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AIRCRAFT OPERATING INSTRUCTIONS

FOR

SportStar MAX

LIGHT SPORT AIRCRAFT

Serial number:	**N102EV**
Registration mark:	**2008 1102**
Document number:	**SMAX2011AOIUS**
Date of issue:	**March 15, 2011**

This manual must be on the airplane board during operation. This manual contains information which must be provided to the pilot and also contains supplementary information provided by the airplane manufacturer - Evektor - Aerotechnik a.s.

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

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0. TECHNICAL INFORMATION

0.1 Log of Revisions

All revisions or supplements to this manual, except actual weighing data, are issued in form of revisions, which will have new or changed pages as appendix and the list of which is shown in the Log of Revisions table.

The new or changed text in the revised pages will be marked by means of black vertical line on the margin of page and the revision number and date will be shown on the bottom margin of page.

Rev. No.	Affected Section	Affected Pages	Date	Appro-ved	Date	Date of Insertion	Sign.

Rev. No.	Affected Section	Affected Pages	Date	Appro-ved	Date	Date of Insertion	Sign.

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0.3 AOI Sections

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1. GENERAL

1.1 Introduction

PARTICIPANT'S RESPONSIBILITY

There are inherent risks in participating in aviation activities, these risks are significant, up to and potentially including death. Operators and passengers of recreational aviation aircraft, by participation, accept the risks inherent in such participation of which the ordinary prudent person is or should be aware. Pilots and passengers have a duty to exercise good judgment and act in a responsible manner while using the aircraft and to obey all oral or written warnings, or both, prior to and/or during use of the aircraft.

This Flight manual has been prepared to provide pilots and instructors with information for safe and efficient operation of the SPORTSTAR MAX airplane. It also contains supplementary information considered to be important by the airplane manufacturer.

1.2 Certification basis

The aircraft described herein complies with the Standard Specification for Design and Performance of a Light Sport Airplane, Designation F 2245, issued by ASTM International Committee F37. This type of aircraft complies with the Czech UL-2 airworthiness requirements, it has been type certified by the Light Aircraft Association of the Czech Republic and the type certificate ULL 07/2003 supplement was issued in December 19th, 2006.

1.2.1 Data location

The certification documentation is available from the US General importer or airplane manufacturer on a request of competent aviation authority and/or Designated Airworthiness Representative.

Contact address:

US General Importer:
Sport Aircraft International LLC
804 Water Street
Kerrville, Texas 78028
USA
phone.: 001 830 896 8910
fax: 001 830 896 8913
e-mail: sportac@ktc.com

Airplane Manufacturer:
Evektor - Aerotechnik, a.s.
Letecká 1384
686 04 Kunovice
Czech Republic
tel.:+420 572 537 111
fax:+420 572 537 900
e-mail:marketing@evektor.cz

1.3 Warnings, cautions, notes

The following informations apply to warnings, cautions and notes used in the Aircraft Operating Instructions:

WARNING

MEANS THAT NON-OBSERVATIONS OF THE CORRESPONDING PROCEDURE LEADS TO AN IMMEADIATE OR IMPORTENT DEGRADATION OF THE FLIGHT SAFETY.

CAUTION

MEANS THAT NON-OBSERVATIONS OF THE CORRESPONDING PROCEDURE LEADS TO A MINOR OR TO A MORE OR LESS LONG TERM DEGRADATION OF THE FLIGHT SAFETY.

NOTE

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

1.4 Descriptive data

1.4.1 Airplane description

SPORTSTAR MAX airplane is an all-metal low-wing of semimonocoque structure with two side by side seats and nose wheel landing gear
For further description see Section 7 - Airplane and system description.

1.4.2 Powerplant

The standard powerplant consists of ROTAX 912ULS (100 hp) engine and WOODCOMP KLASSIC 170/3/R propeller.
For further description see Section 7 - Airplane and system description.
For concrete engine and propeller type - see Section 9 - Supplements - Airplane description.

1.4.3 Main technical data

Wing	
Span	28.37 ft
Area	112.7 sq.ft
MAC depth	4.1 ft
Wing loading	10.76 lbs/sq.ft
Aileron - area	2.62 sq.ft
Flap - area	5.60 sq.ft
Fuselage	
length	19.62 ft
width	3.55 ft
height	7.66 ft
cockpit canopy max. width	3.87 ft
Horizontal tail unit	
Span	8.20 ft
HTU Area	20.88 sq.ft
Elevator area	8.40 sq.ft
Vertical tail unit	
Height	4.07 ft
VTU Area	10.76 sq.ft
Rudder area	4.31 sq.ft
Landing gear	
Wheel track	6.12 ft
Wheel base	4.43 ft
Main and nose landing gear wheel diameter	15 in

1.4.4 Three-view drawing

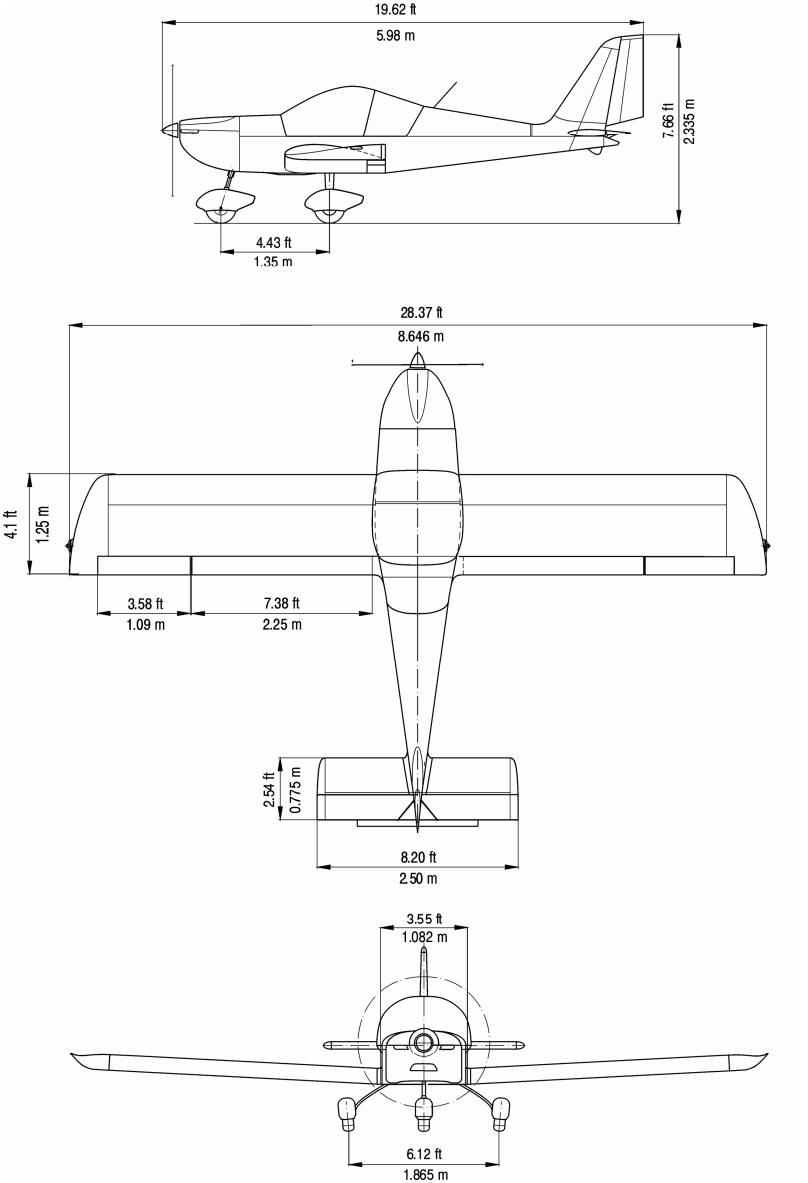

Figure 1-1

1.5 Definitions and abbreviations

NOTE

The abbreviations on placards in the airplane cockpit, are printed in **BOLD CAPITAL LETTERS** in the text of this Aircraft Operating Instructions.

ACCU	accumulator
ALT ENC	encoding altimeter
ATC	air traffic control
bar	bar 1 bar = 100 kPa
BEACON	anti-collision beacon
°C	Celsius degree
CAS	calibrated airspeed
CLOCK	aircraft clock
ft	foot 1 ft = 0.305 m
GPS	global positioning system
HTU	horizontal tail unit
IAS	indicated airspeed
IC	intercom
IFR	instrument flight rules
ISA	international standard atmosphere
kg	kilogram
KIAS	indicated airspeed in knots
KCAS	calibrated airspeed in knots
mph	mile per hour
mph CAS	calibrated airspeed in miles per hour
km/h CAS	calibrated airspeed in km/h
kts	knots 1 kt = 1.852 km/h
litres	litre
lbs	pounds 1 lb = 0.45 kg
m	meter
MAC	mean aerodynamical chord
max.	maximum
min.	minimum or minute
mm	millimeter
m/s	meter per second
OAT	outside air temperature

OFF	system is switched off or control element is in off-position
ON	system is switched on or control element is in on-position
Pa	pascal 1Pa = $1N/m^2$
PSI	pound per sq.in (1PSI = 6.89 kPa)
RPM	revolutions per minute
RWY	runway
sq.ft	foot squared
sq.m	meter squared
V_A	maneuvering airspeed
V_{FE}	maximum flap extended speed - flaps in 50° position
VFR	visibility flight rules
V_{LOF}	airplane lift-off speed
V-METER	voltmeter
V_{NE}	never exceed speed
V_{NO}	maximum structural cruising speed
V_{SO}	stall speed with wing flaps in 50° position
V_{S1}	stall speed with wing flaps in 0° position
VTU	vertical tail unit
V_X	best angle-of-climb speed
V_Y	best rate-of-climb speed
XPDR	transponder

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2. LIMITATIONS

2.1 Introduction

Section 2 contains operation limitation, instrument marking and basic placards
necessary for safe operation of airplane and its engine, standard systems and equipment.
Limitation for optional systems and equipment are stated in section 9 - Supplements.

2.2 Airspeed

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

Speed		KIAS	mph IAS	Meaning
V_{NE}	Never exceed speed	146	168	Do not exceed this speed in any operation.
V_{NO}	Maximum structural cruising speed	105	121	Do not exceed this speed, with exception of flight in smooth air, and even then only with increased caution.
V_A	Manoeuvring speed	86	99	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_{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 color-code significance are shown in the table below:

Marking	Range		Meaning
	KIAS	mph IAS	
Red line	38	44	V_{S0} at maximum weight (flaps in landing position 50°)
White arc	38 - 70	44 - 81	Operating range with extended flaps. Lower limit- V_{S0} at maximum weight (flaps 50°) Upper limit - V_{FE}
Green arc	43 - 105	50 - 121	Normal operation range Lower limit - V_{S1} at maximum weight (flaps 0°) Upper limit - V_{NO}
Yellow arc	105 - 146	121 - 168	Maneuvers must be conducted with caution and only in smooth air
Red line	146	168	Maximum speed for all operations - V_{NE}.

2.4 Powerplant

Engine manufacturer:	Bombardier-Rotax GMBH	
Engine type:	ROTAX 912ULS	
Power:	maximum take-off	100 HP
	maximum continuous	93.8 HP
Engine speed:	maximum take-off	5800 RPM max. 5 minutes
	maximum continuous	5500 RPM
	idle	1400 RPM
Cylinder head temperature:	maximum	275 °F (Evans coolant) 262 °F (Glycol coolant
Oil temperature:	maximum	266 °F
	optimum operation	190 - 230 °F
Oil pressure:	maximum	102 PSI
	minimum	12 PSI
	optimum operation	29 - 73 PSI
Fuel pressure:	minimum	2.2 PSI
Fuel grades:	see 2.13,	
Oil grades:	see 2.14,	
Reducer gear ratio:	2.43 : 1	
Propeller manufacturer:	WOODCOMP s.r.o.	
Propeller type:	KLASSIC 170/3/R 3 blade, composite, on-ground adjustable	
Propeller diameter:	68 in	
Maximum prop speed:	2600 RPM	

NOTE

If installed a different propeller type - see section 9 - Supplements for propeller limitations.

2.5 Powerplant instrument marking

The color-code of instruments is shown in the following table:

Instrument	Units	Red line Lower limit	Green arc Normal operation range	Yellow arc Caution range	Red line Upper limit
RPM indicator	RPM	-	1400 - 5500	5500 - 5800	5800
Oil temperature indicator	°F	-	190 - 230	120 - 190 230 - 266	266
Oil pressure indicator	PSI	12	29 ¸ 73	12 - 29 73 - 102	102
Cylinder head temperature	°F	-	-	-	275 (Evans coolant) 262 (Glycol coolant)

NOTE

The CHT limit with glycol coolant is 262 °F in order to not exceed coolant exit temperature limit 248 °F (Operators Manual for ROTAX Engine Type 912 Series – Part no. 899374).This limitation is based on Aircraft Manufacturer tests.

2.6 Miscellaneous instrument marking

There are not other instruments with color marking.

2.7 Weight

Empty weight (standard equipment)	695 lbs ± 2 %
Maximum take-off weight	1320 lbs
Maximum landing weight	1320 lbs
Maximum weight in baggage compartment	55 lbs

WARNING

DO NOT EXCEED MAXIMUM WEIGHTS! THEIR EXCEEDING LEADS TO AIRPLANE OVERLOADING AND TO DEGRADATION OF FLIGHT CHARACTERISTICS AND DETERIORATION OF MANOEUVRABILITY.

2.8 Centre of gravity

Empty airplane C.G. position (standard equipment)	20 ± 2 %MAC
Operating C.G. range	20 to 34 %MAC

Reference datum is the wing leading edge.

2.9 Approved maneuvers

SPORTSTAR MAX airplane is approved to perform the following maneuvers:

- steep turns up to bank angle of 60°
- climbing turns
- lazy eights
- stalls (except for steep stalls)
- normal flight maneuvers

WARNING

AEROBATICS AS WELL AS INTENTIONAL SPINS ARE PROHIBITED !

2.10 Maneuvering load factors

Maximum positive load factor	4.0
Maximum negative load factor	-2.0

2.11 Flight crew

Minimum crew	1 pilot
Minimum weight of crew	121 lbs

Maximum weight of crew acc. to chapter 6.

WARNING

DO NOT EXCEED MAXIMUM WEIGHTS! THEIR EXCEEDING LEADS TO AIRPLANE OVERLOADING AND TO DEGRADATION OF FLIGHT CHARACTERISTICS AND DETERIORATION OF MANOEUVRABILITY.

2.12 Kinds of operation

The airplane is standardly approved for VFR daylight flights.

WARNING

NIGHT FLIGHTS ACCORDING TO VFR, FLIGHTS ACCORDING TO IFR (BY INSTRUMENTS) ARE APPROVED ONLY WHEN INSTRUMENTATION REQUIRED FOR SUCH FLIGHTS IS INSTALLED AND FLIGHT PERFORMED BY A PILOT WITH APPROPRIATE RATING! INTENTIONAL FLIGHTS UNDER ICING CONDITIONS ARE PROHIBITED.

Instruments and equipment for daylight flights according to VFR :
1 Airspeed indicator (the color marking according to par. 2.3)
1 Sensitive barometric altimeter
1 Magnetic compass
1 Fuel gauge indicator
1 Oil temperature indicator
1 Oil pressure indicator
1 Cylinder head temperature indicator
1 Engine speed indicator
1 Safety harness for every used seat

CAUTION

ADDITIONAL EQUIPMENT NECESSARY FOR AIRPLANE OPERATION IS GIVEN IN APPROPRIATE OPERATION REGULATION OF AIRPLANE OPERATOR'S COUNTRY.

2.13 Fuel

Fuel tank volume (each)	15.85 U.S. gallons
Total	31.7 U.S. gallons
Usable fuel	31.2 U.S. gallons
Unusable fuel	0.5 U.S. gallons (0.25 US gal per tank)

NOTE

It is not recommended to fully tank the fuel tanks. Due to fuel thermal expansion keep about 2.11U.S. gallons of free space in the tank to prevent fuel bleed through the vents in the wing tips thus preventing environmental contamination. This should be adhered especially when cold fuel from an underground tank is tanked.

