EVEKTOR – AEROTECHNIK, a.s.
Letecká 1384
686 04 Kunovice
Czech Republic

Tel.: +420 572 537 111
Fax: +420 575 537 910
e–mail: marketing@evektor.cz
http://www.evektor.cz

FLIGHT MANUAL
FOR
SPORTSTAR
ULTRALIGHT AIRPLANE

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

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 Revisons table.

The new or changed text in the revised pages will be marked by means of black vertical line on the left 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	Approved	Date	Date of insertion	Signature

Rev. No.	Affected Section	Affected Pages	Date	Approved	Date	Date of insertion	Signature

0.2 List of Effective Pages

Section	Page	Date	Section	Page	Date
0	0–1	December 10, 2003		3–5	December 10, 2003
	0–2	December 10, 2003		3–6	December 10, 2003
	0–3	December 10, 2003		3–7	December 10, 2003
	0–4	December 10, 2003		3–8	December 10, 2003
	0–5	December 10, 2003		3–9	December 10, 2003
	0–6	December 10, 2003		3–10	December 10, 2003
1	1–1	December 10, 2003			
	1–2	December 10, 2003			
	1–3	December 10, 2003			
	1–4	December 10, 2003	4	4–1	December 10, 2003
	1–5	December 10, 2003		4–2	December 10, 2003
	1–6	December 10, 2003		4–3	December 10, 2003
	1–7	December 10, 2003		4–4	December 10, 2003
	1–8	December 10, 2003		4–5	December 10, 2003
				4–6	December 10, 2003
				4–7	December 10, 2003
				4–8	December 10, 2003
2	2–1	December 10, 2003		4–9	December 10, 2003
	2–2	December 10, 2003		4–10	December 10, 2003
	2–3	December 10, 2003		4–11	December 10, 2003
	2–4	December 10, 2003		4–12	December 10, 2003
	2–5	December 10, 2003		4–13	December 10, 2003
	2–6	December 10, 2003		4–14	December 10, 2003
	2–7	December 10, 2003			
	2–8	December 10, 2003			
	2–9	December 10, 2003			
	2–10	December 10, 2003	5	5–1	December 10, 2003
				5–2	December 10, 2003
				5–3	December 10, 2003
				5–4	December 10, 2003
3	3–1	December 10, 2003		5–5	December 10, 2003
	3–2	December 10, 2003		5–6	December 10, 2003
	3–3	December 10, 2003		5–7	December 10, 2003
	3–4	December 10, 2003		5–8	December 10, 2003

Section	Page	Date	Section	Page	Date
	5–9	December 10, 2003	8	8–5	December 10, 2003
	5–10	December 10, 2003		8–6	December 10, 2003
	5–11	December 10, 2003		8–7	December 10, 2003
	5–12	December 10, 2003		8–8	December 10, 2003
	5–13	December 10, 2003			
	5–14	December 10, 2003			
			9	9–1	December 10, 2003
6	6–1	December 10, 2003		9–2	December 10, 2003
	6–2	December 10, 2003			
	6–3	December 10, 2003			
	6–4	December 10, 2003			
	6–5	December 10, 2003			
	6–6	December 10, 2003			
	6–7	December 10, 2003			
	6–8	December 10, 2003			
7	7–1	December 10, 2003			
	7–2	December 10, 2003			
	7–3	December 10, 2003			
	7–4	December 10, 2003			
	7–5	December 10, 2003			
	7–6	December 10, 2003			
	7–7	December 10, 2003			
	7–8	December 10, 2003			
	7–9	December 10, 2003			
	7–10	December 10, 2003			
	7–11	December 10, 2003			
	7–12	December 10, 2003			
	7–13	December 10, 2003			
	7–14	December 10, 2003			
8	8–1	December 10, 2003			
	8–2	December 10, 2003			
	8–3	December 10, 2003			
	8–4	December 10, 2003			

0.3 Table of Contents

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CONTENTS

1. GENERAL

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1.1 Introduction

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

1.2 Certification basis

This type of airplane meets Standard Specification for Airworthiness of Light Sport Aircraft.

