures for normal operation of the aircraft. Details of other systems and optional equipment which may be installed, are shown in their respective manuals.

4.2 Recommended speeds for normal procedures

4.2.1 Take-off (100hp aircraft)

Climbing speed up to 50 ft (flaps in take-off pos. - 15°)	60 KIAS / 69 mph (For **Rotax 914** 65 KIAS / 75 mph)
Best rate-of-climb speed V_Y (flaps in take-off pos. - 15°)	60 KIAS / 69 mph (For **Rotax 914** 65 KIAS / 75 mph)
Best rate-of-climb speed V_Y (flaps retracted - 0°)	70 KIAS / 80 mph (For **Rotax 914** 75 KIAS / 86 mph)
Best angle-of-climb speed V_X (flaps in take-off pos. - 15°)	55 KIAS / 63 mph (For **Rotax 914** 60 KIAS / 69 mph)
Best angle-of-climb speed V_X (flaps retracted - 0°)	55 KIAS / 63 mph (For **Rotax 914** 60 KIAS / 69 mph)

4.2.2 Landing

Approaching speed for normal landing (flaps in landing position - 50° for short airfields or in calm conditions)	55 KIAS (69 mph IAS)
(flaps in 2nd stage landing position - for average or long airfields)	60 KIAS (69 mph IAS)
On short final deduct 5 KIAS from the above	

4.3 Pre-flight check

Carry out pre-flight check according to the following procedure:

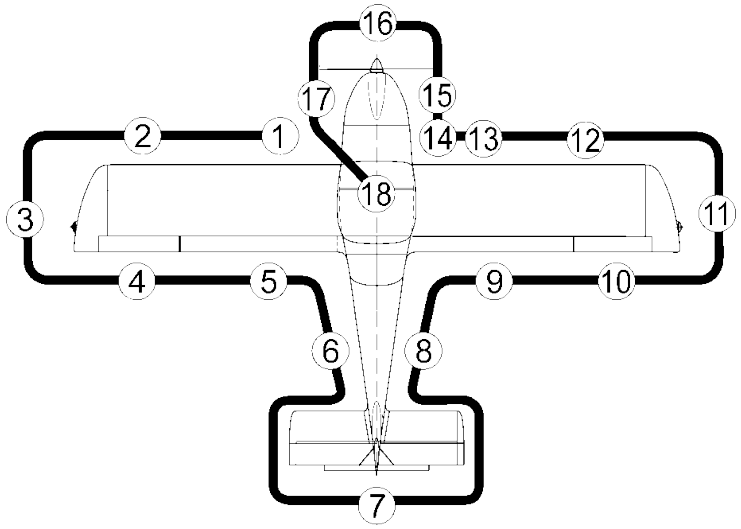


Figure 4-1 Scheme of aircraft pre-flight check

WARNING

CHECK BEFORE PRE-FLIGHT CHECKS THAT IGNITION IS SWITCHED OFF

1. Left landing gear leg - check
   - landing gear leg attachment and condition
   - landing gear wheel condition
   - tyre condition and inflation
   - condition and attachment of wheel spats
   - grounding cable condition (if installed)
2. Left wing - check
   - wing surface condition
   - leading edge condition
   - landing light condition - if installed
   - condition of the pitot tube
   - draining of fuel tank (see Chapter 8)
   - fuel tank cap closed
3. Left wing tip - check
   - surface condition
   - attachment check
   - fuel tank vent – no obstruction
   - condition and attachment of the position lights and the anti-collision beacon - if installed
4. Left aileron - check
   - surface condition
   - condition of trim tab (if installed)
   - attachment
   - free movement
5. Left wing flap - check
   - surface condition
   - attachment
6. Rear part of fuselage - check
   - surface condition
   - condition of antennas (top and bottom fuselage surface) - if installed
7. Tail units - check
   - tail skid condition
   - surface condition
   - condition of rudder and elevator attachment
   - freedom of rudder and elevator movement
   - condition of trim tab, condition of elevator trim tab control
8. Rear part of fuselage - check
   - surface condition
9. Right wing flap- see 5.
10. Right aileron- see 4.
11. Right wing tip - see 3.
12. Right wing - see 2. (except the landing light and pitot tube)

13. Right landing gear leg - see 1.
14. Front part of the fuselage - right hand side - check
    - tilting canopy attachment and condition
    - condition of the nose landing gear leg
    - nose wheel condition
    - condition of the nose wheel push rods
    - external power socket (if installed)
15. Engine

    Checks before the first flight of the day - it is necessary to remove upper engine cowling:
    - condition of engine mount
    - condition of engine attachment
    - condition of exhaust system
    - condition of engine cowlings
    - visual check on fuel and electrical system condition
    - check on cooling liquid volume in the expansion tank (replenish as required to fill to top of neck)

    Checks before every flight:
    - Cleanliness of air intakes
    - "Gurgle" the oil, (rotate prop in the normal direction until all oil is pumped out of the crankcase and air is heard to bubble into the tank). Then check oil level (on flat region of the dip stick).
    - check cooling liquid level in the plastic overflow bottle (volume should be approx. 0.42 pints (0.24 litre)
    - proper closure of the upper cowling
16. Propeller - check
    - attachment
    - condition of blades, hub and spinner
17. Front part of fuselage - left hand side - check
    - tilting canopy attachment and condition
18. Cockpit – check

NOTE

Canopy is unlocked if the warning light on the panel is illuminated when master switch is turned ON, otherwise it is locked.