Approved fuel grades:

- automotive petrol with min RON 95
- EN 228 Premium
- EN 228 Premium MAX
- 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 encounter problem with vapour lock or if the other fuel types are not available

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

NOTE

Use only fuel suitable for the respective climatic zone.
Risk of vapour formation if using winter fuel for summer operation.

2.14 Oil

Performance classification SF, SG according to API

Oil volume:

- minimum 0.53 U.S. gallons
- maximum 0.79 U.S. gallons

2.15 Maximum number of passengers

Maximum number of passengers including pilot 2

2.16 Other limitations

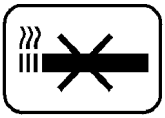
SMOKING IS PROHIBITED on the airplane board.

PASSENGER NOTICE
This aircraft conforms to ASTM Consensus Standards of airworthiness developed and maintained by the aviation community under ASTM Technical Committee F37.

PASSENGER WARNING !
This aircraft was manufactured in accordance with Light Sport Aircraft airworthiness standards and does not conform to standard category airworthiness requirements.

2.17 Limitation placards

The following placards are located on the instrument panel:

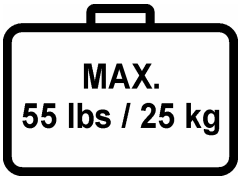


The following placards are located on the tilting canopy:

PASSENGER NOTICE:
THIS AIRCRAFT CONFORMS TO ASTM CONSENSUS STANDARDS OF AIRWORTHINESS DEVELOPED AND MAINTAINED BY THE AVIATION COMMUNITY UNDER ASTM TECHNICAL COMMITTEE F37.

PASSENGER WARNING!
THIS AIRCRAFT WAS MANUFACTURED IN ACCORDANCE WITH LIGHT SPORT AIRCRAFT AIRWORTHINESS STANDARDS AND DOES NOT CONFORM TO STANDARD CATEGORY AIRWORTHINESS REQUIREMENTS.

The following placards are located in the baggage compartment:



The following placards are located on the tilting canopy:

This Light Sport Aircraft 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	90 kts
Max. Flap Extended	70 kts
Stalling	37 kts

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

Unusable quantity of fuel	0.5 Usgal

or

This Light Sport Aircraft has been approved only for VFR day flights under no icing conditions.
Aerobatics and intentional spins are prohibited!

AIRSPEED IAS	
Never exceed	168 MPH
Manoeuvring	106 MPH
Max. Flap Extended	81 MPH
Stalling	44 MPH

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

Unusable quantity of fuel	0.5 Usgal

LOAD LIMITS							
Max.take-off weight						1320	lbs
Empty weight						700	lbs
Max.baggage weight						55	lbs
PERMITTED CREW WEIGHT							[lbs]
Fuel quantity U.S.gal.		30,0	25,0	20,0	15,0	10,0	5,0
Baggage weight	*max. 55 lbs*	385	415	445	475	505	535
	1/2 28 lbs	412	442	472	502	532	562
	No baggage	440	470	500	530	560	590
Fuel reserve							2 U.S. gallons

NOTE

The values stated on the placard “LOAD LIMITS” are valid for the empty weight of the airplane with standard equipment. The placard with values valid for the actual empty weight of the airplane will be placed in the cockpit.

Other placards and labels are shown in Aircraft Maintenance and Inspection Procedures.

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3. EMERGENCY PROCEDURES

3.1 Introduction

Section 3 describes operations and procedures for emergency situation solutions that could possibly occur during airplane operation.

3.2 Speeds for performing emergency procedures

Airspeed for the best gliding ratio (flaps retracted)	57 KIAS (66 mph IAS)
Precautionary landing (engine running, flaps in landing position - 50°)	53 KIAS (61 mph IAS)
Emergency landing (engine stopped, flaps in landing position - 50°)	53 KIAS (61 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 take-off

1. Gliding speed:
   with flaps in take-off position (15°) min. 53 KIAS (61 mph IAS)
   with flaps retracted (0°) min. 57 KIAS (66 mph IAS)
2. Altitude:
   - Land in take-off direction if below 150 ft:
   - Land in take-off direction or you can perform turn up to 90° if altitude is 150 - 400 ft:
   - You can try start engine if altitude is above 250 ft

- You can perform turn up to 180° if altitude is above 400 ft:

3. THROTTLE lever — idle
4. Flaps — as needed
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. Gliding speed — 57 KIAS (66 mph IAS)
2. Altitude — take a decision and carry out:

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

3.4 Engine starting at 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 started up immediately after switching the ignition to START position.

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

1. Gliding speed — 57 KIAS (66 mph IAS)
2. Altitude — check
3. Master switch — ON
4. Unnecessary electrical equipment — switch off
5. FUEL SELECTOR — **LEFT**
6. Choke — as needed

7. THROTTLE lever — idle (choke opened) or increased idle (choke closed)

The propeller is rotating:

8. Ignition — BOTH

The propeller is not rotating:

9. Ignition — START
10. If engine starting does not occur, increase gliding speed up to 108 KIAS (124 mph IAS) (see NOTE), so that air-flow turns the propeller and engine will start.
11. Ignition — BOTH
12. If engine starting is unsuccessful, 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 — brake
3. THROTTLE lever — full
4. HOT AIR knob (if installed) — push

After the engine stops:

5. Ignition — OFF
6. Master switch — OFF
7. Airplane — leave
8. Manual extinguisher (if available) — use

3.5.2 Fire during take-off

1. FUEL SELECTOR — **OFF**
2. THROTTLE lever — full
3. Airspeed — 63 KIAS (73 mph IAS)
4. HOT AIR knob (if installed) — push

After the engine stops:

5.	Gliding speed	53 KIAS (61 mph IAS)
6.	Ignition	OFF
7.	Master switch	OFF
8.	Land	
9.	Airplane	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)	close
4.	Gliding speed	57 KIAS (66 mph IAS)
5.	Ignition	OFF
6.	ATC	report if possible
7.	Master switch	OFF

NOTE

For extinguishing the engine fire, you can perform slip under assumption that you have sufficient altitude and time.

WARNING

AFTER EXTINGUISHING THE ENGINE FIRE START ENGINE ONLY IF IT NECESSARY TO SAFE LANDING. FUEL LEAK IN ENGINE COMPARTMENT COULD CAUSE FIRE AND FIRE COULD RESTORE AGAIN.

8.	If you start engine again, switch off all switches, switch on the Master switch, and then subsequently switch on only equipment necessary to safe landing.	
9.	Emergency landing	carry out according to paragraph 3.8.1
10.	Airplane	leave

11. Manual extinguisher (if available) — use as needed

3.6 Fire in the cockpit (if manual extinguisher available aboard)

1. Fire source — identify
2. Master switch in case that the source of fire is electrical equipment. — OFF
3. Manual extinguisher — use
4. After fire extinguishing — aerate the cockpit
5. Carry out safety landing according to 3.8.2

WARNING

NEVER AGAIN SWITCH THE DEFECTIVE SYSTEM.

NOTE

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

3.7 Gliding flight

NOTE

Gliding flight can be used for example in case of engine failure.

Wing flaps position	Retracted (0°)	Take-off (15°)
Airspeed	57 KIAS (66 mph IAS)	53 KIAS (61 mph IAS)

3.8 Emergency landing

3.8.1 Emergency landing - with non-operating engine

1. Airspeed	57 KIAS (66 mph IAS)
2. Landing area	choose, determine wind direction
3. Safety harness	tighten up
4. Flaps	landing position (50°)
5. Airspeed	60 KIAS (69 mph IAS)
6. Radiostation	notify situation to ATC (if possible)
7. FUEL SELECTOR	**OFF**
8. Ignition	OFF
9. Master switch	OFF before touch down

3.8.2 Safety landing- with engine operating

1. Area for landing	choose, determine wind direction, carry out passage flight with speed of 59 KIAS (68 mph IAS), flaps in take-off position (15°)
2. Radiostation	notify situation to ATC (if possible)
3. Safety harness	tighten up
4. Flaps	landing position (50°)
5. Airspeed	60 KIAS (55 mph IAS)
6. Landing	carry out

3.8.3 Landing with burst tire

CAUTION

WHEN LANDING AT HOLDING, KEEP THE WHEEL WITH BURST TIRE ABOVE THE GROUND AS LONG AS POSSIBLE BY MEANS OF AILERONS. IN CASE OF NOSE WHEEL BY MEANS OF ELEVATOR.

1. At running hold airplane direction by means of foot control 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 airplane on main landing gear wheels as long as possible
2. In case of main landing gear damage touch down at he lowest possible speed and if possible keep direction at running

3.9 Unintentional spin recovery

NOTE

The airplane has not, when using normal techniques of pilotage, tendency to go over 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 push against spin rotation direction
4.	Control stick	push forward and hold it there until rotation stops
5.	Pedals	immediately after rotation stopping, set the rudder to neutral position
6.	Control stick	recover the diving

CAUTION

ALTITUDE LOSS PER ONE TURN AND RECOVERING FROM THE SPIN IS 500 UP TO 1000 FT.

3.10 Other emergency procedures

3.10.1 Vibration

If abnormal vibrations occur on the airplane then:

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

3.10.2 Carburetor icing

Carburetor icing happens when air temperature drop in the carburetor occurs due to its acceleration in the carburetor and further cooling by evaporating fuel. Carburetor icing mostly happens during descending and approaching for landing (low engine RPM). Carburetor icing shows itself by engine power decreasing and by engine temperature increasing.

Recommended procedure for engine power regeneration is as follows:

1. CARBURETOR PREHEATER (if installed) ON
2. THROTTLE lever set idle and cruising power again

NOTE

Ice coating in the carburetor should be removed by decrease and reincrease of engine power.

3. If the engine power is not successfully increased, then carry out landing at the nearest suitable airport or, if it is not possible, carry out precautionary landing according to par. 3.8.2 Precautionary landing.

3.11 Canopy opening in flight

WARNING

Always make sure before a takeoff, that cockpit canopy is properly and fully closed and secured!

All guiding pins of the tip-up canopy must be engaged into the appropriate holes of the canopy fixed frame and the lock system must be fully locked, a latch fully hooked onto the pin of fixed frame and lock handle snapped into spring bed.

If the canopy would open in flight due to improper closing, a wake behind opened canopy will cause vibrations of the horizontal tail unit and consequently vibrations of the control sticks and airplane controllability is affected.

Proceed as follows to solve such situation:

1. Grasp shaking control stick(s). This will reduce control sticks and horizontal tail unit vibrations caused by wake behind opened canopy.
2. Pull the throttle lever to reduce airspeed to approximately 120 km/h IAS, 65 KIAS, 75 mph IAS.
3. Pull opened canopy down by holding the canopy frame on either side (solo flight) or on both sides (dual flight) and keep holding the canopy pulled down. This will reduce wake acting on the horizontal tail unit and improve airplane controllability.
4. Try to close and lock the canopy, this could be possible in dual flight. If not, keep holding the canopy down by either hand.
5. Perform Safety landing according to 3.8.2.
6. It is required after landing to check conditions of the canopy, lock and securing system. Horizontal tail unit must be inspected, as well.
   Found faults must be fixed before next flight

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4. NORMAL PROCEDURES

4.1 Introduction

Section 4 describes operations and recommended procedures for normal operation of the airplane. Normal procedures following from system installation and optional equipment, which require supplementation of these Instructions, are shown in section 9 - Supplements.

4.2 Recommended speeds for normal procedures

4.2.1 Take-off

Climbing speed up to 50 ft (flaps in take-off pos. - 15°)	56 KIAS (65 mph IAS)
Best rate-of-climb speed V_Y (flaps in take-off pos. - 15°)	56 KIAS (65 mph IAS)
Best rate-of-climb speed V_Y (flaps retracted - 0°)	63 KIAS (73 mph IAS)
Best angle-of-climb speed V_X (flaps in take-off pos. - 15°)	53 KIAS (61 mph IAS)
Best angle-of-climb speed V_X (flaps retracted - 0°)	55 KIAS (63 mph IAS)

4.2.2 Landing

Approaching speed for normal landing (flaps in landing position - 50°)	60 KIAS (69 mph IAS)

4.3 Assembly and disassembly

Description of assembly and disassembly is given in the SPORTSTAR MAX Aircraft Maintenance and Inspection Procedures.

4.4 Pre-flight check

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

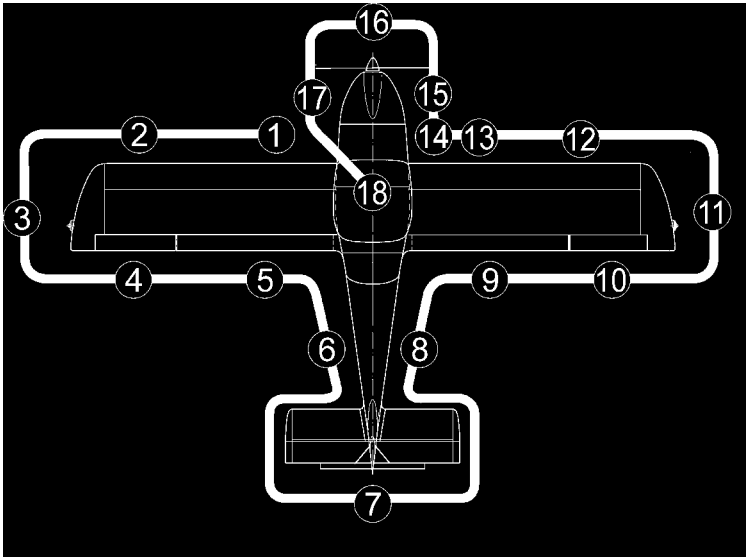

Figure 4-1 Scheme of airplane preflight check

WARNING

CHECK BEFORE PRE-FLIGHT CHECK THAT IGNITION IS SWITCHED OFF!

NOTE

The word “condition”, used in procedures of pre-flight check, means visual check of surface, damage, deformation, scratches, attrition, corrosion, icing or other effects decreasing flight safety.

1. Left landing gear leg - check
   - landing gear leg attachment and condition
   - landing gear wheel condition
   - tire condition and inflation
   - condition and attachment of wheel covers, mudguards (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 chapter8, page 8-6)
   - closing of fuel tank cap
3. Left wing tip - check
   - surface condition
   - attachment check
   - fuel tank vent - cleanness
   - condition and attachment of the position lights and the anticollision beacon - if installed
4. Left aileron - check
   - surface condition
   - 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 (if installed) 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 control rods
15. Engine

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

    - condition of engine bed
    - 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 on the engine body
      (replenish as required up to max. 2/3 of the expansion tank volume)

Checks before every flight:

- cleanness of air intakes
- check on oil level (between marks - flattening on the dip stick)
- check on cooling liquid level in the overflow bottle (level should be between min. and max. mark)
- proper closing 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

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

- all switches OFF
- instrument equipment check on condition
- check on presence of loose object in the cockpit
- check on adjusting and securing the rudder pedals (see section 7.3.3) - if installed adjustable rudder pedals

WARNING

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

Aircraft Operating Instructions and other required documents — check on completeness and validity

4.5 Normal procedures and checklist

4.5.1 Before engine starting

1.	Pre-flight check and check on weight and centre of gravity position	done
2.	Safety harnesses	check, fasten
3.	Control stick	free
4.	Rudder pedals	free
5.	Wing flaps	function check
6.	Trim tab	function check
7.	PARKING BRAKE handle (if installed)	release brakes
8.	Brakes	function check
9.	**AVIONICS SWITCH**	check OFF
10.	Ignition	check OFF
11.	Canopy	close

4.5.2 Engine starting

1.	Master switch	ON
2.	Fuel gauge indicators	check of fuel quantity
3.	FUEL SELECTOR Pull the safety button on the fuel selector, turn the handle to the left and then release safety button. Now the handle can be freely moved between left and right position. Safety button prevents unintentionally switch the selector to OFF position.	**LEFT**
4.	Electric fuel pump (if installed)	ON
5.	THROTTLE lever	idle
6.	Choke	as necessary (open by pulling up and lock by turning)
7.	Space in the propeller area	free
8.	BEACON (if installed)	ON (if necessary)
9.	Brakes	apply

10. Ignition — START (see CAUTION) after starting up BOTH

CAUTION

ACTIVATE STARTER FOR 10 SEC. AS A MAXIMUM, THEN LET IT COOL DOWN FOR 2 MINUTES.