1.3 Warnings, cautions, notes

The following informations apply to warnings, cautions and notes used in the Flight manual:

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 airplane is an all–metal low–wing of semimonocoque structure with two side by side seats and three–wheel landing gear
For further description see chapt. 7 – Airplane and system description.

1.4.2 Powerplant

The standard powerplant consists of ROTAX 912 S engine and WOODCOMP KLASSIC 170/3/R propeller.
For further description see section 7 – Airplane and system description.
If installed other propeller type – see section 9 – Supplements.

1.4.3 Main technical data

Wing

Span	28.37	ft	8.646	m
Area	112.7	sq.ft	10.47	sq.m
MAC depth	4.1	ft	1.25	m
Wing loading	10.76	lbs/sq.ft	52.53	kg/sq.m
Aileron – area	2.62	sq.ft	0.25	sq.m
Flap – area	5.60	sq.ft	0.52	sq.m

Fuselage

length	19.62	ft	5.980	m
width	3.55	ft	1.082	m
height	7.66	ft	2.335	m
cockpit canopy max. width	3.87	ft	1.180	m

Horizontal tail unit

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

Vertical tail unit

Height	4.07	ft	1.24	m
VTU Area	10.76	sq.ft	1.00	sq.m
Rudder area	4.31	sq.ft	0.40	sq.m

Landing gear

Wheel track	6.12	ft	1.865	m
Wheel base	4.43	ft	1.350	m
Main and nose landing gear wheel diameter	14	in	350	mm