- Master Switch - ON
- Check canopy OPEN/CLOSE indication light function
- all switches - OFF
- instruments - check condition
- check of safety belts condition and attachments
- check on presence of loose objects in the cockpit
- Flight Manual and other required documents:
  Check on completeness and validity.
- check on adjusting and securing the rudder pedals (see section 7.3.3) - if adjustable rudder pedals installed.

WARNING

RIGHT AND LEFT PEDAL OF RUDDER CONTROL MUST BE SET TO THE SAME POSITIONS AND WELL SECURED

4.4 Normal procedures and checklist

4.4.1 Before engine starting

1.	Pre-flight check and check on weight and centre of gravity position	done
2.	External power source (if socket is installed)	connect as necessary
3.	Safety harnesses	check, fasten
4.	Control stick	free
5.	Rudder pedals	free
6.	Wing flaps	function check
7.	Trim tab	function check
8.	PARKING BRAKE handle (if installed)	release brakes
9.	Brakes	function check
10.	**AVIONICS SWITCH** (if installed)	check OFF
11.	Ignition and fuel pumps (where fitted)	check OFF
12.	Canopy	closed and secure

CAUTION

FOR COLD START TURN THE ENGINE BY HAND SLOWLY (WITH THE OIL TANK CAP OFF) UNTIL THE OIL TANK "GURGLES". REPLACE CAP.

4.4.2 Engine starting

1. Fuel on select left or right
2. Brakes on
3. Throttle to 25% or as advised by EMU
4. Check throttle friction lock engaged
5. Turn key to second on position - momentary 40sec light illuminates
6. One fuel pump on (where fitted)
7. Both lanes on, wait for lights to go out. For 912ULS and 914UL standard magnetos ON
8. Press start button, pick up engine on throttle 2000 rpm min tickover
9. Wait momentary 40sec light to go out (not 912ULS or 914UL)
10. Avionics and instruments on

Pre take off

1. Throttle 2000 rpm, hold on brakes if required check flying controls - full and free
2. Canopy closed and locked, harness secure
3. Stowage items - secure
4. Radio and TX – On correct 1st and 2nd frequency
5. Trim - Set take off mid-point position

6. T & P's - All in range
7. RPM – lane check. Up to 3800 rpm check, hold with brakes
8. Second fuel pump on (where fited) – fuel sufficient and on – all 3 taps
9. Flaps Set take off – typically 1st stage
10. Lookout, call ATC and line up. Check all clear.

After take off

1. Re trim and flaps to zero at 150 ft
2. Check fuel sufficient

Before landing

1. Brakes - off
2. Flaps and trimmer - Set landing as POH
3. Instruments T & P's all ok
4. Doors and harnesses - Closed, locked, secure

Shutdown

1. Hold on brakes
2. Strobes and avionics off
3. Throttle out and friction locked
4. Both lanes or magnetos off
5. Both fuel pumps off (where fitted)
6. Key to off
7. Fuel tap closed

4.4.3 Climb

1.	THROTTLE	max. continuous power (5500rpm)
2.	Airspeed	70 KIAS / 80 mph for the best rate of climb or 55 KIAS / 63 mph for the best angle of climb
3.	Engine instruments	check
4.	Trim	as necessary

4.4.4 Cruise

1.	THROTTLE lever	as necessary
2.	RPM	max. 5500 RPM
3.	Engine instruments	check
4.	Fuel quantity	check

CAUTION

FUEL GAUGES DISPLAY TRUE FUEL QUANTITY ONLY ON THE GROUND AND IN LEVEL FLIGHT. TO READ TRUE FUEL QUANTITY AFTER TRANSITION FROM CLIMB/DESCENT WAIT APPROX. 2 MINUTES FOR FUEL TO LEVEL.

NOTE

It is recommended to alternately switch the tanks during cruise to consume fuel equally from both tanks and minimize any tendency to bank with unbalanced tanks.

Excess fuel is returned to the selected tank.

When the left tank fuel gauge indicates approx. 10% of fuel quantity then switch to the right tank to consume remaining fuel and then switch back the left tank to complete the flight at left tank. If the engine stops due to fuel depletion of either tank, then immediately switch the fuel selector to other tank and restart the engine as explained above.

4.4.5 Descent

1.	THROTTLE lever	as necessary
2.	Airspeed	as necessary
3.	Trim	as necessary
4.	Engine instruments	check

CAUTION

DURING LONG APPROACHES AND DESCENT FROM HIGH ALTITUDE, IT IS NOT ADVISABLE TO COMPLETELY CLOSE THE THROTTLE AS THE ENGINE MAY OVERCOOL, RESULTING IN POWER LOSS WHEN THE THROTTLE IS RE-OPENED. PERFORM THE DESCENT AT A MEDIUM IDLE SPEED AND CHECK ENGINE INSTRUMENTS TO ENSURE TEMPERATURES REMAIN WITHIN RANGE.