AFTER STARTING UP ENGINE, DO NOT CARRY OUT SUDDEN RPM CHANGES, AFTER POWER DECREASE WAIT FOR ABOUT 3 S IN ORDER TO REACH CONSTANT RPM BEFORE REACCELERATION.

11. THROTTLE lever — as necessary (see NOTE)
12. Oil pressure — up to 10s min. pressure
13. **GEN, AUX GEN** (if inst.) switches — ON

NOTE

After starting up engine, adjust throttle for smooth engine running at about 2500 RPM. Check oil pressure. Pressure must increase within 10s. Increase engine RPM until oil pressure is stabilized over 2 bar (29 PSI).

14. Engine instruments — check
15. Choke — as necessary
16. Engine warming up — see NOTE

NOTE

Begin warming up with engine running at 2000 RPM. for about 2 minutes, continue at 2500 RPM. Warming time depends on outside air temperature until oil temperature reaches 122 °F.

17. FUEL SELECTOR — **RIGHT**
    Verify proper engine feeding from the right tank for approx. 1 minute.
18. FUEL SELECTOR — **LEFT**

NOTE

Start engine with the fuel selector set to to **LEFT**. If you would start the engine with the fuel selector set to **RIGHT** and the left tank is full, than fuel bleed from the left tank vent may occur (and pollute environment) because a fuel return hose is led only into the left tank and returning fuel will overfill the left tank.

19.	AVIONICS SWITCH	ON
20.	Radiostation/avionics	ON
21.	Other electrical equipment	ON as necessary

4.5.3 Before taxiing

1.	Transponder (if installed)	**SBY**
2.	Outside lights (if installed)	as necessary

4.5.4 Taxiing

1.	THROTTLE lever	as necessary
2.	Brakes	check by depressing
3.	Rudder pedals	function check

4. Direction of taxiing control by rudder pedals (these are mechanically connected with nose wheel control), possibly by slacking up left and right wheel of the main landing gear.

4.5.5 Before take-off

1.	Brakes	brake
2.	Ignition check	carry out, see NOTE

NOTE

Carry out ignition check in the following way: Set engine speed to 4000 RPM. Switch ignition gradually to L, BOTH, R position and return to BOTH.
RPM drop with one ignition circuit switched off

must not exceed 300 RPM. Maximum RPM difference at using one of the L or R circuits is 120 RPM.

3.	Engine instruments	check
4.	Control stick	free
5.	Wing flaps	take-off pos. (15°)
6.	Trim	NEUTRAL
7.	Fuel gauge indicator	check on fuel quantity
8.	FUEL SELECTOR	check **LEFT**
9.	CARBURETOR PREHEATER (if installed)	check function then OFF

NOTE

If CARBURETOR PREHEATER is switched ON, then engine RPM drop reaches approximately 50 RPM

10.	Engine instruments	check
11.	Flight instruments	check
12.	Radiostation / avionics	check, set
13.	Ignition	check BOTH
14.	Choke	close (in inserted position)
15.	Master switch	check ON
16.	Safety harnesses	tighten up
17.	Canopy	closed
18.	Transponder (if installed)	ON or **ALT**

4.5.6 Take-off

1.	THROTTLE lever	max. take-off power
2.	During take-off run smoothly lighten up the nose landing gear until airplane take-off occurs.	
3.	Airspeed	56 KIAS (65 mph IAS)

4. Brakes — brake
5. After reaching 150 ft , set flaps to retracted pos. (0°)
6. Trim — as necessary

WARNING

TAKE-OFF IS PROHIBITED:

- **IF ENGINE RUNNING IS IRREGULAR**
- **IF CHOKE IS OPEN**
- **IF VALUES OF ENGINE INSTRUMENTS ARE NOT WITHIN THE REQUIRED RANGE**

4.5.7 Climb

1. THROTTLE lever — max. continuous power
2. Airspeed — V_Y = 63 KIAS (73 mph IAS) for the best rate of climb or V_X = 55 KIAS (63 mph IAS) for the best angle of climb
3. Engine instruments — check
4. Trim — as necessary
5. Electric fuel pump (if installed) — OFF

4.5.8 Cruise

1. THROTTLE lever — as necessary
2. Airspeed — max. 103 KIAS (118 mph IAS)
3. Engine instruments — check
4. 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 TO FUEL TO LEVEL.

NOTE

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

Do not fly with the fuel selector set to **RIGHT** if the left tank is full to avoid fuel bleed from left tank vent.

When the left tank fuel gauge indicates approx. 1/8 of fuel quantity (needle in the middle between 1/4 and 0) 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 conks out due to fuel consumption from either tank, then immediately switch the fuel selector to other tank and engine run will be recovered within 7 seconds.

5. CARBURETOR PREHEATER (if installed) — as necessary

4.5.9 Descent

1.	THROTTLE lever	as necessary
2.	Airspeed	as necessary
3.	Trim	as necessary
4.	Engine instruments	check
5.	CARBURETOR PREHEATER (if installed)	as necessary

CAUTION

AT LONG APPROACHING AND DESCENDING FROM HIGH ALTITUDE IT IS NOT SUITABLE TO REDUCE THROTTLE TO MINIMUM FOR THE REASON OF POSSIBLE ENGINE UNDERCOOLING AND SUBSEQUENT LOSS OF POWER. PERFORM DESCENDING AT INCREASED IDLE AND CHECK OBSERVANCE OF THE ALLOWED VALUES ON ENGINE INSTRUMENTS.

4.5.10 Before landing

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 TO FUEL TO LEVEL.

2.	FUEL SELECTOR	**LEFT**
3.	Engine instruments	check
4.	Brakes	check by depressing pedals
5.	Safety harnesses	tighten up
6.	Free area of landing	check
7.	CARBURETOR PREHEATER (if installed)	ON

8. Approaching speed — 59 KIAS (68 mph IAS)
9. Flaps — take-off pos. (15°)
10. Trim — as necessary
11. Parking brake (if installed) — check for lever down

CAUTION

PARKING BRAKE MUST BE RELEASED (LEVER DOWN) TO PREVENT LANDING WITH BRAKED WHEELS

12. Electric fuel pump (if installed) — ON

FINAL

1. Flaps — landing pos. (30° or 50°)
2. Maintain airspeed — 60 KIAS (69 mph IAS)
3. Trim — as necessary
4. CARBURETOR PREHEATER (if installed) — OFF

4.5.11 Balked landing

1. THROTTLE lever — max. take-off power
2. Flaps — take-off pos. (15°)
3. Airspeed — 56 KIAS (65 mph IAS)
4. Flaps in 150 ft — retracted pos. (0°)
5. Trim — as necessary
6. THROTTLE lever — max. continuous power
7. Instruments — check
8. Climb at airspeed — 63 KIAS (73 mph IAS)

4.5.12 Landing

1. THROTTLE lever — idle
2. Touch-down on main landing gear wheels — carry out
3. Brakes after nose landing gear wheel touch-down — as necessary

4.5.13 After landing

1.	Flaps	retracted pos. (0°)
2.	Trim	NEUTRAL
3.	Outside lights (if installed)	OFF
4.	Transponder (if installed)	OFF
5.	Electric fuel pump (if installed)	OFF

4.5.14 Engine shut-off

1.	THROTTLE lever	idle
2.	Engine instruments	check
3.	AVIONICS SWITCH	OFF
4.	Radiostation / avionics	OFF
5.	Other electrical equipment	OFF
6.	Ignition	OFF
7.	BEACON (if installed)	OFF
8.	Master switch	OFF

4.5.15 Airplane 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 switch the selector from the OFF position.
4. PARKING BRAKE handle (if installed) — brake as necessary
5. Canopy — close, lock as necessary

NOTE

It is recommended to use parking brake (if installed) for short-time parking only, between flights during a flight day. After ending the flight day or at low temperatures of ambient air, do not use parking brake, but use the wheel chocks instead.

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5. PERFORMANCE

5.1 Introduction

Section 5 provides data for airspeed calibration, stall speeds, take-off performance and nonapproved additional information, provided by the airplane type certificate owner.

The stated performance data has been computed from actual flight tests with the SPORTSTAR MAX airplane and ROTAX 912 ULS engine in good condition and using average piloting techniques.

CAUTION

THE PERFORMANCE STATED IN THIS SECTION IS VALID FOR ROTAX 912 ULS (100 HP) TOGETHER WITH WOODCOMP KLASSIC 170/3/R PROPELLER INSTALLED IN THE AIRPLANE, OTHERWISE SEE SECTION 9 - SUPPLEMENTS FOR ACTUAL PERFORMANCE.

5.2 Approved data

5.2.1 Airspeed indicator system calibration

NOTE

Assumed zero instrument error. Valid for airplane take-off weight 1320 lbs (600 kg) and with vortex generators along the whole span of the wing.

		RETRACTED 0°	TAKEOFF 15°	LANDING I 30°	LANDING II 50°
	KIAS	KCAS	KCAS	KCAS	KCAS
VS0	37		43	42	42
VS1	**38**	45	44	43	42
	39	46	44	44	43
	40	47	45	45	44
	41	48	46	46	45
	42	48	47	47	46
	43	49	48	48	47
	44	50	49	48	48
	45	51	50	49	48
	50	55	54	53	53
	55	59	58	58	57
	60	63	62	62	62
	65	67	67	66	66
VFE	**70**	71	71	70	70
	75	75			
	80	80			
	85	84			
VA	**90**	89			
	95	93			
	100	98			
	105	103			
	110	107			
VNO	**115**	112			
	120	117			
	125	122			
	130	127			
	135	132			
	140	138			
VNE	**146**	144			

		RETRACTED	TAKEOFF 15°	LANDING I 30°	LANDING II 50°
	IAS (mph)	CAS (mph)	CAS (mph)	CAS (mph)	CAS (mph)
VS0	43		49	49	48
VS1	**44**	52	50	50	49
	45	53	51	51	50
	50	57	56	55	54
	55	61	60	59	59
	60	65	64	64	63
	65	69	68	68	67
	70	73	73	72	72
	75	77	77	76	76
	80	81	81	80	80
VFE	**81**	82	82	81	81
	85	86			
	90	90			
	95	94			
	100	99			
	105	103			
VA	**106**	104			
	110	108			
	115	113			
	120	117			
	125	122			
	130	127			
VNO	**132**	129			
	135	132			
	140	137			
	145	142			
	150	147			
	155	152			
	160	157			
	165	162			
VNE	**168**	166			

5.2.2 Stall speeds

Conditions: - wing level stall - engine at idle power
- turning flight stall - engine at 75% max. continuous power
- airplane weight: 1320 lbs
- Vortex generators along the whole span of the wing

NOTE

The stated stall speeds are valid for all flight altitudes.
Altitude losses shown in the table present max. values determined on the basis of flight tests using average piloting technique.

1320 lbs 600 kg	Flaps position	Stall speed		Altitude loss
		KIAS	KCAS	ft
Wing level flight	**Retracted (0°)**	38	45	200
	Take-off (15°)	37	43	
	Landing (50°)	37	42	
Turn flight (coordinated turn 30° bank)	**Retracted (0°)**	44	50	200
	Take-off (15°)	43	48	
	Landing (50°)	43	47	

1320 lbs 600 kg	Flaps position	Stall speed		Altitude loss
		IAS [mph]	CAS [mph]	ft
Wing level flight	**Retracted (0°)**	44	52	200
	Take-off (15°)	43	49	
	Landing (50°)	43	48	
Turn flight (coordinated turn 30° bank)	**Retracted (0°)**	50	57	200
	Take-off (15°)	49	55	
	Landing (50°)	49	54	

5.2.3 Take-off distance

Conditions:
- engine: max. take-off power
- flaps: Take-off (15°)
- carburetor preheating: OFF
- airplane weight: 1320 lbs
- altitude: 0 ft ISA
- ambient air temperature: ISA

	Take-off run	Take-off distance to height of 50 ft (15 ft)
Dray concrete	620 ft	1440 ft
Grass	720 ft	1540 ft

Corrections:
- Influence of wind: Add 4% on every 1 kt (1.15 mph) of tail wind
- RWY inclination: Add 8% of the take-off run distance on 1% of runway inclination up the slope

5.2.4 Landing distance

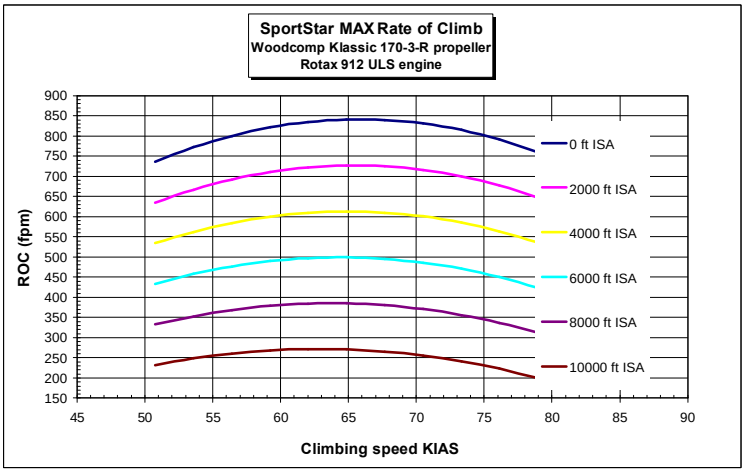
Conditions:
- engine: idle
- flaps: Landing 50°
- carburetor preheating: OFF
- airplane weight: 1320 lbs
- altitude: 0 ft ISA
- ambient air temperature: ISA

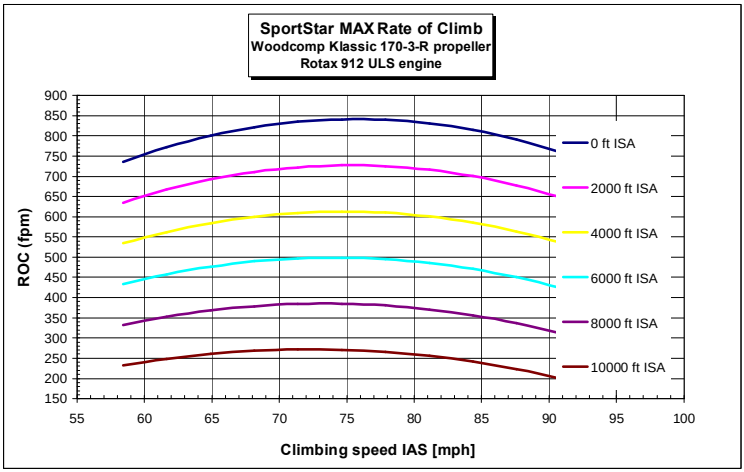
	Landing distance from height of 50 ft (15 ft)	Braked landing run
Dray concrete	1310 ft	590 ft
Grass	1250 ft	520 ft

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

5.2.5 Climb performance

Conditions:
- engine: maximum take-off power
- flaps: retracted (0°)
- carburetor preheating: OFF
- airplane weight: 1320 lbs
- ambient air temperature: ISA





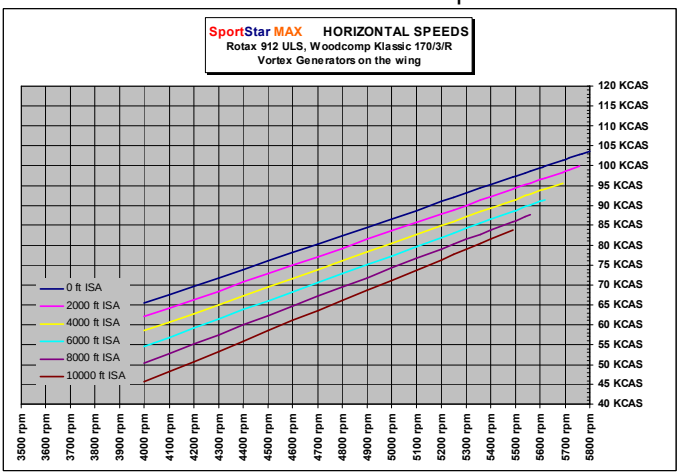
Best rate of climb for various altitudes is mentioned in the following table:

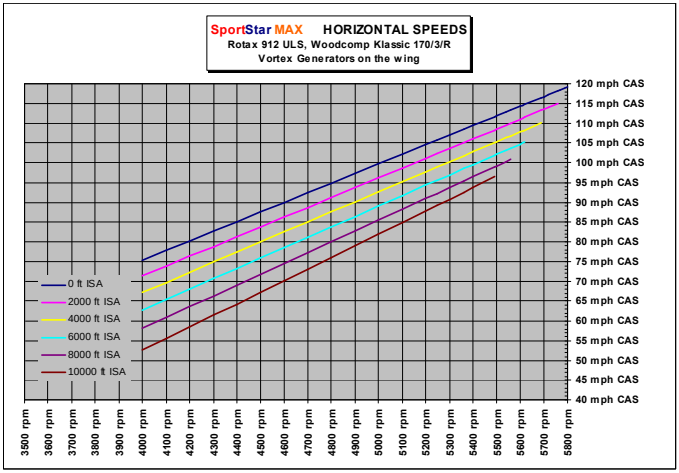
Altitude	Best rate of climb speed		Max. ROC
Hp [ft ISA]	KIAS	IAS [mph]	[fpm]
0 ft ISA	66	76	840
2000 ft ISA	65	75	730
4000 ft ISA	65	75	610
6000 ft ISA	64	74	500
8000 ft ISA	64	74	390
10000 ft ISA	63	72	270

5.3 Additional information

5.3.1 Cruise

Conditions:
- flaps: retracted (0°)
- carburetor preheating: OFF
- airplane weight: 1320 lbs
- vortex generators along the whole span of the wing
- ambient air temperature: ISA





5.3.2 Horizontal speeds

In the following table states Indicated airspeeds (IAS), corresponding calibrated air speeds (CAS) and true air speeds (TAS) versus altitude, all for various engine speeds.