1.4.4 Three–view drawing

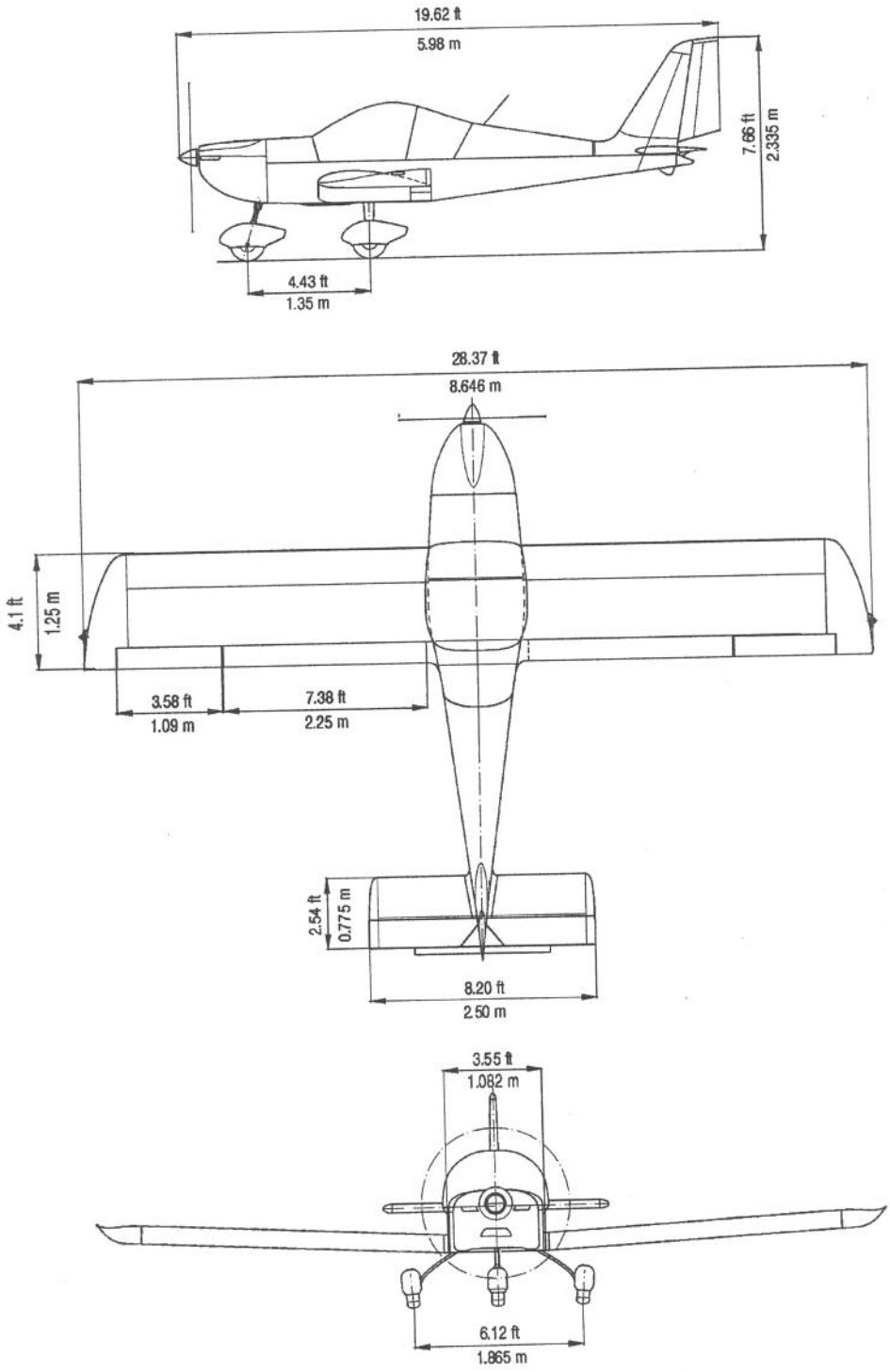

Figure 1-1

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 Flight manual.

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	indicatedair speed in knots
KCAS	calibrated airspeed in knots
mph	mile per hour
mph CAS	indicated 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	milimeter
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	manoeuvring 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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CONTENTS

2. LIMITATIONS

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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	103	118	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 colour–code significance are shown in the table below:

Marking	Range		Meaning
	KIAS	mph IAS	
Red line	37	43	V_{S0} at maximum weight (flaps in landing position 50°)
White arc	37 – 70	43 – 81	Operating range with extended flaps. Lower limit– V_{S0} at maximum weight (flaps 50°) Upper limit – V_{FE}

Marking	Range		Meaning
	KIAS	mph IAS	
Green arc	42 – 103	49 – 118	Normal operation range Lower limit – V_{S1} at maximum weight (flaps 0°) Upper limit – V_{NO}
Yellow arc	103 – 146	118 – 168	Manoeuvres 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 912 S		
Power:	maximum take–off	100 HP / 73.5 kW	
	maximum continuous	93.8 HP / 69.0 kW	
Engine speed:	maximum take–off	5800 RPM max. 5 minutes	
	maximum continuous	5500 RPM	
	idle	1400 RPM	
Cylinder head temperature:	maximum	135 °C	275 °F
Oil temperature:	maximum	130 °C	266 °F
	optimum operation	90 – 110 °C	190 – 230 °F
Oil pressure:	maximum	7 bar	102 PSI
	minimum	0.8 bar	12 PSI
	optimum operation	2 – 5 bar	29 – 73 PSI
Fuel pressure:	minimum	0.15 bar	2.2 PSI
Fuel grades:	see 2.13, page 2–8		
Oil grades:	see 2.14, page 2–8		
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	1700 mm	
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 colour–code of instruments is shown in the following table:

Instrument	Units	Red line	Green arc	Yellow arc	Red line
		Lower limit	Normal operation range	Caution range	Upper limit
RPM indicator	RPM	–	1400 ÷ 5500	5500 ÷ 5800	5800
Oil temperature indicator	°C	–	90 ÷ 110	50 ÷ 90 110 ÷ 130	130
	°F	–	190 ÷ 230	120 ÷ 190 230 ÷ 266	266
Oil pressure indicator	bar	0.8	2 ÷ 5	0.8 ÷ 2 5 ÷ 7	7
	PSI	12	29 ÷ 73	12 ÷ 29 73 ÷ 102	102
CHT indicator	°C	–	–	–	135
CHT indicator	°F	–	–	–	275

2.6 Miscellaneous instrument marking

There are not other instruments with colour marking.