4.4.6 Before landing

On Approach:

1.	Fuel quantity	check

CAUTION

FUEL GAUGES DISPLAY TRUE FUEL QUANTITY ONLY ON GROUND AND IN A LEVEL FLIGHT. TO READ TRUE FUEL QUANTITY AFTER TRANSITION FROM CLIMB/DESCENT WAIT APPROX. 2 MINUTES FOR FUEL TO LEVEL.

2.	FUEL SELECTOR	**LEFT OR RIGHT**
3.	Engine instruments	check
4.	Brakes	check by depressing pedals
5.	Safety harnesses	tighten up
6.	Landing area clear	check
7.	Approach speed	60 or 55 KIAS (as listed in above conditions)
8.	Flaps	take-off pos. (15°)
9.	Trim	as necessary
10.	Parking brake (if installed)	check OFF

On Finals:

1. Flaps — landing pos. (30° or 50°)
2. Maintain airspeed — 60 KIAS (69 mph IAS) Short final 55 kts
3. Trim — as necessary

4.4.7 Balked landing

1. THROTTLE lever — max. take-off power
2. Flaps — take-off pos. (15°)
3. Airspeed — 60 KIAS / 69 mph
4. Flaps at 150 ft — retracted pos. (0°)
5. Trim — as necessary
6. THROTTLE lever — max. continuous power
7. Instruments — check
8. Climb at airspeed — 70 KIAS / 83 mph

4.4.8 Landing

1. THROTTLE lever — idle
2. Touch-down — on main landing gear, keep pulling stick back until the nose wheel gently touches down
3. After nose wheel touch-down: — brake as necessary

4.4.9 After landing

1. Flaps — retracted pos. (0°)
2. Trim — NEUTRAL

4.4.10 Engine shut-off

1. THROTTLE lever — idle
2. Engine instruments — check
3. AVIONICS SWITCH — OFF
4. Radio / avionics — OFF
5. Other electrical equipment — OFF
6. Ignition and fuel pumps (where fitted) — OFF
7. Master Switch — OFF

4.4.11 Aircraft parking

1. Ignition — check OFF
2. Master Switch — check OFF
3. FUEL SELECTOR — **OFF**
   Pull the safety button on the fuel selector, turn the handle to the OFF position and then release safety button. Now the handle is blocked in the OFF position. Safety button prevents unintentionally switching the selector from the OFF position.

   (Some operators prefer to leave the fuel selector ON for safety reasons).
4. PARKING BRAKE (if installed) — ON
5. Canopy — closed, lock as necessary

NOTE

It is recommended to use the parking brake (if installed) for short-term parking only, between flights during a flying day. At the end of the flying day or in low temperatures, do not use the parking brake; use wheel chocks instead.

For Auto Pilot see Section 8

CONTENTS

5.1 Introduction

The stated performance data has been demonstrated from actual flight tests with the SportStar SLM aircraft and ROTAX 912iS Sport, 912ULS or 914UL engines in good condition and using average piloting techniques.

5.2 Take-off distance

Conditions:	- engine:	Max. take-off power
	- flaps:	Take-off (15°)
	- aircraft weight:	600 kg
	- altitude:	0 ft ISA
	- ambient air temperature:	ISA

912iS / 912UL Take off distance to clear 15M obstacle on grass, nil wind inc. 1.3 safety factor **450**metres

914UL Take off distance to clear 15M obstacle on grass, nil wind inc. 1.3 safety factor **390** metres

Corrections: - Influence of wind: Add 4% for every 1 kt (1.15 mph) of tail wind.

- RWY inclination: Add 8% to the take-off run distance for every 1% of runway inclination up the slope.

5.2.1 Landing distance

Conditions:	- engine:	idle
	- flaps:	Landing 50°
	- aircraft weight:	600 kg
	- altitude:	0 ft ISA
	- ambient air temperature:	ISA

Landing distance to clear 15M obstacle on grass, nil wind inc. 1.3 safety factor 477metres

Corrections: Influence of wind: Add 4.5 % for every 1 kt (1.15 mph) of tail wind.
RWY inclination: Add 8% of the landing run for 1% of runway inclination down the slope.

5.2.2 Climb performance

Conditions:	- engine:	maximum take-off power
	- flaps:	retracted (0°)
	- aircraft weight:	600 kg
	- ambient air temperature:	ISA

For 912ULS and 912iS - Max climb at max weight at sea level 750ft/min
For 914UL - Max climb at max weight at sea level 850ft/min

Service ceiling 15,500 ft.

Range at average cruising speed of 90kts = 500NM

Effect on flight performance and characteristics:

Flight performances and characteristics are not significantly affected by rain or insects stuck to the aircraft's surface.

5.2.3 Demonstrated crosswind performance

Maximum demonstrated speed of cross wind for take-off and landing	18 kts (20 mph)
Maximum demonstrated speed of tail wind	6 kts (7 mph)

CONTENTS

6. WEIGHT AND BALANCE

6.1 Introduction

This Section includes the Weight and Balance Record details of the aircraft, Permitted Payload Range within which the aircraft may be safely operated, and a method to determine whether the operational weight and CG location will be within the permitted limits range.