		55% MTV	65% MTV	75% MTV	MCP Maximum Continuous Power	MTP Maximum Takeoff Power (5 min.)
		4300 rpm	4800 rpm	5000 rpm	5500 rpm	5800 rpm
0 ft ISA	KIAS	71	83	88	99	106
	KCAS	72	82	87	97	103
	KTAS	72	82	87	97	104
2000 ft ISA	KIAS	67	80	84	96	
	KCAS	69	79	84	94	
	KTAS	71	82	86	97	
4000 ft ISA	KIAS	63	76	81	93	
	KCAS	65	76	80	91	
	KTAS	69	81	85	97	
6000 ft ISA	KIAS	58	72	77	90	
	KCAS	61	73	77	89	
	KTAS	67	80	85	97	
8000 ft ISA	KIAS	54	68	74	87	
	KCAS	58	69	74	86	
	KTAS	65	78	84	97	
10000 ft ISA	KIAS	48	64	70		
	KCAS	53	66	71		
	KTAS	62	77	83		

			55% MTV	65% MTV	75% MTV	MCP Maximum Continuous Power	MTP Maximum Takeoff Power (5 min.)
			4300 rpm	4800 rpm	5000 rpm	5500 rpm	5800 rpm
0 ft ISA	IAS	[mph]	82	96	101	114	122
	CAS	[mph]	83	95	100	112	119
	TAS	[mph]	83	95	100	112	119
2000 ft ISA	IAS	[mph]	77	91	97	111	
	CAS	[mph]	79	91	96	109	
	TAS	[mph]	81	94	99	112	
4000 ft ISA	IAS	[mph]	72	87	93	107	
	CAS	[mph]	75	88	93	105	
	TAS	[mph]	79	93	98	112	
6000 ft ISA	IAS	[mph]	67	83	89	104	
	CAS	[mph]	71	84	89	102	
	TAS	[mph]	77	92	97	112	
8000 ft ISA	IAS	[mph]	62	78	85	100	
	CAS	[mph]	66	80	85	99	
	TAS	[mph]	75	90	96	112	
10000 ft ISA	IAS	[mph]	56	74	81		
	CAS	[mph]	61	76	82		
	TAS	[mph]	71	89	95		

5.3.3 Endurance

Conditions:
- -flaps: retracted (0°)
- carburetor preheating: OFF
- airplane weight: 1320 lbs
- airplane empty weight: 740 lbs (335 kg)
- vortex generators along the whole span of the wing
- ambient air temperature: ISA

LOAD LIMITS	
Max.take-off weight	1320 lb
Empty weight	740 lb
Max.baggage weight	55 lb

PERMITTED CREW WEIGHT

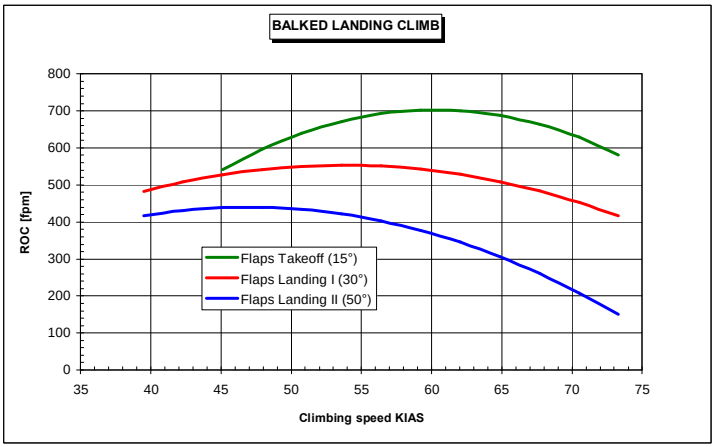
		30 USGAL	25 USGAL	20 USGAL	15 USGAL	10 USGAL	5 USGAL
Baggage max.	55 lb	345 lb	375 lb	405 lb	435 lb	465 lb	495 lb
Baggage 1/2	28 lb	372 lb	402 lb	432 lb	462 lb	492 lb	522 lb
No baggage	0 lb	400 lb	430 lb	460 lb	490 lb	520 lb	550 lb

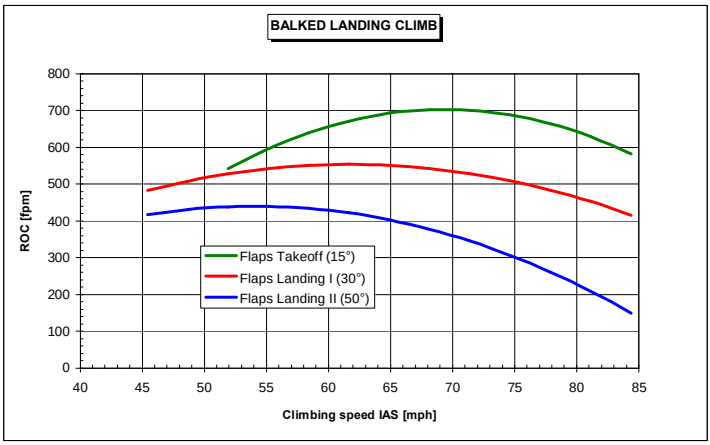
ENDURANCE AND RANGE Altitude 2000 ft ISA		55% MCP	65% MCP	75% MCP	MCP Max.Continuous Power
Engine speed	[rpm]	4300	4800	5000	5500
Fuel consumption	[USgal/h]	3,7	4,9	5,4	6,6
IAS	[knots]	67	80	84	96
	[mph]	77	91	97	111
CAS	[knots]	69	79	84	94
	[mph]	79	91	96	109
TAS	[knots]	71	82	86	97
	[mph]	81	94	99	112

Endurance at	30 USGAL	[h:m]	8:03	6:05	5:31	4:31
Range at		[NM]	570	500	480	440
		[miles]	660	580	550	510
Endurance at	25 USGAL	[h:m]	6:42	5:04	4:36	3:46
Range at		[NM]	470	410	400	370
		[miles]	540	470	460	430
Endurance at	20 USGAL	[h:m]	5:22	4:03	3:41	3:00
Range at		[NM]	380	330	320	290
		[miles]	440	380	370	330
Endurance at	15 USGAL	[h:m]	4:01	3:02	2:45	2:15
Range at		[NM]	280	250	240	220
		[miles]	320	290	280	250
Endurance at	10 USGAL	[h:m]	2:41	2:01	1:50	1:30
Range at		[NM]	190	170	160	150
		[miles]	220	200	180	170
Endurance at	5 USGAL	[h:m]	1:20	1:00	0:55	0:45
Range at		[NM]	90	80	80	70
		[miles]	100	90	90	80

5.3.4 Balked landing climb

Conditions: - engine: maximum take-off power
- carburetor preheating: OFF
- flaps: landing position (50°)
- airplane weight: 1320 lbs
- vortex generators along the whole span of the wing
- ambient air temperature: ISA





5.3.5 Effect on flight performance and characteristics

Flight performances and characteristics are not considerably affected by rain or insect stuck on the airplane surface.

5.3.6 Demonstrated crosswind performance

Maximum demonstrated speed of wind at airplane operation	24 kts (28 mph)
Maximum demonstrated speed of cross wind for take-off and landing	10 kts (12 mph)
Maximum demonstrated speed of tail wind	6 kts (7 mph)

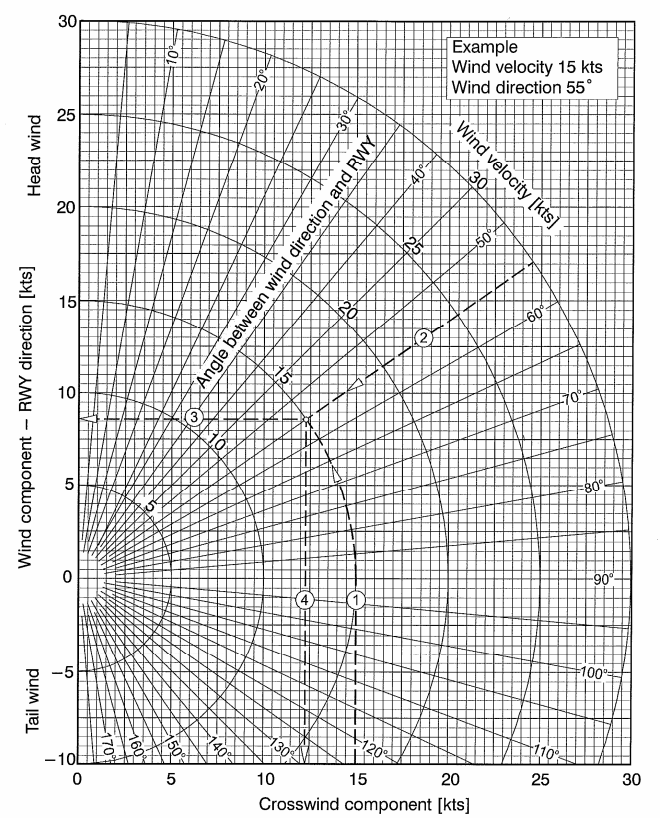


Figure 5–1 Influence of wind on take-off and landing

5.3.7 Ceiling

Service ceiling of SPORTSTAR MAX 13 030 ft

5.3.8 Noise data

Not measured.

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CONTENTS

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6. WEIGHT AND BALANCE

6.1 Introduction

This Section includes Weight and Balance Record of empty airplane, Permitted Payload Range within which the airplane may be safely operated, and a method to determine whether the operational weight and CG location will be within the permitted limits range.
Procedure for weighing the airplane and the calculation method for establishing the permitted payload range are contained in the Aircraft Maintenance and Inspection Procedures for the SPORTSTAR MAX Light Sport Aircraft.

6.2 Weight and Balance Record

Type	SPORTSTAR			Serial. No.:							
Date	Item No.		Description of part or modification	Weight change						Basic weight of empty airplane	
				Added (+)			Removed (-)				
	+	-		Weight (lb)	Arm (in)	Moment (lb.in)	Weight (lb)	Arm (in)	Moment (lb.in)	Weight (lb)	Moment (lb.in)
			Manufactured airplane								

6.3 Permitted Payload Range

MAXIMUM WEIGHT OF CREW [lb]			Airplane S/N: 2008 1102						MTOW [lb]:1320	
Date	Empty weight [lb]	C.G. [% MAC]	FUELLING						Approved	
			Fuel volume	1	0.8	0.6	0.4	0.3	0.2	Date / Signature
			Fuel volume [US gals]	30	25	20	15	10	5	
			Fuel weight [lb]	180	150	120	90	60	30	
	750	22.67	BAGGAGE [lb]	335	365	395	425	455	485	
			55	362	392	422	452	482	512	
			28	390	420	450	480	510	540	
			0							
			55							
			28							
			0							
			55							
			28							
			0							
			55							
			28							
			0							

6.4 Operational Weight and Balance Computation

An important part of preflight planning is to determine that the aircraft is loaded so its weight and CG location are within the allowable limits.

This is possible by using hereafter explained Loading graph method, using weights, arms, and moment indexes.

6.4.1 Computational Procedure

1. Record into the **Airplane Loading Schedule Chart** current empty weight and static moment of the airplane, which you read from the table 6.2 Weight and Balance Record.
2. Record the weight of crew, fuel, and baggage into the **Airplane Loading Schedule Chart.**
3. See the **Table of Static Moments** or **Airplane Loading Graph** to read static moments for given weights of crew, fuel, and baggage
4. Record found moments into the **Airplane Loading Schedule Chart**
5. Determine Take-off weight of the airplane – add together the airplane empty weight, crew, fuel, and baggage and record the result into the **Loading Schedule Chart**.
6. Check, whether the calculated Take-off weight does not exceed Airplane Maximum Take-off Weight 1320 lb.
   If yes, then it is necessary to reduce weight of some of the useful load items (fuel, baggage).

WARNING

EXCEEDING MTOW MAY LEAD TO DETERIORATION OF SAFETY OF FLIGHT!

7. Determine Total Static Moment of loaded airplane – add together the static moment of empty airplane, crew, fuel, and baggage and record the result into the **Loading Schedule Chart**.
8. Plot Takeoff Weight and Total Static Moment into the **SportStar MAX CG Moment Envelope**.
9. Check, whether the intersection of Take-off weight horizontal line and Total Static Moment vertical line is inside the envelope.
   If **YES**, then the flight may be safely performed as regards weight and balance.
   If **NOT**, then it is necessary to change weight of some of the useful load items (crew, fuel, baggage) so that after a repeated

computation the intersection of Take-off Weight and Total Static Moment will be inside the CG Moment envelope.

WARNING

SAFETY OF FLIGHT PERFORMED WITH THE AIRPLANE LOADED OUTSIDE PERMITTED LIMITS OF WEIGHT AND STATIC MOMENTS MAY BE DETERIORATED´!