2.7 Weight

Empty weight (standard equipment) ..... 695 lbs ± 2 % 315 kg ± 2 %

Maximum take–off weight ..... 1213 lbs 550 kg

Maximum landing weight ..... 1213 lbs 550 kg

Maximum weight in baggage compartment ..... 33 lbs 15 kg

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 manoeuvres

SPORTSTAR airplane is approved to perform the following manoeuvres:

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

WARNING

AEROBATICS AS WELL AS INTENTIONAL SPINS ARE PROHIBITED !

2.10 Manoeuvring 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 55 kg

Maximum weight of crew ..... acc. to point 6.3

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

Only daylight flights are allowed according to VFR.

WARNING

NIGHT FLIGHTS ACCORDING TO VFR, FLIGHTS ACCORDING TO IFR (BY INSTRUMENTS) AND INTENTIONAL FLIGHTS UNDER ICING CONDITIONS ARE PROHIBITED.

Instruments and equipment for daylight flights according to VFR :

1 Airspeed indicator (the colour 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	17.2 U.S. gallons	65 litres
Usable fuel	16.4 U.S. gallons	62.1 litres
Unusable fuel	0.8 U.S. gallons	2.9 litres

Approved fuel grades:

- EUROSUPER RON 95 non–leaded according to EN 228 or DIN 51607
- AVGAS 100 LL

NOTE

Avgas with its higher proportion of lead more clogs valve seats and creates more deposits in the combastion chamber. It should be used only in case when no automotive fuel is available.

2.14 Oil

Performance classification SF, SG according to API

Oil volume:

– minimum	0.53 U.S. gallons	2.0 litres
– maximum	0.79 U.S. gallons	3.0 litres

2.15 Maximum number of passengers

Maximum number of passengers including pilot . 2

2.16 Other limitations

- SMOKING IS PROHIBITED on the airplane board.

2.17 Limitation placards

The following placard is located on the instrument panel:

The following placard is located in the baggage compartment:

BAGGAGE MAX. 15 kg	or	BAGGAGE MAX. 33 lb

The following placards are located on the tilting canopy:

This airplane has been approved only for VFR day flights under no icing conditions.

Aerobatics and intentional spins are prohibited!

AIRSPEED IAS

Never exceed	146 KNOTS
Manoeuvring	86 KNOTS
Max. Flap Extended	70 KNOTS
Stalling	37 KNOTS

ENGINE SPEED

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

Unusable quantity of fuel 0.77 U.S. gallons (2.9 Litres)

LOAD LIMITS

Max. take-off weight	550 kg
Empty weight	315 kg
Max. baggage weight	15 kg

PERMITTED CREW WEIGHT [kg]

Fuelling	Fuel gauge	1	3/4	1/2	1/4
	Fuel quantity ltr.	65	44	33	15
Baggage weight	max. 15	173	188	196	209
	1/2 8	180	195	203	216
	no baggage	188	203	211	224

or

This airplane 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	99 MPH
Max. Flap Extended	81 MPH
Stalling	43 MPH

ENGINE SPEED

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

Unusable quantity of fuel 0.77 U.S. gallons (2.9 Litres)

LOAD LIMITS

Max.take-off weight	1213 lbs
Empty weight	695 lbs
Max.baggage weight	33 lbs

PERMITTED CREW WEIGHT [lbs]

Fuelling	Fuel gauge	1	3/4	1/2	1/4
	Fuel quantity US gals.	17,2	11,6	8,7	4,0
Baggage weight	max. 33 lbs	382	415	433	461
	1/2 17 lbs	398	431	449	477
	No baggage	415	448	466	494

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 Maintenance Manual.