The procedure for weighing the aircraft and the calculation method for establishing the permitted payload range are as per the BMAA WB Excel form. Each new aircraft has its own WB report produced at time of production; this is supplied with the aircraft and should be kept in the aircraft files by the owner.

6.2 Centre of gravity (CG) range and determination

Aircraft handling and performance have been determined for this range of CG positions.

	Front limit (mm)	Rear limit (mm)
Centre of gravity limits (loaded)	250	425
Centre of gravity limits (empty)	225	275

The CG position of the dry empty aircraft is determined by weighing. The procedure is described in the Maintenance Manual. The whole procedure must be repeated and new Aircraft Weight and Balance statement be prepared whenever a modification or repair having an impact on the weight of the aircraft occurs.

Each SportStar SLM Type approved microlight will be issued with a factory produced weighing and CG report

Weight and balance determination for flight

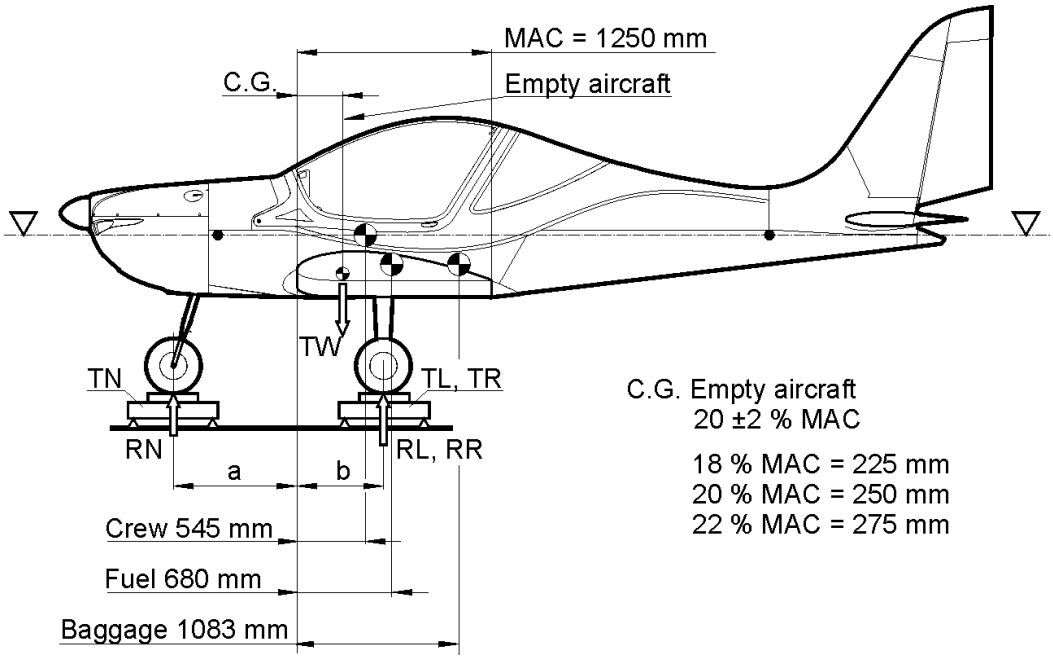
WARNING

The aircraft must not be operated outside of its approved weight and balance limitations to assure safe flying.

Providing that the pilot does not load the aircraft outside the placarded weights, then the CG will always be within limits.

It is imperative that the pilot knows exactly the real empty weight and cg location of his or her aircraft.

Detailed calculation of CG position (empty aircraft)



These measurement values are to be used to calculate the weight and balance

Main datum is the Wing Leading Edge

Weighing attitude is the Pilot's Canopy Edge Horizontal

- Main wheels from datum 560 mm (Aft of Datum)
- Nose wheel from datum -775 mm (Forward of Datum)
- Fuel tanks from datum 680 mm (Aft of Datum)
- Baggage from datum 1083 mm (Aft of Datum)
- Crew from datum 545 mm (Aft of Datum)
- MAUW 600kgs
- Min. pilot weight 55kgs
- Max. pilot weight 100kgs per seat (200kg total)

6.3 Operational Weight and Balance Computation

The aircraft operator should always load the aircraft in line with placarded limits and in addition ensure that the total aircraft weight does not exceed 600kgs at all times. Each aircraft is supplied with a BMAA WB computation and "trade off" weight table. These must be adhered to at all times.

Providing the placarded weights are adhered to, the aircraft will always remain within the CG loaded range. However, for an example aircraft with an empty weight of 320kgs, 2 occupants of 100kgs each, and full baggage of 25kgs, fuel tanks can only contain 78 litres of fuel. See the "trade off" placard supplied with your aircraft.

WARNING

EXCEEDING MTOW MAY LEAD TO A DETERIORATION IN SAFETY OF FLIGHT!

WARNING

SAFETY OF FLIGHT WILL BE IMPAIRED WITH THE AIRCRAFT LOADED OUTSIDE PERMITTED LIMITS OF WEIGHT AND CG.