6.5 Airplane Loading Schedule Chart

Type / Model	SportStar MAX	Serial No.:	2007 0919	Registration:	

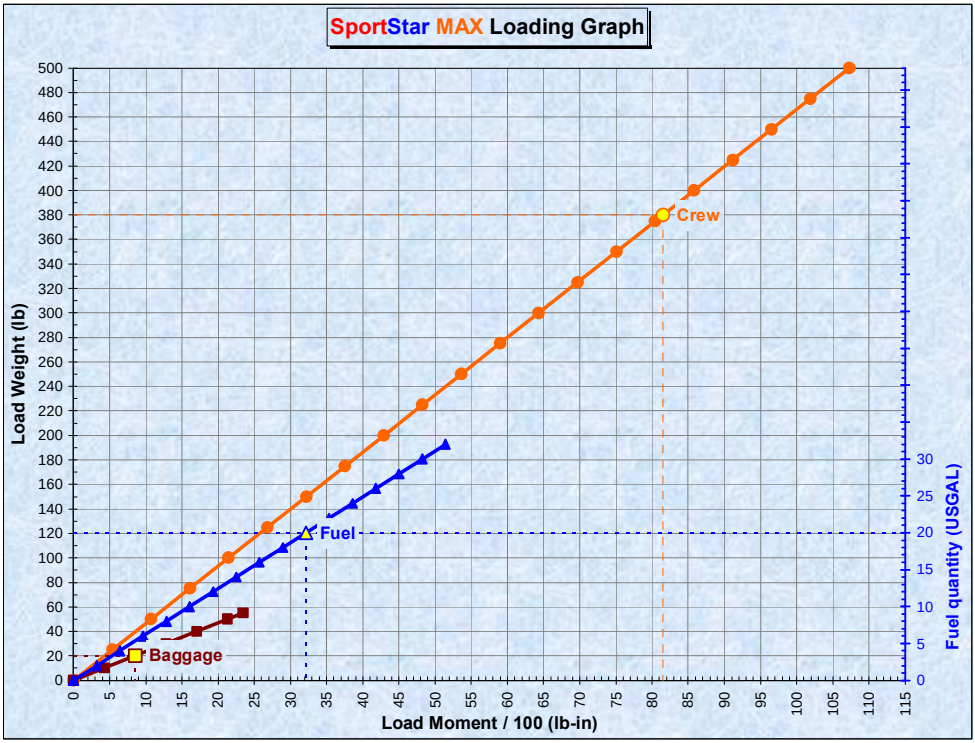
Loading Schedule Chart							
Your Aircraft			Sample Aircraft			Your Aircraft	
No	**Item**	Arm * *(in)*	Arm *(in)*	Weight *(lb)*	*Moment/100 (lb-in)*	Weight *(lb)*	*Moment/100 (lb-in)*
1.	**Empty Airplane**		*10,39 in*	*740,75 lb*	*77,1 lb-in*		
2.	**Crew**	*21,45 in*		*399,04 lb*	*85,6 lb-in*		
3.	**Baggage** (Max. *55 lb*)	*42,65 in*		*11,02 lb*	*4,7 lb-in*		
4.	**Fuel** (Max. *32 USGAL*)	*26,75 in*		*60,41 lb*	*16,2 lb-in*		
5.	Take off weight = Sum of weights 1-4 (MTOW 1320 lb) Total moment = Sum of moments 1-4			***1211 lb***	***184 lb-in***		

*) – for your empty airplane arm see Weight and Balance Record delivered with your airplane

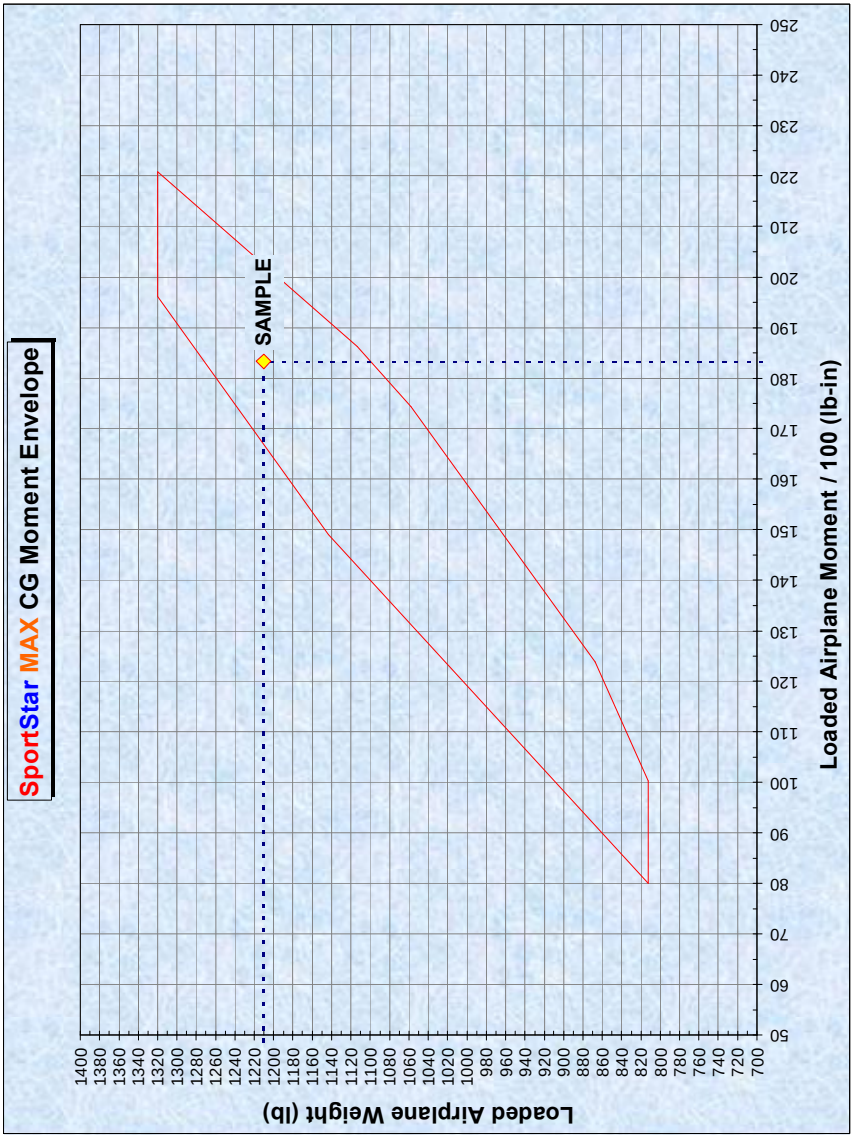
6.6 Table of Static Moments

CREW		BAGGAGE		FUEL		
Weight (lb)	Moment/100 (lb-in)	Weight (lb)	Moment/100 (lb-in)	Quantity (USGAL)	Weight (lb)	Moment/100 (lb-in)
0	0,0	0	0,0	0,0	0,0	0,0
100	21,5	2	0,9	1,0	6,0	1,6
120	25,7	4	1,7	2,0	12,0	3,2
140	30,0	6	2,6	3,0	18,0	4,8
160	34,3	8	3,4	4,0	24,0	6,4
180	38,6	10	4,3	5,0	30,0	8,0
200	42,9	12	5,1	6,0	36,1	9,6
220	47,2	14	6,0	7,0	42,1	11,3
240	51,5	16	6,8	8,0	48,1	12,9
260	55,8	18	7,7	9,0	54,1	14,5
280	60,1	20	8,5	10,0	60,1	16,1
300	64,4	22	9,4	11,0	66,1	17,7
320	68,6	24	10,2	12,0	72,1	19,3
340	72,9	26	11,1	13,0	78,1	20,9
360	77,2	28	11,9	14,0	84,1	22,5
380	81,5	30	12,8	15,0	90,1	24,1
400	85,8	32	13,6	16,0	96,1	25,7
420	90,1	34	14,5	17,0	102,1	27,3
440	94,4	36	15,4	18,0	108,2	28,9
460	98,7	38	16,2	19,0	114,2	30,5
480	103,0	40	17,1	20,0	120,2	32,2
500	107,3	42	17,9	21,0	126,2	33,8
520	111,5	44	18,8	22,0	132,2	35,4
540	115,8	46	19,6	23,0	138,2	37,0
560	120,1	48	20,5	24,0	144,2	38,6
		50	21,3	25,0	150,2	40,2
		52	22,2	26,0	156,2	41,8
		54	23,0	27,0	162,2	43,4
		55	23,5	28,0	168,2	45,0
				29,0	174,3	46,6
				30,0	180,3	48,2
				31,0	186,3	49,8
				32,0	192,3	51,4

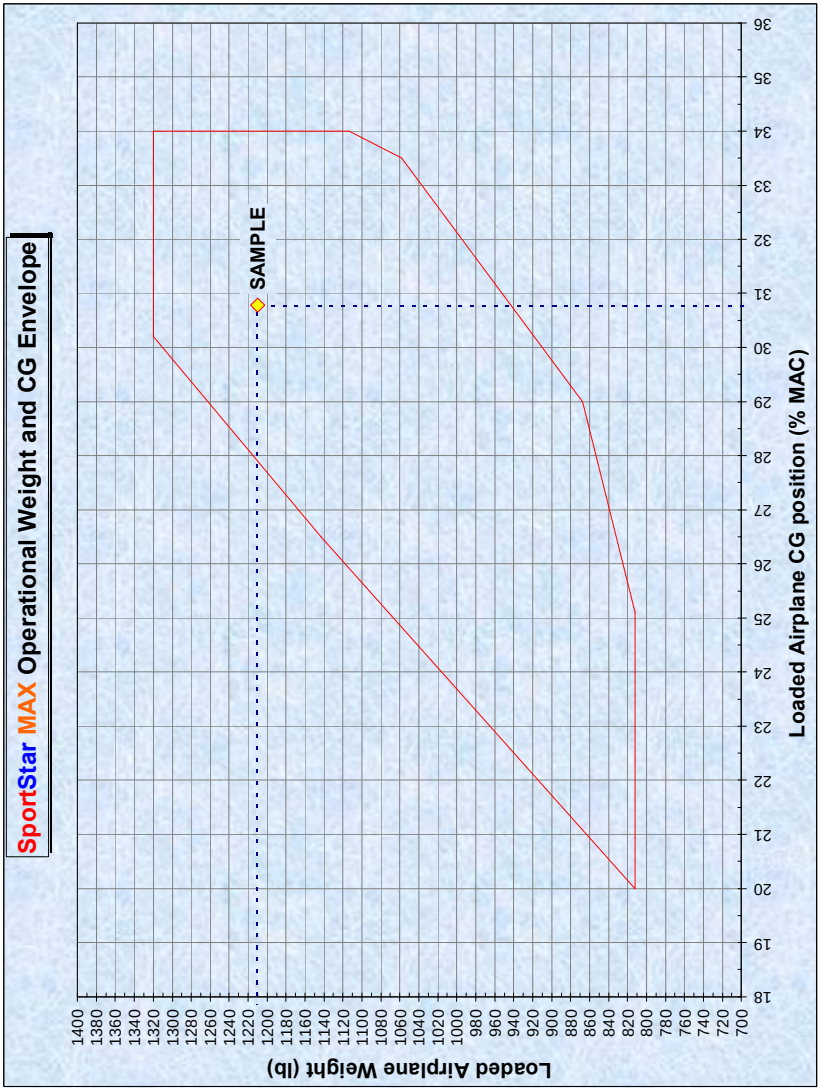
6.7 Airplane Loading Graph



6.8 CG Moment Envelope



6.9 Operational Weight and CG Envelope



Equipment List

The equipment installed in the airplane of particular serial number is shown in the following Equipment list.

Airplane Serial No.:	**2008 1102**	Registration	**N102EV**	Date: 3.3.2008
Description	Type	Part No.	Manufacturer	Installed
Airspeed ind.	UI 8000		MIKROTECHNA PRAHA a.s.	2.10.2007
Altimeter	5934P-3		United Instruments	2.10.2007
Compass	SIRS MV2C-12V		SIRS	2.10.2007
EFIS	D-100		Dynon Avionics, Inc.	2.10.2007
VHF transceiver	SL-40		GARMIN	2.10.2007
Intercom	PM 3000		PS Engineering, Inc.	2.10.2007
Transponder	GTX 327		GARMIN	2.10.2007
GPS	396 MAP		GARMIN	
Autopilot	Trutrak Digiflight II VS		Trutrak Flight Systems	2.10.2007
Emergency locator transmitter	AK-450		Ameri-King Co.	2.10.2007
Engine monitoring system	D-120		Dynon Avionics, Inc.	2.10.2007
Trim tab position indicator	RP3	vertically oriented	The Ray Allen Company	2.10.2007

Airplane Serial No.:	**2008 1102**	Registration	**N102EV**	Date: 3.3.2008
Description	Type	Part No.	Manufacturer	Installed

Airplane Serial No.:		Registration		Date:
Description	Type	Part No.	Manufacturer	Installed

CONTENTS

7. AIRPLANE AND SYSTEM DESCRIPTION

7.1 Introduction

This section describes systems of the airplane and its operation. More detailed information on optional systems and equipment are available in section 9, Supplements.

7.2 Airframe

The airframe of SPORTSTAR MAX airplane is of semimonocoque structure consisting of metal reinforcement, frames and duralumin sheet skin.

7.2.1 Fuselage

The fuselage is of semimonocoque structure consisting of reinforcements and duralumin skin. Fuselage section is rectangular in the lower part and elliptic in the upper part. The fin is an integral part of fuselage. The cockpit for two-member crew is located in the middle part of the fuselage that is accessible after uncovering the single-piece organic glass 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 bed is attached.

7.2.2 Wing

The wing is of rectangular shape, single-spar structure with the auxiliary spar with suspended ailerons and split wing flaps. Riveting is used for connecting individual structural elements. Fiber-glass wing tips are riveted on the wing ends.

7.2.3 Horizontal tail unit (HTU)

The VTU of conventional type consists of the stabilizer and elevator with the trim tab. Single-spar structure of HTU consists of duralumin ribs, spar and skin. Top view of HTU is of rectangular shape.

7.2.4 Vertical tail unit (VTU)

VTU is of trapezoidal shape. Its fin is an integral part of the fuselage. The rudder is suspended on the fin by means of two hinges. The VTU structure consists of the duralumin spar and skin.

7.3 Control

Airplane control consists of ailerons, elevator and rudder. Directional control is connected by means of pull rods with nose landing gear control. Main landing gear brakes are controlled by pedals of directional control.
Airplane is equipped with dual control enabling flight with 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 mechanical system of pull 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 pull rods to ailerons.

7.3.3 Rudder control

Rudder control is controlled by pedals of foot control. The rudder is interconnected with foot control pedals by cable system.

Foot control pedals adjustable into three positions can be installed as an option.

Way of adjustment of ruder pedals:

1. Release the pin from the adjusting groove
2. Set pedal to one of three possible positions
3. Check on the pin locking-on in the adjusting groove

WARNING

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

7.3.4 Elevator trim tab control

The elevator trim tab is controlled by the lever located in between the pilot seats. The control lever is interconnected with the trim tab by means of bowdwen-cables.

7.4 Controls in cockpit

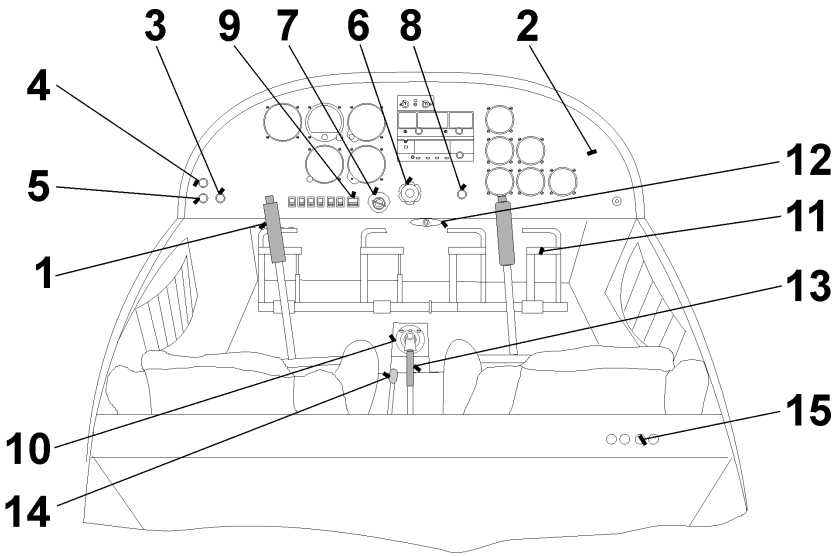


Figure 7–1 Cockpit control elements

1. Control stick
2. Instrument panel
3. Carburetor pre-heating knob (if installed)
4. Cockpit heating / canopy defog selector (if installed)
5. Hot air supply knob (if installed)
6. Throttle lever
7. Ignition
8. Choke
9. Master switch
10. Fuel selector
11. Rudder control pedals
12. Emergency parachute system lever (if installed)
13. Flaps control lever
14. Trim control lever
15. Headset sockets

7.5 Instrument panel

See section 9 - supplements.

7.6 Inside and outside marking and placards

See Aircraft Maintenance and Inspection Procedures.

7.7 Landing gear and brakes

7.7.1 Landing gear

The airplane is equipped with a sort of fixed nose landing gear. Main landing gear legs are produced from composite spring. Nose landing gear leg is welded from two pieces - the tube and the yoke- in which the nose wheel is mounted. The nose landing gear is spring-loaded by a rubber rope. The nose wheel is steerable, wheel control is coupled with rudder control by means of two pull rods. Wheels can be fitted with fiber-glass aerodynamic pants.