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CONTENTS

3. EMERGENCY PROCEDURES

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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°) 48 KIAS (55 mph IAS)

Emergency landing
(engine stopped, flaps in landing position – 50°) 48 KIAS (55 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 VALVE** ..... **CLOSE**
4. Ignition ..... **OFF**
5. **MASTER SWITCH** ..... **OFF**

3.3.2 Engine failure at take–off

1. Gliding speed:
   Flaps in take–off position (15°) ..... 52 KIAS (60 mph IAS)
   Flaps retracted (0°) ..... 57 KIAS (66 mph IAS)
2. Altitude:
   – Land in take–off direction if below 150 ft:
   – Choose an area for landing if above 150 ft:
3. **THROTTLE** lever ..... idle
4. Flaps ..... as necessary
5. **FUEL VALVE** ..... **CLOSE**
6. Ignition ..... **OFF**
7. **MASTER SWITCH** ..... **OFF**
8. After touch down ..... brake according to need

3.3.3 Engine failure at flight

1. Gliding speed ..... 57 KIAS (66 mph IAS)
2. Altitude ..... take a decision and carry out:
   - Engine starting at flight – paragraph 3.4, page 3–4
   - Emergency landing – paragraph 3.8.1, page 3–7

3.4 Engine starting at flight

NOTE

It is possible to 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 propeller 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 VALVE** ..... **OPEN**
6. Choke ..... as necessary
7. **THROTTLE** lever ..... idle

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 propeler and engine starting occurs.
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 VALVE** ..... **CLOSE**
2. Brakes ..... brake
3. **THROTTLE** lever ..... full
4. **COCKPIT HEATING** knob ..... close
5. **AIR SUPPLY** knob (if installed) ..... close
6. Ignition ..... **OFF**
7. **MASTER SWITCH** ..... **OFF**
8. Airplane ..... leave
9. Manual extinguisher (if available) ..... use

3.5.2 Fire during take–off

1. **FUEL VALVE** ..... **CLOSE**
2. **THROTTLE** lever ..... full
3. **COCKPIT HEATING** knob ..... close
4. **AIR SUPPLY** knob (if installed) ..... close
5. Gliding speed ..... 52 KIAS (60 mph IAS)
6. Ignition ..... **OFF**
7. Land
8. **MASTER SWITCH** ..... **OFF** immediately after touch–down
9. Airplane ..... leave
10. Manual extinguisher (if available) ..... use

3.5.3 Fire at flight

1. **FUEL VALVE** ..... **CLOSE**
2. **THROTTLE** lever ..... full
3. **COCKPIT HEATING** knob ..... close
4. **AIR SUPPLY** knob (if installed) ..... close

5. Gliding speed ..... 57 KIAS (66 mph IAS)
6. Ignition ..... **OFF**
7. **MASTER SWITCH** ..... **OFF**

NOTE

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

If you manage to extinguish the engine fire, then it is possible to switch on the **MASTER SWITCH** again. You will switch off all the section switches and after switching on the **MASTER SWITCH** the electrical system is switched on which is necessary to complete the flight.

8. Emergency landing ..... carry out according to paragraph 3.8.1
9. Airplaine ..... leave
10. Manual extinguisher (if available) ..... use

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)	52 KIAS (60 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	48 KIAS (55 mph IAS)
6. Radiostation	notify situation to ATC – if possible
7. **FUEL VALVE**	**CLOSE**
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 ..... 48 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 ..... push down the pedal against the sense of rotation
4. Control stick ..... push froward and hold the power lever 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 Carburettor icing

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

Recommended procedure for engine power regeneration is as follows:

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

NOTE

Ice coating in the carburettor 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.

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CONTENTS

4. NORMAL PROCEDURES

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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 this Manual, 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°) ..... 55 KIAS (63 mph IAS)

Best rate–of–climb speed V_Y
(flaps in take–off pos. – 15°) ..... 55 KIAS (63 mph IAS)

Best rate–of–climb speed V_Y
(flaps retracted – 0°) ..... 62 KIAS (71 mph IAS)

Best angle–of–climb speed V_X
(flaps in take–off pos. – 15°) ..... 52 KIAS (60 mph IAS)

Best angle–of–climb speed V_X
(flaps retracted – 0°) ..... 56 KIAS (64 mph IAS)

4.2.2 Landing

Approaching speed for normal landing
(flaps in landing position – 50°) ..... 48 KIAS (55 mph IAS)

4.3 Assembly and disassembly

Description of assembly and disassembly is given in the SPORTSTAR. Maintenance Manual.