REAR CG LIMIT CAN BE EXCEEDED WITH HEAVY CREW, LARGE AMOUNT OF FUEL AND BAGGAGE BAY LOAD.

ALWAYS CHECK LOADING BEFORE FLIGHT SO AS TO REMAIN IN BALANCE

6.4 Equipment List

Each aircraft is supplied with a factory Certificate of Conformity listing all the equipment fitted.

6.5 Parachute Recovery System

Where a parachute total recovery system is installed, the following occupant warning is applicable:

WARNING

Occupant Warning – the parachute recovery system installation has been approved by the CAA on the basis that, as far as practicable to demonstrate, it will create no hazard to the aeroplane, its occupant(s) or ground personnel whilst the system is not deployed; and that when properly maintained, the risk of malfunction, deterioration, or inadvertent deployment is minimised. The CAA has not approved the system itself or considered the circumstances, if any, in which it might be deployed. The effectiveness of the system for the safe recovery of the aeroplane has not been demonstrated.

CONTENTS

7. AIRCRAFT AND SYSTEM DESCRIPTION

7.1 Introduction

This Section describes the systems of the aircraft and its operation. More detailed information on optional systems and equipment are to be found in their manuals.

7.2 Airframe

The airframe of the SportStar SLM aircraft is a semi-monocoque, metal-composite structure consisting of metal reinforcement, frames and Duralumin sheet skin.

7.2.1 Fuselage

The fuselage is of semi-monocoque structure consisting of reinforcements and Duralumin skin. The fuselage section is rectangular in the lower part and elliptical in the upper part. The fin is an integral part of fuselage. The cockpit for the two-member crew is located in the middle part of the fuselage that is accessible after opening the single-piece canopy. The engine compartment in the front part of the fuselage is separated from the cockpit by the steel fire wall to which the engine mount is attached.

7.2.2 Wing

The wing is a rectangular planform, single-spar structure with an auxiliary rear spar carrying ailerons and split wing flaps. Riveting is used for connecting individual structural elements. Fibre-glass wing tips are riveted to the wing ends.

7.2.3 Horizontal tail unit (HTU)

The HTU is conventional, consisting of the stabiliser and elevator with trim tab. The single-spar structure of the HTU consists of Duralumin ribs, spar and skin. The HTU planform is rectangular.

7.2.4 Vertical tail unit (VTU)

VTU is of trapezoidal shape. Its fin is an integral part of the fuselage. The rudder is attached to the fin by two hinges. The VTU structure consists of a Duralumin spar and skin.

7.3 Control

The aircraft controls consist of ailerons, elevator and rudder. Directional control is accomplished by means of push rods connecting the rudder pedals to the nose leg. Main landing gear brakes are controlled by toe pedals and also give directional control. The aircraft is equipped with dual controls enabling flight with a two-member crew.

7.3.1 Longitudinal control

Longitudinal control is actuated by the control stick. Longitudinal movement of control stick is transferred to the elevator by a mechanical system of push rods and levers.

7.3.2 Lateral control

Lateral control is actuated by the control stick. From the control stick the movement is transferred through the system of levers and push rods to ailerons.

7.3.3 Rudder control

The rudder is controlled by foot pedals. The rudder is connected to foot pedals by a cable system.

The pedals are adjustable in three positions (option).

Adjustment of rudder pedals:

1. Release the pin from its slot by pressing the top of the lever outboard;
2. Set each pedal to one of its three possible positions;
3. Check that each pin is properly locked in its adjustment slot.

WARNING

RIGHT AND LEFT PEDAL OF RUDDER CONTROL MUST BE ADJUSTED IN THE SAME POSITIONS AND SECURED

7.3.4 Elevator trim tab control

An electric elevator trim tab control can be installed. Control Switches are located on the control stick and a trim tab position indicator is located on the instrument panel.

7.3.5 Aileron trim tab control

An electric aileron trim tab control is installed. Control switches are located on the control stick, a trim tab position indicator is located on the instrument panel.

7.4 Instrument panel

A wide range of optional instruments and equipment can be installed in the panel; details will be provided on the aircraft C of C supplied by the manufacturers.

7.5 Landing gear and brakes

7.5.1 Landing gear

The aircraft is equipped with a fixed nose landing gear, and fixed, sprung main landing gear legs produced from composite materials. The nose landing gear leg is a welded assembly of two parts - the tube and the fork in which the nose wheel is mounted. The nose landing gear is spring-loaded by a bungee. The nose wheel is steerable from the rudder pedals by means of two push rods. Wheels can be fitted with fibreglass aerodynamic spats.

7.5.2 Brakes

The SportStar SLM aircraft is equipped with hydraulic disk brakes on the main landing gear wheels. The brake system comprises brake pedals attached to the top of the rudder pedals and operating brake cylinders, hoses for the transmission of brake fluid pressure and brake callipers with brake pads bearing on wheel-mounted brake discs. By depressing the brake pedals, the brake cylinders generate fluid pressure in the brake circuit and hydraulic cylinders press the brake pads onto the brake disks. Braking pressure can be regulated only by the force applied to the brake pedals.