7.7.2 Brakes

The SPORTSTAR MAX airplane is equipped with disk hydraulic brakes on main landing gear wheels. Brake system is composed of brake pedals (these are a part of rudder control pedals), brake pumps, hoses for leading brake liquid, brake yokes with wheel cylinders and brake pads. By depressing the brake pedals compression of brake pumps occurs, which generates pressure in brake circuit and hydraulic cylinders press the brake pads onto the brake disks. Braking pressure can be regulated only by force of brake pedals depressing.

The airplane can be equipped by mechanical manually controlled parking brake. PARKING BRAKE handle is located in between the pilot seats.

7.8 Seat and safety harnesses

SPORTSTAR MAX is a two-seat airplane with side-by-side seats. Seats are fixed, non-adjustable and fitted with light upholstery.

Each of seats is fitted with four-point safety harness which is composed of safety belts, shoulder straps and lock. The safety harness is anchored in the middle of the frame behind the baggage compartment and on the seat sides.

7.9 Baggage compartment

Baggage compartment is positioned behind seat rests.
Maximum weight of baggage is 55 lbs (25 kg) and is stated on the placard in the baggage compartment. The baggage compartment is fitted with rubber straps for baggage fixation.

7.10 Canopy

The cockpit canopy is of a semidrop shape. The framework is composed of metal structure on which the organic glass canopy is fixed by bolts.

The canopy is attached to the fuselage in the front part by two swivel pins by means of which it can be folded up forwards. In order to make opening easier, the actual weight of canopy is balanced by two gas struts, besides the canopy is provided with holders on the lower framework for easier handling. The canopy is provided with the lock in the rear upper part of framework for locking.

7.11 Power unit

7.11.1 General

The engine ROTAX 912 ULS (100 hp) is used to power SPORTSTAR MAX airplane.
ROTAX 912 ULS is a four-cylinder, four-stroke engine with opposite cylinders, central cam shaft and OHV valve mechanism.

The on-ground adjustable, composite, 3-blade propeller WOODCOMP KLASSIC 170/3/R. is standardly mounted on the engine ROTAX 912 ULS. Other propeller type can be installed on customer's request - see sec. 9 for detailed information.

7.11.2 Engine control

Engine power is controlled by means of THROTTLE lever, which is located in the middle of the instrument panel and which controls engine power range from idle up to maximum take-off . Engine power controller is mechanically interconnected with the flap on carburetors.

If the lever is fully pushed in, then this position corresponds to maximum engine power. If the lever is fully pulled out, then this position corresponds to idle. Rapid changes in engine power setting can be made by pressing down the round button on the lever body and by its pulling out or pushing in. Small changes in power setting can be performed through lever turning (conterclockwise - power increase).

The lever is fitted with the locking ring, counterclockwise turning of which ensures locking of the lever in requested position.

7.11.3 Engine instruments

The following analog instruments located on the instrument panel serve for engine performance monitoring. The digital engine monitoring system can be installed in the airplane instead of analog engine instruments.

RPM indicator

The electrical RPM indicator is controlled by signal from the generator RPM transmitter. Working range of the RPM indicator is 0 - 7000 RPM. Color code is stated in section 2.

Cylinder head thermometer

The cylinder head thermometer transmitter senses temperature of cylinder No. 3. Working range of the cylinder head thermometer is 120 ÷ 300°F. Color code is stated in section 2.

Oil thermometer

Oil temperature on engine input is measured by the sensor located behind the oil pump. Working range of oil thermometer is 120 ÷ 300°F. Color code is stated in section 2.

Oil pressure gauge

Oil pressure on the oil input into engine is measured by means of sensor which is located behind the oil filter. Working range is 0 ÷ 150 PSI. Color code is stated in section 2.

7.11.4 Engine cooling system

Engine cooling is combined, cylinder heads are cooled by water, cylinders are cooled by air.

Cooling circuit of cylinder heads is designed as a closed system containing pump, expansion reservoir (1) with pressure closure (3), cooler of cooling liquid (2) and drainage reservoir (4). Scheme of cylinder head cooling system is shown in Fig. 7–2.

When changing, the cooling liquid is filled up through the cap of expansion reservoir (1), during airplane operation it is replenished into drainage reservoir (4) between the lines of maximum and minimum level.

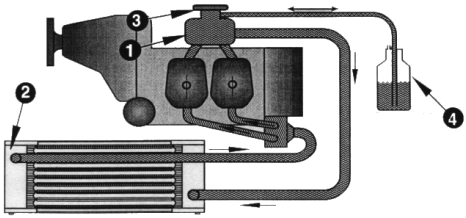


Figure 7–2 Scheme of cylinder head cooling system

7.11.5 Engine lubrication system

Engine lubrication system is performed with the dry crank case. Engine lubrication system is equipped with oil pump (1) ensuring oil feeding from reservoir (4) located on the fire wall through the oil cooler (5) and the oil cleaner (6) to the lubricated points of engine. The pressure sensor (2) is located behind the oil pump. The oil reservoir is aerated by the hose (7) which is led under the airplane. Oil pressure and temperature are indicated on instruments in right side of the instrument panel. Oil is replenished through the lid in the upper part of the oil reservoir.

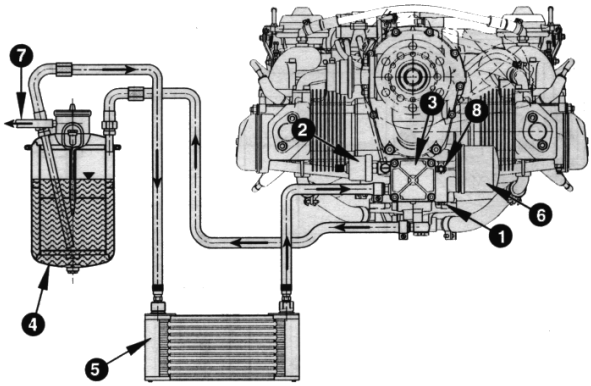


Figure 7–3 Scheme of engine lubrication system

7.11.6 Engine intake system

Engine intake system ensures delivery of sufficient air into engine. Air is taken into the engine through openings on the engine covers through the air filters.
The intake system can be equipped with carburetor heating system. Hot air from the heat exchanger (located on the exhaust collector) is taken to the mixing chamber. Amount of in-taken hot air is regulated by flaps in mixing chamber inlets. Flaps are controlled by the CARBURETTOR PREHEATER knob on the instrument panel.

7.11.7 Ignition system

The engine is equipped with the double contactless ignition system. Each ignition circuit has own source of energy, control unit, 2 ignition coils and 4 spark plugs. It is fully autonomous on the other circuit of accumulator. High voltage current is distributed to the spark plugs through high-voltage cables. Ignition sequence of individual engine cylinders:

Ignition circuits are controlled by the ignition switch on the instrument panel.
Positions of ignition switch:

OFF	engine ignition is off
R	only ignition circuit B is on
L	only ignition circuit A is on
BOTH	both circuits are on
START	both circuits are on and starter is cranking the engine

7.12 Fuel system

Fuel system serves for keeping fuel in the airplane and its feeding to the engine. Fuel system of SPORTSTAR MAX airplane is composed of integral fuel tanks, fuel line, fuel selector, fuel filter, mechanical fuel pump - located on the engine (auxiliary electrical fuel pump can be installed), distribution pipe of fuel with, return branch of fuel, fuel gauges and fuel tanks draining valves.

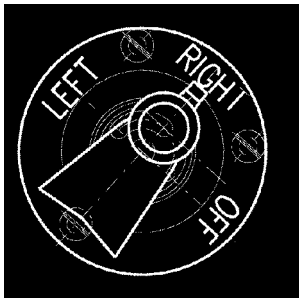
7.12.1 Fuel tanks

Fuel is contained in the wing integral tanks having volume 15.85 U.S. gallons each. Each tank is fitted with air venting (output is under the wing tip) and draining valve on the bottom side of the wing. Fuel is led from the tanks through the 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 carburetors. Fuel return hose goes from the fuel pump into the left tank, which is due to considered as a “primary” tank. See figure 7-4 for Scheme of fuel system.

7.12.2 Fuel selector

The fuel selector serves for tank selection and fuel delivery interruption in case of engine fire or long parking of airplane.
To move selector from OFF (closed) position it necessary pull the safety button on the fuel selector, turn the handle from the OFF position to the left and then release safety button. Now the handle can be freely moved between LEFT and RIGHT position. Safety button prevents unintentionally switch the selector to OFF position.
To move selector to OFF (closed) position it is necessary 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 switch the selector from the OFF position during parking.



7.12.3 Fuel filter

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

7.12.4 Indication of fuel quantity

Fuel quantity is measured by a float fuel gauge transmitter in each tank and indicated on fuel gauge on the instrument panel. LH fuel gauges indicates fuel quantity in the left (primary) tank, RH indicator in the right tank. True fuel quantity is indicated only on ground and in level flight and it takes approx. 2 minutes to level fuel after transition from climb/descent.

7.12.5 Fuel tank draining

Draining of the fuel tank is specified in chapter 8.

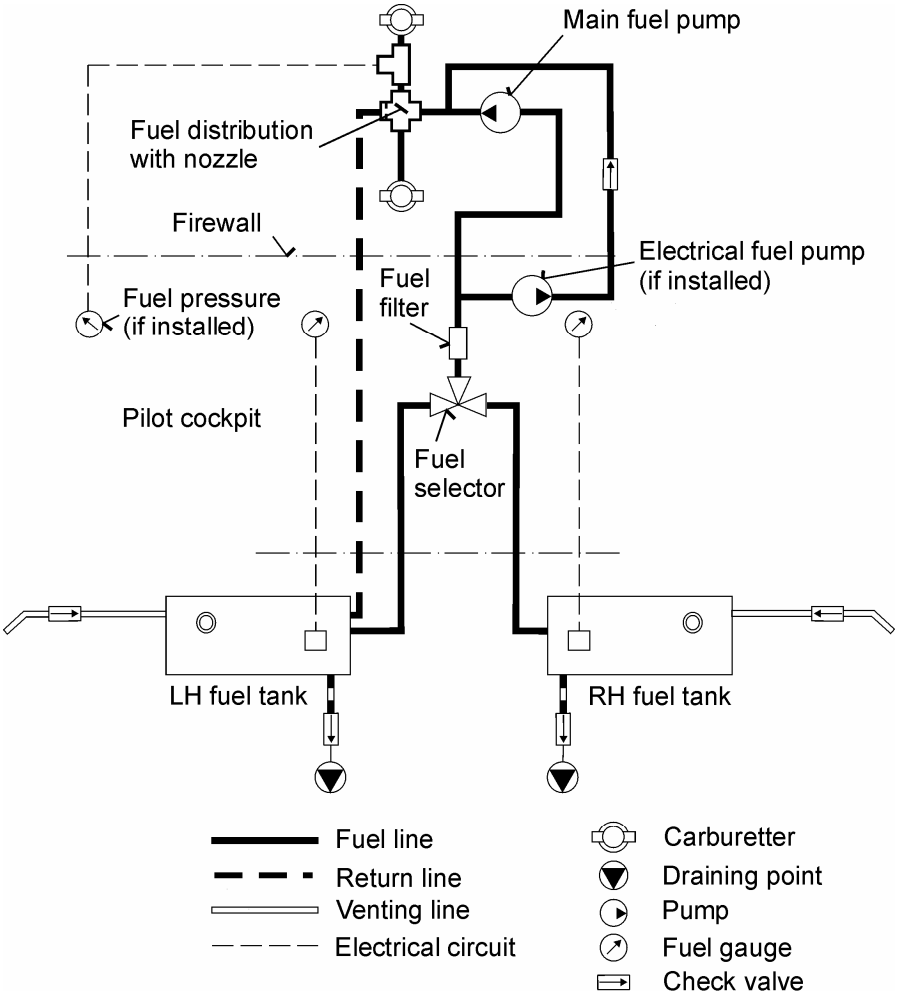


Figure 7–4 Scheme of fuel system

7.13 Electrical system

The airplane is equipped with 14 V DC electrical installation. A generator with power of 250 W is the primary source of electrical energy. The secondary source of energy is the accumulator 12V/16Ah that is located in the engine compartment on the fire wall. It is used for engine starting and in case of generator failure as an emergency source of energy and also serves as the smoothing filter of power system.

DC voltage is distributed to individual systems by main busbar. Each system is protected by circuit breaker. If overloading of any of the circuits occurs, then the circuit breaker is pulled out. Circuit beakers are listed in the Aircraft Maintenance and Inspection Procedures.

CAUTION

DO NOT USE CIRCUIT BREAKERS FOR NORMAL SWITCHING OFF OF THE SYSTEMS

After switching **MASTER SWITCH** on and by turning the ignition key to **START** position the starter is activated. The starter is power supplied from the accumulator before engine start. After engine has been started and idle RPM reached, generator starts supplying current into electrical network.

7.13.1 Lighting

Airplane can be equipped with a external lighting.

External lighting can be composed of position lights and anticollision beacons which are located in wing tip and landing headlight which is located in left wing leading edge or in the lower engine cowling. Position lights are switched by **POS. LIGHTS** switch and anticollision beacon by **BEACON** switch. Landing headlight is switched by **LDG LIGHT** (or **REFLECTOR**) switch.

7.13.2 Electrical system scheme

See Aircraft Maintenance and Inspection Procedures - Supplements.

7.14 Pitot-static system

Pitot-static tube for sensing static and total pressure is located under the left half of the wing. Total pressure is sensed through the opening in the Pitot-static tube face. Static pressure is sensed through openings on the tube circumference. System of pressure distribution to individual instruments are made by means of flexible plastic hoses. Transparent draining reservoirs are located in the pressure branch of static and total pressure on the left fuselage side by the wing leading edge.

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

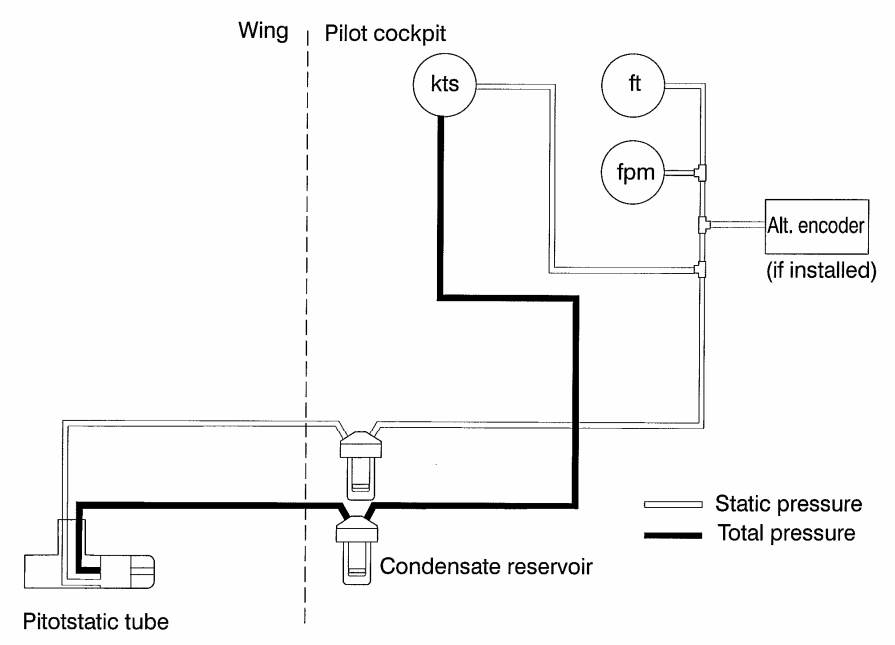


Figure 7–5 Scheme of pitot-static system

7.15 Supplementary equipment

7.15.1 Ventilation and heating system

Cockpit ventilation is ensured by two sliding windows located on the tilting canopy.

Cockpit heating is ensured by hot air from the heat exchanger. The heat exchanger is located on the exhaust pipe collector. Air from outside atmosphere is warmed up in the exhaust pipe collector and delivered through air hoses into the cockpit. Hot air quantity is regulated by the flap which is controlled by the **HOT AIR** knob on the instrument panel. The cockpit heating system can be equipped with a windshield blowing system.