4.4 Pre–flight check

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

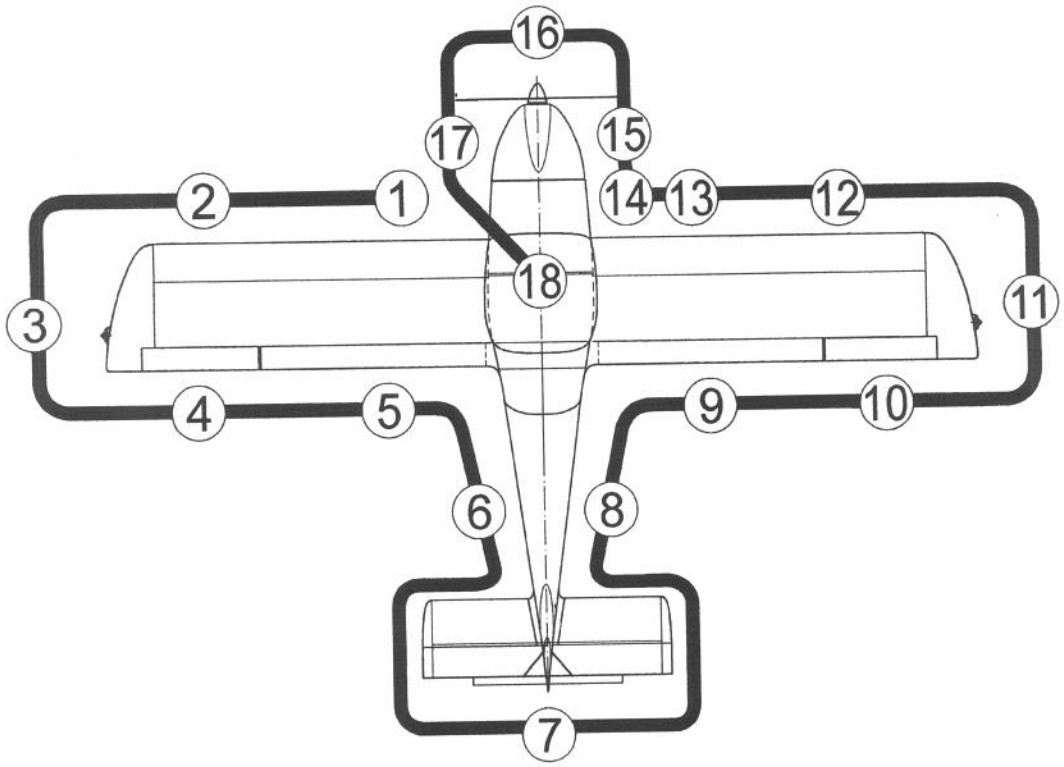

Figure 4-1 Scheme of airplane pre–flight check

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
3. Left wing tip – check
   - surface condition
   - attachment check
   - 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
   - closing of the fuel tank cap
   - draining of fuel tank (see chapter 8.5, page 8–6)
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 weel 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 – flattenings 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
    - receivers of condensate (only before the first flight of day) ..... check on absence of water
    - 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, page 7–4) – if installed adjustable rudder pedals

WARNING

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

- Flight Manual and other required documents ..... check on completness 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. Ignition ..... **OFF**
10. Canopy ..... close

4.5.2 Engine starting

1. **MASTER SWITCH**	**ON**
2. Fuel gauge indicator	check of fuel quantity
3. **FUEL VALVE**	**OPEN**
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. 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.

10. **THROTTLE** lever	as necessary (see NOTE)
11. Oil pressure	up to 10s min. pressure
12. Electric fuel pump (if installed)	**OFF**

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 stabilised over 2 bar (29 PSI).

Electric fuel pump operates during engine starting period only. It is not intended for long continuous operation for long time.

13. Engine instruments	check
14. Choke	as necessary

15. 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 50°C (122 °F).