The aircraft can be equipped with a manually operated parking brake. The PARKING BRAKE handle is in front of the pilot seat. It is pulled outwards (forward) to set the brake.

7.6 Seat and safety harnesses

The SportStar SLM is a two-seat aircraft with side-by-side seats. Seats are fixed, non-adjustable and fitted with light upholstery.

Each seat is fitted with a four-point safety harness consisting of safety belts, shoulder straps and lock. The safety harness is anchored to the fuselage sides behind the seats and to the seat sides.

7.7 Baggage compartment

The baggage compartment is positioned behind the seats and has a maximum weight capacity of 25 kg, as stated on the placard in the baggage compartment. The baggage compartment is fitted with a net for securing baggage.

7.8 Canopy

The cockpit canopy has a semi-teardrop shape with a composite frame. The acrylic glass is glued to the canopy composite frame.

The canopy is attached to the fuselage at the front by two swivel pins allowing it be lifted up and forwards. In order to facilitate opening, the weight of the canopy is balanced by two gas struts. Hand grabs are provided on the lower framework for ease of handling. The canopy is provided with the lock in the rear upper part of framework. A panel light will remain illuminated if the canopy is not secured correctly for flight.

Lock: The canopy is equipped with an automotive lock in the rear upper section of the frame.

Maintenance:	Spray the lock with WD-40 from time to time.
Check:	Check the lock visually for deformation.
Adjustment:	Release the socket head screws, adjust the lock, position and re-tighten the socket head screws.

7.9 Power unit

7.9.1 General

The ROTAX 912iS Sport (100 hp) engine is used to power the SportStar SLM aircraft. This is a flat four-cylinder, fuel injected, four-stroke engine with central camshaft and overhead valve mechanism.

The ground adjustable, DUC Swirl 1730mm propeller is mounted conventionally on the ROTAX 912iS gearbox hub.

7.9.2 Engine control

Engine power is controlled by a THROTTLE plunger located in the middle of the instrument panel and which controls the engine power range from idle to maximum take-off.

Bowden cables connect the throttle control to the carburettors. When the plunger is fully pushed in, this position corresponds to maximum engine power. If the plunger is fully pulled out, this position corresponds to idle. The lever is fitted with a friction locking ring, clockwise turning of which increases the friction and locks the plunger in any position.

The Rotax engine is arranged such that the throttle is sprung **OPEN** in the event of a control cable failure.

WARNING

If the friction lock is not set correctly, this can lead to inadvertent throttle opening if left unattended.

7.9.3 Engine instruments

A digital engine monitoring system must be installed in the aircraft instead of analogue engine instruments to monitor and control the engine EMU. This instrument should display as a minimum:

RPM indicator

Oil temperature gauge

Oil pressure gauge

Coolant Temperature Gauge

Fuel Pressure Gauge

7.9.4 Engine cooling system

Engine cooling performed by a combination of water cooling of the cylinder heads, air cooling of the cylinders, and oil cooling of the rest of the engine.

7.9.5 Engine Air Intake System

The engine air intake system ensures delivery of sufficient clean air into the engine intake.

7.10 Fuel system

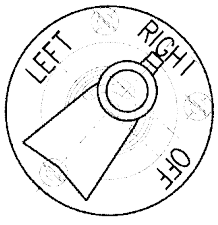
The fuel system stores fuel in the aircraft's tanks and feeds it to the engine. The fuel system of the SportStar SLM consists of integral wing fuel tanks, fuel lines, a fuel selector valve, fuel filter, twin electric fuel pumps (912iS and 914, mechanical pump 912ULS), fuel gauges (usually on the EFIS system) and the fuel tanks' drain valves. The system also includes provision for feeding back a flow of fuel to the supply tank.

7.10.1 Fuel tanks

Fuel is contained in the wings' integral tanks whose capacity is 60 litres each. Each tank is fitted with a vent under the wing tip and a drain valve on the underside of the wing. Fuel is led from the tanks through hoses to the fuel selector located on a central console under the instrument panel and then through a fuel filter to the engine pump and injectors.

7.10.2 Fuel Selector

The fuel selector allows the pilot to choose which tank is used for the supply of fuel to the engine, and to shut off fuel in the case of engine fire or long-term parking of the aircraft.



To move the selector from its OFF (closed) position it necessary pull up the safety button on the fuel selector, turn the handle from the OFF position to the left and then release the safety button. Now the handle can be freely moved between LEFT and RIGHT positions.

The safety button prevents unintentional switching of the selector to the OFF position.

To move the selector to its OFF (closed) position it is necessary pull up the safety button on the fuel selector, turn the handle to the OFF position and then release the button. Now the handle is locked in the OFF position.

7.10.3 Fuel filter

The fuel filter separates all solid impurities from the fuel. It is located in the cockpit on the left airframe panel.

A high-pressure filter can also be found in the engine compartment.

7.10.4 Indication of fuel quantity

Fuel quantity is measured by a float fuel gauge transmitter in each tank and indicated on the fuel gauge on the instrument panel. Accurate fuel quantity is indicated only on the ground and in level flight and it takes approx. 2 minutes for the fuel to assume a stable level attitude after transition from climb/descent to level flight.