7.16 Navigation and communication equipment

Description of operation of navigation and communication equipment see section 9 - Supplements.

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CONTENTS

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8. AIRPLANE HANDLING SERVICING AND MAINTENACE

8.1 Introduction

This section includes the procedures for airplaine handling, maintenance and
operation recommended by the manufacturer.

It is necessary to follow the set-down lubrication plan, scope and periodicity of preventive maintenance depending on climatic and flight conditions according to the Aircraft Maintenance and Inspection Procedures of SPORTSTAR MAX Light Sport Aircraft

Airplane owner should be in a permanent touch with the manufacturer, either directly or through the network of business representatives, which enables him to get the newest information concerning airplane operation, handling and maintenance. The manufacturer distributes this information to users through Service bulletins (Mandatory bulletins), Information bulletins (letters) and further instructions.

Mandatory bulletins are especially important for keeping up airworthiness and the manufacturer considers them mandatory although they do not come into effect before Airworthiness Directive is issued by aviation authority of user‘s country.

All correspondence with the airplane manufacturer, distributor or service center must contain **the airplane serial number**. The airplane serial number is shown on the title sheet of this Instructions and on the production plate behind the rest of pilot seats.

The manufacturer delivers along with aircraft SPORTSTAR MAX the “Aircraft Operating Instructions (AOI)“ and the “ Aircraft Maintenance and Inspection Procedures (AMIP)”.

Qualification requirements to perform maintenance and repairs are mentioned in the AMIP - item 4.1.1.

Owner/Operator Responsibilities:

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

- Each owner/operator of an LSA airplane shall be responsible for providing the manufacturer with current contact information where the manufacturer may send the owner/operator supplemental notification bulletins.
- The owner/operator of an LSA airplane shall be responsible for notifying the manufacturer of any safety of flight issue or significant service difficulty upon discovery.
- The owner/operator of an LSA airplane shall be responsible for complying with all manufacturer issued notices of corrective action and for complying with all applicable aviation authority regulations in regard to maintaining the airworthiness of the LSA airplane.
- An owner of an LSA airplane shall ensure that any needed corrective action must be 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 LSA airplane shall be considered not in compliance with applicable ASTM Standards and may be subject to regulatory action by the presiding aviation authority.

8.2 Airplane inspection period

Periodical inspections and reviews of airplane must be carried out at the latest in the following intervals:

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

Details on periodical inspections are provided in the Aircraft Maintenance and Inspection Procedures of SPORTSTAR MAX.

Refer to the Rotax 912 Operator's Manual for engine maintenance. Refer to the Propeller Maintenance Manual for propeller maintenance.

8.3 Modifications or airplane repairs

All airplane repairs and modifications of airplane must be carried out by qualified personnel in an approved service center (see AMIP - item 4.1.1.).

Before any repairs/modification is made to the aircraft, consult the Civil aviation authority of the country in which the airplane is registered to assess effect of the repair/modification on the airworthiness.

Basic repairs of airplane are described in the Aircraft Maintenance and Inspection Procedures of SPORTSTAR MAX.

8.4 Road transport

8.4.1 Airplane towing

It is possible to move the airplane on a short distance by holding the fuselage end in the position before the fin, eventually by holding the root part of wings.

The hand towing bar can be used for airplane relocation which will be fastened to the nose wheel axis.

To turn the airplane on the spot, push on the fuselage end part in the area before the fin, lift the nose wheel and turn the airplane in required direction.

WARNING

SWITCH OFF IGNITION BEFORE GROUND HANDLING WITH THE AIRPLANE!

CAUTION

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

WHEN HANDLING THE AIRPLANE BY MEANS OF THE TOWING BAR, PROPELLER BLADES MUST BE SET TO HORIZONTAL POSITION.

MAXIMUM DEFLECTION OF THE NOSE WHEEL IS ± 10°.

AT MANUAL ENGINE STARTING GRASP THE PROPELLER BLADE AREA, I.E. NOT ONLY PROPELLER EDGE.

8.4.2 Airplane parking

It is the most suitable solution to place the airplane into a hangar possibly into another covered room with stable temperature, good venting, low humidity and dust-free environment. In case of parking out of the hangar it is necessary to anchor the airplane and at long-term parking to cover the canopy, possibly the whole airplane with suitable tarpaulins.

8.4.3 Airplane anchoring

The airplane is anchored at parking out of hangar after termination of flight day or according to need. Anchoring of the airplane is necessary for its protection against possible damage, caused by wings and gusts. For this purpose the airplane is equipped with fixing eyes on the lower side of wings.

Procedure:

1. Check of fuel selector, off-position of all switches, ignition and master switch.
2. Lock manual control, e.g. by using safety belts
3. Close vent windows
4. Close and lock the cockpit canopy
5. Anchor the airplane to the ground by means of cables pulled through fixing eyes which are located on the lower side of wings. Further it is necessary to anchor the nose landing gear.

NOTE

In case that long-term airplane anchoring is supposed, namely in winter period, it is suitable to cover the canopy, eventually the whole airplane by appropriate tarpaulins which must be properly secured to the airplane structure.

8.4.4 Airplane jacking

Airplane jacking presents no big difficulties due to relatively low airplane empty weight and can be performed by two persons.

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

The airplane can be jacked in the following way:

- by pushing from the above to the fuselage rear part in the position before the fin the front part of fuselage can be jacked and subsequently supported under the fire wall.
- Rear part of fuselage can be slightly jacked only by grasping in the position near the auxiliary skid and by pushing from below and then the lower part of fuselage can be supported by the rest located in the area of the skid.
- Wings van be jacked by pushing on the wing from below in the area of the main spar. It is necessary to avoid jacking by grasping the wing tip.

8.4.5 Leveling

Leveling procedure is described in the Maintenance manual for SPORTSTAR MAX airplane.

8.4.6 Road transport

The airplane can be transported on communication after its loading on an appropriate trail. It is necessary to dismount wings. The airplane must be secured against possible movement. This way you will preclude possible damage to the airplane.

8.5 Draining of fuel tank

Draining should be done prior to first flight each day. There is a drain valve of each wing tank located on its bottom.

Procedure:

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

NOTE

Draining serves to elimination of impurities and deposits from the fuel. Drain until clean fuel flows from the drain valve.

4. Using screwdriver (or appropriate jig) turn drain valve clockwise to close it.
5. Repeat procedure for the opposite tank.

8.6 Cleaning and care

Always use appropriate cleaning agents when cleaning airplane surface. Residuum of oil and fat can be removed form the airplane surface (excluding the canopy) by suitable detergents, possibly by petrol.

The canopy only to be cleaned by washing with ample stream of tepid water with addition of appropriate detergents. Use soft rag, sponge or wash leather. Use suitable polishing agent after wiping rests of water.

CAUTION

NEVER DRY-CLEAN THE CANOPY AND NEVER USE PETROL NOR CHEMICAL SOLVENTS!

Coating, upholstery and carpets in the cockpit can be removed from the cockpit, brushed and, if need be, cleaned with warm water with addition of appropriate detergent. Dry up upholstery after doing this.

9. Supplements

9.1 Introduction

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

9.2 List of inserted supplements

Inst.	Date	Doc. No.	Title of inserted supplement
	March 15/11	SMAX2011AOIUSS01	Transceiver KY97A
	March 15/11	SMAX2011AOIUSS02	Intercom PM 1000
	March 15/11	SMAX2011AOIUSS03	Transponder KT76A
✓	Mar 3/08	SMAX2011AOIUSS04	Airplane description of S/N 2008 1102
	March 15/11	SMAX2011AOIUSS05	GPS/COMM receiver KLX 135
	March 15/11	SMAX2011AOIUSS06	Flight clock LC-2
	March 15/11	SMAX2011AOIUSS07	Transceiver FILSER ATR 600
	March 15/11	SMAX2011AOIUSS08	GPS/NAV/COMM receiver GARMIN GNS 430/430A
	March 15/11	SMAX2011AOIUSS09	Transponder ATC GARMIN GTX 327
	March 15/11	SMAX2011AOIUSS10	Intercom PCD7100-I (PS ENGINEERING INCORPORATED)
	March 15/11	SMAX2011AOIUSS11	Rocket activated parachute rescue system Magnum Speed Soft 650
	March 15/11	SMAX2011AOIUSS12	Horizon RCA 26
	March 15/11	SMAX2011AOIUSS13	Float operation CZAW 1150
	March 15/11	SMAX2011AOIUSS14	Horizon LUN 1202
	March 15/11	SMAX2011AOIUSS15	Towing gear
	March 15/11	SMAX2011AOIUSS16	Pitot tube heating
✓	March 15/11	SMAX2011AOIUSS17	Emergency Locator Transmitter AK-450
-	-	SMAX2011AOIUSS18	Not used
✓	March 15/11	SMAX2011AOIUSS19	Stall warning system ACI type T1b
✓	March 15/11	SMAX2011AOIUSS20	Night VFR operation

Inst.	Date	Doc. No.	Title of inserted supplement

9.3 Supplements inserted

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SUPPLEMENT No. 4

AIRCRAFT DESCRIPTION

Registration mark: **N102EV**

Serial number: **2008 1102**

This Supplement must be contained in the Aircraft Operating Instructions during operation of the aircraft of S/N 2008 1102.

Information contained in this Supplement add or replace information from the basic Aircraft Operating Instructions in the further mentioned parts only.

Limitations, procedures and information not mentioned in this Supplement are contained in the basic Aircraft Operating Instructions.

RECORD OF REVISIONS

Rev. No.	Affected Pages	Description/Validity	Approved / Date	Incorpo-rated by / Date

Section 1 - GENERAL

This Supplement adds information necessary for airplane operation with equipment installed in the aircraft SPORTSTAR MAX of S/N 2008 1102

Section 2 - LIMITATIONS

2.6 MISCELLANEOUS INSTRUMENT MARKING

There are following instruments color marking on the EMS display:

Instrument	Units	Red arc Lower limit	Green arc Normal operation range	Yellow arc Caution range	Red arc Upper limit
RPM indicator	RPM	-	1400 - 5500	5500 - 5800	5800
Oil temperature indicator	°F	-	190 - 230	120 - 190 230 - 266	266
Oil pressure indicator	PSI	12	29 - 73	12 - 29 73 - 102	102
Cylinder head temperature	°F	-	120 - 275	-	275
Fuel pressure indicator	PSI	2.2	-	-	5.8
Manifold air pressure	in.Hg	-	0 - 35	-	-
Exhaust gas temperature	°F	-	570 - 1620	-	1620
Voltmeter	V	10	12.4 - 15.1	10 - 12.4	15.1
Ammeter	A	-	-20 - 0	0 - 60	-

NOTE

Red arc is marked from lover (upper) limit up to scale start (end).

Sigh “-” means battery charging on the ammeter, sign “+” means battery discharging.

Section 3 - EMERGENCY PROCEDURES
Not affected

Section 4 - NORMAL PROCEDURES

4.5.2 Engine starting

CAUTION

AFTER ENGINE STARTING AND EFIS SWITCHING-ON IT IS NECESSARY TO MATCH EFIS ALTIMETER WITH ANALOG ALTIMETER (SEE EFIS MANUAL - SETUP - ALT ADJ).
IT IS RECOMMENDED TO ON THE INTERCOM EVEN FOR SOLO FLIGHTS. THIS IS BECAUSE THE EMS D-120 ENGINE MONITORING SYSTEM AUDIO ALARMS OUTPUT IS CONNECTED THROUGH THE INTERCOM AND WITH THE INTERCOM OFF, THE PILOT WOULD NOT HEAR THE ALARMS IN CASE OF EXCEEDING ENGINE LIMITS. THIS MAY REDUCE SAFETY OF FLIGHT.

Section 5 - PERFORMANCE - Not affected

Section 6 - WEIGHT AND BALANCE - Not affected

Section 7 - AIRPLANE AND SYSTEM DESCRIPTION

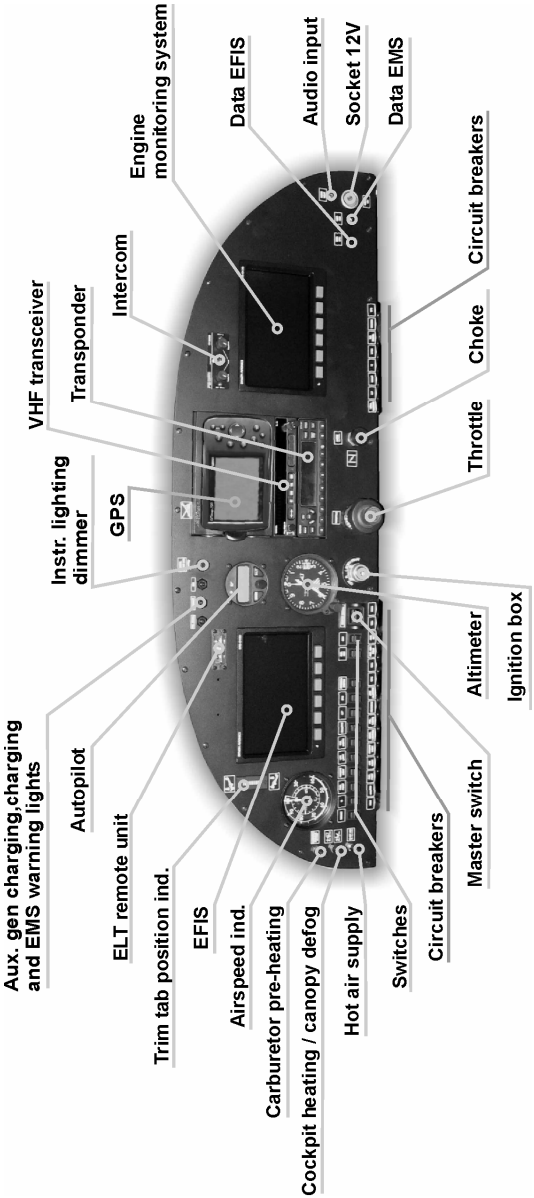
7.3.4 Elevator trim tab control

Elevator trim tab control is electric. Control elements are located on the top of the left and right stick. Trim tab position indicator is located on the instrument panel.

7.4 CONTROLS IN COCKPIT

Pos. 14 is cancelled. Elevator trim tab control is electric. Control elements are located on the top of the left and right stick.

7.5 INSTRUMENT PANEL



Switches from the left - See Instrument panel

Left side of the instrument panel:

SOCKET - if switched on, the socket is under electric power
IC – switches on/off the intercom
FUEL PUMP - switches on/off the fuel pump
COCKPIT LIGHT - switches on/off the cockpit light
LDG LIGHT - switches on/off the landing light
POS LIGHTS - switches on/off the position lights and instrument lighting
BEACONS - switches on/off the wing beacons
A/P - switches on/off the autopilot
EFIS - switches on/off the EFIS
AVIONICS SWITCH - switches on/off avionics
AUX GEN - switches on/off the auxiliary generator
GEN - switches on/off the generator
MASTER SWITCH

Circuit breakers from the left - See Instrument panel

Left side of the instrument panel:

TRIM	circuit breaker of electric trim tab position control
UNUSED	reserved
FUEL PUMP	circuit breaker of electric auxiliary fuel pump
LDG LIGHT	circuit breaker of landing light
COCKPIT LIGHT	circuit breaker of cockpit light
INSTR LIGHTING	circuit breaker of instrument lighting
POS LIGHTS	circuit breaker of position lights
BEACONS	circuit breaker of wing beacons
EMS ALERTING	circuit breaker of EMS alerting
EFIS	circuit breaker of EFIS
EMS	circuit breaker of the engine monitoring system (EMS)
AUX GEN FIELD	circuit breaker of auxiliary electric generator field
AUX GEN	circuit breaker of auxiliary electric generator
GEN	circuit breaker of electric generator
ACCU	circuit breaker of accumulator

Right side of the instrument panel:

STALL WARNING	circuit breaker of stall warning system
A/P	circuit breaker of autopilot
COMM	circuit breaker of VHF radiostation
IC	circuit breaker of intercom
XPDR	circuit breaker of transponder
ALT ENCOD	circuit breaker of altitude encoder
UNUSED	reserved
GPS	circuit breaker of GPS

7.5.1 Instruments

No. of installed	Instrument	Type
1	Airspeed indicator	LUN 1106.I4B2
1	Altimeter	5934P-3A
1	Compass	SIRS NV2C-12V
1	EFIS	DYNON D-100

NOTE

For EFIS operating instructions see manual delivered with instrument.