7.10.5 Fuel tank draining

Draining of the fuel tank is described in Section 7

7.10.6 Electrical system scheme

Each aircraft is supplied with a detailed wiring diagram specifically for each individually designed aircraft electrical system. This must be kept with the aircraft files at all times.

7.11 Pitot-static system

A pitot-static tube for sensing static and total pressure is located under the left half of the wing. Total pressure is sensed through the open end of the forward-facing pitot-static tube. Static pressure is sensed through openings on the tube circumference. A system of pressure distribution to individual instruments is provided by means of flexible plastic hoses.

Static pressure is led to the altimeter, airspeed indicator, variometer and altitude encoder (if installed). Total pressure is fed only to the airspeed indicator.

7.12 Supplementary equipment

7.12.1 Ventilation and heating system

Fresh Air - 2 eyeball vents located on the left and right of the tip-up canopy frame provide cockpit ventilation. The vents are connected to the NACA scoops through the tip-up canopy frame's front flaps.

Cockpit heating – air is drawn in through an intake in the lower engine cowling and passes into the heat exchanger on the exhaust. From there it is led to a control valve on the firewall which can be used to select routing of the hot air to the cockpit floor or the demisting vents in the canopy frame.

Hot air volume is regulated by the **HOT AIR** knob, and cold air quantity regulated by the **COLD AIR** knob on the instrument panel. The proportion of cold and hot air in the heating system can be set continuously. The other knob below the **HOT AIR** knob serves for air routing to the cockpit floor or the canopy glass.

7.13 Navigation and communication equipment

Operation of navigation and communication equipment is described in their respective manuals.

CONTENTS

8.1 Introduction

This section includes the procedures for aircraft operation and maintenance recommended by the manufacturer. It is necessary to follow the lubrication plan, and scope and frequency of preventative maintenance, depending on climatic and flight conditions, according to the Maintenance Manual for the SportStar SLM Light Sport aircraft, ERTC-022-10-AS. This document must be read in conjunction with Addendum to ERTC, Doc. Ref. 021, latest issue.

The aircraft owner should maintain contact with the manufacturer, either directly or through the national representative, which will enable him/her to receive the latest information concerning aircraft operation and maintenance. The manufacturer distributes this information to users through Service Bulletins (Mandatory Bulletins), Information Bulletins (letters) and other documents.

Mandatory Bulletins are especially important for airworthiness maintenance and the manufacturer considers them mandatory. However, they do not take priority over Airworthiness Directives issued by the CAA

All correspondence with the aircraft manufacturer must include **the aircraft serial number**. The aircraft serial number is shown on the title sheet of this manual and on the production plate behind the pilot seat.

The manufacturer delivers a copy of the Flight Manual and other important documents with each SportStar SLM aircraft. Larger files are available online for download.

8.2 Owner/Operator Responsibilities:

- Each owner/operator shall read and comply with the maintenance and continued airworthiness information and instructions provided by the manufacturer.

- Each owner/operator shall be responsible for providing the manufacturer or his agent with current contact information where the owner/operator supplemental notification bulletins may be sent.

- The owner/operator shall be responsible for notifying the manufacturer or his agent of any safety of flight issue or significant service difficulty upon discovery.

- The owner/operator shall be responsible for complying with all manufacturer-issued notices of corrective action and for complying with all applicable aviation authority regulations with regard to maintaining the airworthiness of the aircraft.

- The owner shall ensure that any needed corrective action is completed as specified in a notice, or by the next scheduled annual inspection.

- Should an owner/operator not comply with any mandatory service requirement, the aircraft shall be considered not in compliance with applicable standards and may be subject to regulatory action by the CAA.

8.3 Aircraft inspection period

Periodic inspections and reviews of the aircraft must be carried out at the following intervals or sooner:

- after the first 25 ± 2 hours of operation
- after every 50 ± 3 hours of operation
- after every 100 ± 5 hours of operation or at least annual inspection

Details of periodic inspections are provided in the Maintenance Manual for the SportStar SLM aircraft.
Refer to the Rotax 912iS Operator's Manual for engine maintenance.
Refer to the Propeller Maintenance Manual for propeller maintenance.

8.4 Modifications or aircraft repairs

All aircraft repairs and modifications of aircraft must be carried out by the manufacturer, Ascent Industries Ltd or obtain their permission or that of the BMAA to do so themselves. If in doubt contact the manufacturer.

8.5 Aircraft Ground Movements and Handling

8.5.1 Aircraft towing

Do not apply pressure to the thin, un-reinforced areas of the aluminium wing or tail skins.

The hand tow bar attached to the nose wheel axle can also be used for aircraft movement.

To turn the empty aircraft on the spot, push down on the fuselage rear in the area just in front of the fin, lift the nose wheel and turn the aircraft in the required direction.

WARNING

SWITCH OFF IGNITION BEFORE GROUND HANDLING THE AIRCRAFT

CAUTION

AVOID EXCESSIVE PRESSURES ON THE AIRFRAME STRUCTURE, ESPECIALLY ON THE WING TIPS, HTU, VTU ETC.