7.5.2 Navigation and communication equipment

No. of installed	Equipment	Type
1	VHF transceiver	GARMIN SL-40
1	Intercom	PM 3000
1	Transponder	GARMIN GTX 327 with A-30 alt. enc.
1	GPS	GARMIN 396 MAP
1	Autopilot	Trutrak Digiflight II VS
1	Emergency locator transmitter	AK-450

NOTE

For operating instructions see manuals delivered with instruments.

7.11 POWER UNIT

7.11.3 Engine instruments

The Engine Monitoring System DYNON D-120 is installed instead of analog instruments on this aircraft.

NOTE

For EMS operating instructions see manual delivered with instrument.

7.11.5 Engine lubrication system

Oil thermostat is added to lubrication system to stabilize oil temperature.

7.13 ELECTRICAL SYSTEM

The auxiliary generator SD 20 is installed on this aircraft.

7.13.1 Lighting

The instruments internal lighting with dimmer and cockpit light are installed on this aircraft.

7.15 SUPPLEMENTARY EQUIPMENT

7.15.3 Ventilation and heating system

The cockpit heating system is equipped with canopy defog system.

Other airplane equipment

There is installed following equipment in the airplane:

- auxiliary electric fuel pump
- double brake system with parking brake
- electric trim tab control with control on the both sticks
- adjustable rudder control pedals
- stall warning system ACI type T1b
- position lights with beacons Whelen A600
- landing light Whelen A715
- aerodynamic wheel covers
- cap for oil level check on the upper engine cowling
- upholstered baggage compartment
- sun shield in the cockpit

Section 8 - AIRPLANE HANDLING, SERVICING AND MAINTENANCE
Not affected

SUPPLEMENT No. 17

EMERGENCY LOCATOR TRANSMITTER

MODEL AK-450

AMERI-KING CORPORATION

Registration mark: **N102EV**

Serial number: **2008 1102**

This Supplement must be contained in the Aircraft Operating Instructions if Emergency Locator Transmitter (ELT) AK-450 is installed on the airplane in accordance with the approved airplane manufacturer documentation.

Information contained in this Supplement add or replace information from the basic Aircraft Operating Instructions in the further mentioned parts only.

Limitations, procedures and information not mentioned in this Supplement are contained in the basic Aircraft Operating Instructions.

RECORD OF REVISIONS

Rev. No.	Affected Pages	Description/Validity	Approved / Date	Incorpo-rated by / Date

Emergency Locator Transmitter AK-450

Section 1 - GENERAL

This Supplement adds information necessary for operation of the airplane with the Emergency Locator Transmitter (ELT) AK-450 that is installed in accordance with the approved airplane manufacturer documentation.

Section 2 - LIMITATIONS

CAUTION

NEVER UNREASONABLY ACTIVATE ELT

Section 3 - EMERGENCY PROCEDURES

Before performing a forced landing, especially in remote and mountainous areas, the ELT should be activated manually by pressing the ON button on the remote unit. The red LED on the remote unit illuminates.

Immediately after a forced landing where emergency assistance is required, the ELT should be utilized as follows:

CAUTION

THE REMOTE UNIT COULD BE INOPERATIVE IF DAMAGED DURING FORCED LANDING. HOWEVER, TURNING THE ELT ON REQUIRES MANUAL SWITCHING TO ON POSITION OF THE MAIN SWITCH WHICH IS LOCATED ON THE ELT MAIN UNIT.

1. ENSURE ELT ACTIVATION
   - Press the ON button on the remote unit, even if the LED illuminates.
   - Ensure that the external ELT antenna has no damage. If the antenna has broken, continue according to item 3.
   - If the aircraft's radio is operable and can be safely used (no threat of fire or explosion), turn ON and select 121.5 MHz. If the ELT can be heard transmitting, it is working properly.

2. PRIOR TO SIGHTING RESCUE AIRCRAFT
   - Conserve airplane battery. Do not activate radio transceiver.
3. WHEN LEAVING THE SCENE OF THE ACCIDENT
   - Disconnect remote unit and external antenna.
   - Remove ELT main unit from the aircraft.
   - Attach an auxiliary antenna (stored on the ELT case) to the ELT and fully extend it.
     Keep the antenna vertically oriented as much as possible.
   - Place main switch to ON position. The ELT LED ON light should be illuminated.
   - When portable ELT is used in cold weather, unit should be kept as warm as possible by placing it inside your clothing with the antenna protruding.
4. AFTER SIGHTING RESCUE AIRCRAFT
   - Press RESET button on the remote unit or on the main unit to prevent radio interference. Attempt contact with rescue aircraft with the radio transceiver set to a frequency to 121.5 MHz. If no contact is established, press ON button on the remote unit or switch on main switch on the main unit immediately.
5. FOLLOWING RESCUE
   - Press the RESET button on the remote unit or main unit to terminate emergency transmission.

Section 4 - NORMAL PROCEDURES

PREFLIGHT CHECK

On the main ELT unit (in the baggage compartment)

1.	Main switch	**ARM**
2.	Red LED	check off

On the remote ELT unit (on the instrument panel)

3.	Red LED	check off

IN FLIGHT

NOTE

The ELT may be activated inadvertently by heavy turbulence. The ELT should then be reset by pressing RESET button on the remote unit. Ensure that the ELT does not transmit - red LED must not illuminate. If the RESET button on the remote unit does not cause the LED ON light to extinguish, the RESET button on the main unit should be pressed.

POSTFLIGHT CHECK

On the remote ELT unit (on the instrument panel)

1. Red LED — check off

On the main ELT unit (in the baggage compartment)

2. Red LED — check off
3. Main switch — **OFF**

Section 5 - PERFORMANCE - Not affected

Section 6 - WEIGHT AND BALANCE - Not affected

Section 7 - AIRPLANE AND SYSTEM DESCRIPTION

The emergency locator transmitter model AK-450 is installed in this aircraft. It is intended to be rigidly attached to the aircraft before the crash, but readily removable from the aircraft after a crash. The aircraft mounted antenna may be disconnected and an auxiliary antenna (stored on the ELT case) attached to the ELT. The ELT can be tethered to a survivor. The ELT is intended to aid SAR teams in locating the crash site or survivor(s).

The ELT is automatically activated upon sensing a change of velocity of 3.5 +/- 0.5 feet/second, along its longitudinal axis. When activated ELT is transmitting the standard swept tone on 121.5 and 243.0 MHz . The entire ELT system is self powered by its own internal batteries.

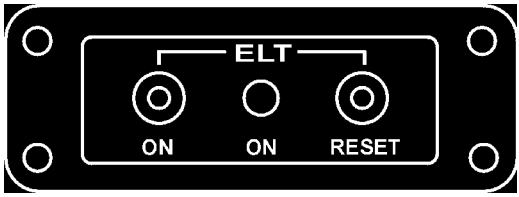


Figure1 - ELT remote unit

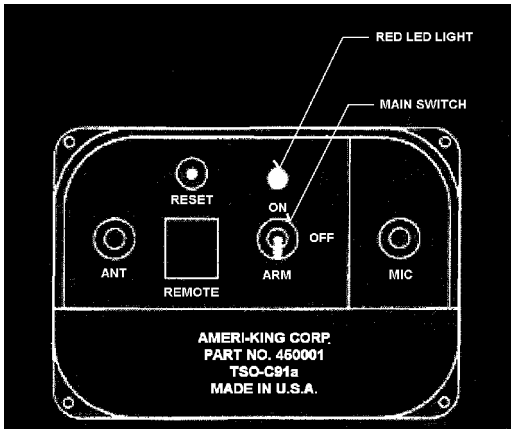


Figure2 - ELT main unit

NOTE

For detailed description see Installation and Operation Manual For Model AK-450, document No. IM-450, Rev. A dated 10/18/95 or later applicable version, which is delivered with the ELT.

Section 8 - AIRPLANE HANDLING, SERVICING AND MAINTENANCE

TESTING ELT FUNCTION

NOTE

The ELT function should be tested every 3 months.

The test consist of turning the unit “ON” and then resetting it to verify that the transmitter, latch circuit, batteries and associated equipment are operating properly. Regulations require that the transmitter test only be done during the first 5 minutes of each hour and must not last more then 3 audio sweeps (1.5 seconds). If you are at location where there is an control tower or other monitoring facility, notify the facility before beginning the tests. Never activate the ELT while airborne.

1. Monitor 121.5 MHz using the aircraft COM receiver or portable hand held receiver. Turn the squelch all the way down or OFF.

On the main unit

2. Main switch **ARM**

On the remote unit

3. ON button push

   Verify that both the LED ON lights, located on the main unit and the remote unit, are illuminated. Verify that the audio sweep tone can be heard on the COM receiver.

On the remote unit

4. RESET button push

   Verify that the both LED ON lights are extinguished and the audio sweep tone should stop.

PERIODIC MAINTENANCE

NOTE

The ELT inspection must be performed a minimum of one time each 12 months.

Inspection procedure is mentioned in the Installation and Operation Manual For Model AK-450, document No. IM-450, Rev. A dated 10/18/95 or later applicable version.

You can also obtain manual from http://www.ameri-king.com/pdf/9.1.22.pdf

BATTERY REPLACEMENT

NOTE

Battery replacement procedure is mentioned in the item 2.5 of the Installation and Operation Manual For Model AK-450, doc. No. IM-450, Rev. A dated 10/18/95 or later applicable version.

MAIN UNIT

The ELT main unit is designed to use only DURACELL MN1300 alkaline batteries which are dated by the manufacturer. The use of any other battery will void any warranties of the ELT producer and ELT does not meet the requirements of TSO-C91a.

Battery replacement is required upon reaching the date marked upon each cell. All cells must be replaced at the same time and the cells must have the same expiration date.

The expiration date of the batteries must be indicated on the outside of the ELT battery case and recorded in the aircraft log book. Adhesive labels are provided to record this information.

REMOTE UNIT

The ELT remote unit is designed to be powered by a single Duracell DL1/3NB 3 Volt Lithium battery. Under normal operating condition the **lithium battery** must be replaced every **eight years**. Alkaline type cells are available from various manufacturers and may be used in place of the lithium cell. Under normal operating conditions, the **alkaline battery** must be replaced every **four years**.

The expiration date of the battery must be indicated on the outside of the ELT battery case and recorded in the aircraft log book. Adhesive labels are provided to record this information.

NOTE

The all batteries (for main and remote unit) must be also replaced when the ELT has been in use for more than one cumulative hour or when ELT was activated for an unknown period of time (i.e. unintentional activation).

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SUPPLEMENT No. 19

STALL WARNING SYSTEM

ACI type T1b

Registration mark: **N102EV**

Serial number: **2008 1102**

This Supplement must be contained in the Aircraft Operating Instructions if Stall Warning System ACI type T1b is installed on the airplane in accordance with the approved airplane manufacturer documentation.

Information contained in this Supplement add or replace information from the basic Aircraft Operating Instructions in the further mentioned parts only.

Limitations, procedures and information not mentioned in this Supplement are contained in the basic Aircraft Operating Instructions.

RECORD OF REVISIONS

Rev. No.	Affected Pages	Description/Validity	Approved / Date	Incorpo-rated by / Date

Section 1 - GENERAL

This Supplement adds information necessary for airplane operation with stall warning system ACI type T1b that is installed according to the approved airplane manufacturer documentation.

Section 2 – LIMITATIONS

2. 17 Limitation placards

The following placard is added on the instrument panel:

Section 3 - EMERGENCY PROCEDURES

3.10.3 Stall warning system (SWS) audio signalization

When SWS audio alarm is heard:

1. Control stick — release or pull to increase airspeed, adjust engine power

SWS audio alarm must end.

Section 4 - NORMAL PROCEDURES

4.4 Pre-flight check

2. Left wing - check
   - stall speed vane condition and its free movement

12. Right wing - see 2. except the landing light (if installed), Pitot tube and stall speed vane
    - stall speed vane condition and its free movement

18. Cockpit check

- Perform stall warning system check:

MASTER SWITCH	ON
Stall speed vane (on the left wing)	lift
The audio alarm must sound when vane is lifted.	
Stall speed vane	release
MASTER SWITCH	OFF

NOTE

During ground manoeuvring in blustery wind conditions the SWS audio alarm may sound occasionally.

Section 5 - PERFORMANCE

5.2.2 Stall speeds

If airplane speed is approximately 8 kts (9 mph) and less above stall speed the audible alarm is heard.

Section 6 - WEIGHT AND BALANCE - Not affected

Section 7 - AIRPLANE AND SYSTEM DESCRIPTION

7.15 Miscellaneous equipment

7.15.1 Stall warning system

Stall warning system ACI type T1b is installed on this airplane to warn pilot that airspeed is decreasing near to stall.

Stall speed vane (sensor) is located on the left wing, audible alarm box is located in the cockpit (behind the instrument panel).

Fig.1- Stall speed vane on the left wing

Section 8 - AIRPLANE HANDLING, SERVICING AND MAINTENANCE

8.2 Airplane inspection period

Lubricating points

Annually apply a drop of engine oil to each end of the stall warning system vane shaft on the left wing.

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SUPPLEMENT No. 20

NIGHT VFR OPERATION

Registration mark: **N102EV**

Serial number: **2008 1102**

This Supplement must be contained in the Aircraft Operating Instructions if aircraft is approved for operation according to night visual flight rules (NVFR).

Information contained in this Supplement add or replace information from the basic Aircraft Operating Instructions in the further mentioned parts only.

Limitations, procedures and information not mentioned in this Supplement are contained in the basic Aircraft Operating Instructions.

RECORD OF REVISIONS

Rev. No.	Affected Pages	Description/Validity	Approved / Date	Incorpo-rated by / Date

Section 1 - GENERAL

This Supplement adds information necessary for airplane operation according to NVFR.

Section 2 – LIMITATIONS

2.12 Kinds of operation

The aircraft is approved for day / night VFR flights.

WARNING

NIGHT FLIGHTS ACCORDING TO VFR ARE APPROVED ONLY WHEN INSTRUMENTATION REQUIRED FOR SUCH FLIGHTS IS INSTALLED AND FLIGHT PERFORMED BY A PILOT WITH APPROPRIATE RATING! INTENTIONAL FLIGHTS UNDER ICING CONDITIONS ARE PROHIBITED.

Instruments and equipment for day / night flights according to VFR:
1 Airspeed indicator (the color marking according to par. 2.3. AOI)
1 Sensitive barometric altimeter
1 Magnetic compass
1 Engine speed indicator
1 Oil pressure indicator
1 Cylinder head temperature indicator
1 Oil temperature indicator
1 Fuel gauge indicator
1 Anticollision light system
1 Safety harness for every used seat
1 Emergency locator transmitter
1 Approved position lights
1 Landing light

CAUTION

ADDITIONAL EQUIPMENT NECESSARY FOR AIRCRAFT OPERATION IS GIVEN IN APPROPRIATE OPERATION REGULATION OF AIRCRAFT OPERATOR'S COUNTRY.

2. 17 Limitation placards

The following placard is located on the tilting canopy:

This Light Sport Aircraft has been approved only for day/night VFR flights under no icing conditions.

Aerobatics and intentional spins are prohibited!

AIRSPEED IAS	
Never exceed	146 kts
Manoeuvring	90 kts
Max. Flap Extended	70 kts
Stalling	37 kts

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

Unusable quantity of fuel	0.5 Usgal

Section 3 - EMERGENCY PROCEDURES
Not affected

Section 4 - NORMAL PROCEDURES
Not affected

Section 5 – PERFORMANCE – Not affected

Section 6 - WEIGHT AND BALANCE - Not affected

Section 7 - AIRPLANE AND SYSTEM DESCRIPTION – Not affected

Section 8 - AIRPLANE HANDLING, SERVICING AND MAINTENANCE – Not affected

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