WHEN HANDLING THE AIRCRAFT BY MEANS OF THE TOW BAR, PROPELLER BLADES MUST BE SET HORIZONTAL. MAXIMUM DEFLECTION OF THE NOSE WHEEL IS ± 10°.

FOR MANUAL ENGINE STARTING (PROP SWINGING) GRASP THE FLAT PROPELLER BLADE AREA, I.E. NOT THE PROPELLER EDGE.

8.5.2 Aircraft parking

It is best to store the aircraft in a dry hangar with a stable temperature, good ventilation, low humidity and dust-free environment. If it is necessary to park the aircraft outside, it must be properly tied down. If long term parking outside is envisaged, the aircraft canopy should be covered, and if possible, the whole aircraft protected using with suitable tarpaulins or sheets, tied tightly and securely to the airframe.

8.5.3 Aircraft Tie Down

The aircraft is anchored when parking outside at the end of a flying day or according to need. Anchoring of the aircraft is necessary for protection against possible damage caused by wind and gusts. For this purpose, the aircraft is equipped with fixing eyes on the lower side of wings.

Procedure:

1. Check fuel selector OFF, all Switches OFF, ignition and master Switches OFF.
2. Lock control stick, e.g., by using safety belts.
3. Close and lock the cockpit canopy
4. Anchor the aircraft to the ground by means of cables pulled through the wing fixing eyes which are located on the underside of wings. Anchor the nose landing gear.

8.5.4 Aircraft Jacking

Aircraft jacking presents no great difficulties due to the relatively low aircraft empty weight; it can be performed by two persons.

First, it is necessary to prepare two suitable rests which will support the aircraft.

The aircraft can be jacked up in the following way:

- by pushing down on the rear fuselage just in front of the fin, the nose can be lifted. The front part of fuselage can then be supported under the firewall.
- the rear part of fuselage can be raised by slightly lifting the rear fuselage in the area near the auxiliary skid. The lower part of fuselage can then be supported by a trestle located in the area of the skid.

- Wings can be lifted using the lower surface around the main spar at any point along its length, then supporting it appropriately using a padded trestle. Avoid lifting by grasping the composite wing tip.

8.5.5 Road transport

The aircraft can be transported by loading on to a suitable trailer, after dismounting the wings. The aircraft must be secured against possible movement to avoid damage.

8.6 Draining of Fuel Tank Sump

A sump is provided at the lowest point in the fuel tank, to collect water or other foreign objects. Draining of this sump should be done prior to first flight each day. There is a drain valve for each wing tank located under the wing.

Procedure:

1. Put a transparent cup under the drain valve.
2. Using screwdriver (or appropriate tool) press and turn the drain valve counter-clockwise to open it.
3. Drain required quantity of fuel.

NOTE

Draining serves to eliminate impurities and deposits from the fuel. Drain until clean fuel flows from the valve.

4. Using a screwdriver (or appropriate tool) turn the drain valve clockwise to close it. Check that it is fully closed and is not leaking.
5. Repeat the procedure for the opposite tank.

8.7 Cleaning and care

Always use appropriate cleaning agents when cleaning the aircraft's surface. Residues of oil can be removed from the surface (excluding the canopy) by suitable detergents.

The canopy must only be cleaned by washing with an ample stream of tepid water to which an appropriate detergent has been added. Use a clean soft rag, sponge or wash leather, never paper towels. Use a suitable polishing agent after wiping the surplus water away.

CAUTION

NEVER DRY-CLEAN THE CANOPY AND NEVER USE PETROL OR CHEMICAL SOLVENTS

Upholstery and carpets in the cockpit can be removed, brushed and, if necessary, cleaned with warm water with the addition of an appropriate detergent. Dry upholstery thoroughly after doing this.

8.8 Autopilot

If an autopilot is fitted the following placard must be fitted and visible to the pilots:

"Autopilot operation is not permitted below 1000ft AGL"

The autopilot is powered from a separate switch and fuse/circuit breaker fitted to the instrument panel. This must be ON for the autopilot to function, and may be used to disable the autopilot in case of malfunction.

The autopilot should be enabled or disabled in normal use through the specific control or the EFIS panel, depending on exact fitment. The autopilot status is also visible on the appropriate device.

The autopilot may be overridden using the normal flight controls with minor additional effort.

For the Dynon system, where a breakable over-load pin is used, it is possible that this may fail due to excess loads – if the autopilot appears to not be functioning, despite the visible ON indication, this should be suspected and the autopilot turned OFF pending further inspection.

The autopilot manufacturer pilot information must be appended to this manual and the service information appended to the Maintenance Manual.

The appropriate autopilot checklists must be used.

Dynon Autopilot Checklist

Before takeoff checklist:

1) Autopilot - ENGAGE

2) Flight controls - CHECK (verify autopilot can be overpowered in both pitch and roll)

3) Autopilot Disconnect Button - (verify autopilot disengages)

4) Flight controls - CHECK (verify autopilot servos are disengaged from pitch and roll controls, and all controls move freely)

5) Elevator trim control - SET FOR TAKEOFF