16. Radiostation/avionics ..... **ON**
17. 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 VALVE** ..... check **OPEN**
9. **CARBURETTOR PREHEATER** (if installed) .. check function then **OFF**

NOTE

If **CARBURETTOR 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 smootly lighten up the nose landing gear until airplane take–off occurs.
3. Airpeed ..... 55 KIAS (63 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 ..... 62 KIAS (71 mph IAS)
3. Engine instruments ..... check
4. Trim ..... as necessary

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
5. **CARBURETTOR PREHEATER** (if installed) .. as necessary

4.5.9 Descent

1. **THROTTLE** lever ..... as necessary
2. Trim ..... as necessary
3. Engine instruments ..... check
4. **CARBURETTOR 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
2. Engine instruments ..... check
3. Brakes ..... check by depressing pedals
4. Safety harnesses ..... tighten up
5. Free area of landing ..... check
6. **CARBURETTOR PREHEATER** (if installed) .. **ON**
7. Approaching speed ..... 59 KIAS (68 mph IAS)
8. Flaps ..... take–off pos. (15°)
9. Trim ..... as necessary

FINAL

1. Flaps	landing pos. (50°)
2. Maintain airspeed	48 KIAS (55 mph IAS)
3. Trim	as necessary
4. **CARBURETTOR PREHEATER** (if installed)	**OFF**

4.5.11 Balked landing

1. **THROTTLE** lever	max. take–off power
2. Flaps	take–off pos. (15°)
3. Airspeed	55 KIAS (63 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	62 KIAS (71 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**

4.5.14 Engine shut–off

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

4.5.15 Airplane parking

1. Ignition	check **OFF**
2. **MASTER SWITCH**	check **OFF**
3. **FUEL VALVE**	**CLOSE**
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.

CONTENTS

5. PERFORMANCE

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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 airplane and ROTAX 912 S engine in good condition and using average piloting techniques.

CAUTION

THE PERFORMANCE STATED IN THIS SECTION IS VALID FOR ROTAX 912 S (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 1213 lbs (550 kg) .

KIAS	kts CAS		
	flaps 0°	15°	50°
37			39
40		42	41
43	45	44	44
45	47	46	45
48	49	49	48
50	51	50	49
53	53	53	52
55	55	54	54
58	58	57	57
61	60	60	60
64	63	63	63
67	66	66	66
70	68	68	69
75	73		
80	77		
85	81		
90	86		
95	90		
100	95		
105	99		
110	104		
115	109		
120	113		
125	118		
130	122		
135	127		
140	132		
146	137		

mph IAS	mph CAS		
	flaps 0°	15°	50°
43			45
46		48	47
50	52	51	50
55	57	56	55
59	60	59	59
65	65	64	64
70	69	69	69
76	74	74	74
80	78	77	77
85	82		
90	87		
95	91		
100	96		
105	100		
110	105		
115	109		
120	114		
125	118		
130	123		
135	127		
140	132		
145	137		
150	141		
155	146		
160	151		
168	158		

5.2.2 Stall speeds

Conditions:
- wing level stall – engine at idle power
- turning flight stall – engine at 75% max. continuous power
- airplane weight: 1213 lbs (550 kg)

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.

	Flaps position	Stall speed		Altitude loss
		KIAS	KCAS	ft
Wing level flight	Retracted (0°)	42	44	200
	Take–off (15°)	40	42	
	Landing (50°)	37	39	
Turn flight (coordinated turn, 30° bank)	Retracted (0°)	46	48	200
	Take–off (15°)	43	45	
	Landing (50°)	40	41	

	Flaps position	Stall speed		Altitude loss
		mph IAS	mph CAS	ft
Wing level flight	Retracted (0°)	49	51	200
	Take–off (15°)	46	48	
	Landing (50°)	43	45	
Turn flight (coordinated turn, 30° bank)	Retracted (0°)	53	55	200
	Take–off (15°)	50	52	
	Landing (50°)	46	47	

5.2.3 Take–off distance

Conditions:
- engine: max. take–off power
- flaps: Take–off (15°)
- carburetter preheating: OFF
- airplane weight: 1213 lbs (550 kg)
- Altitude: 0 ft ISA
- ambient air temperature: ISA

Dray concrete	570 ft (174 m)	1310 ft (399 m)
Grass	660 ft (200 m)	1395 ft (425 m)

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 ruway inclination up the slope

5.2.4 Landing distance

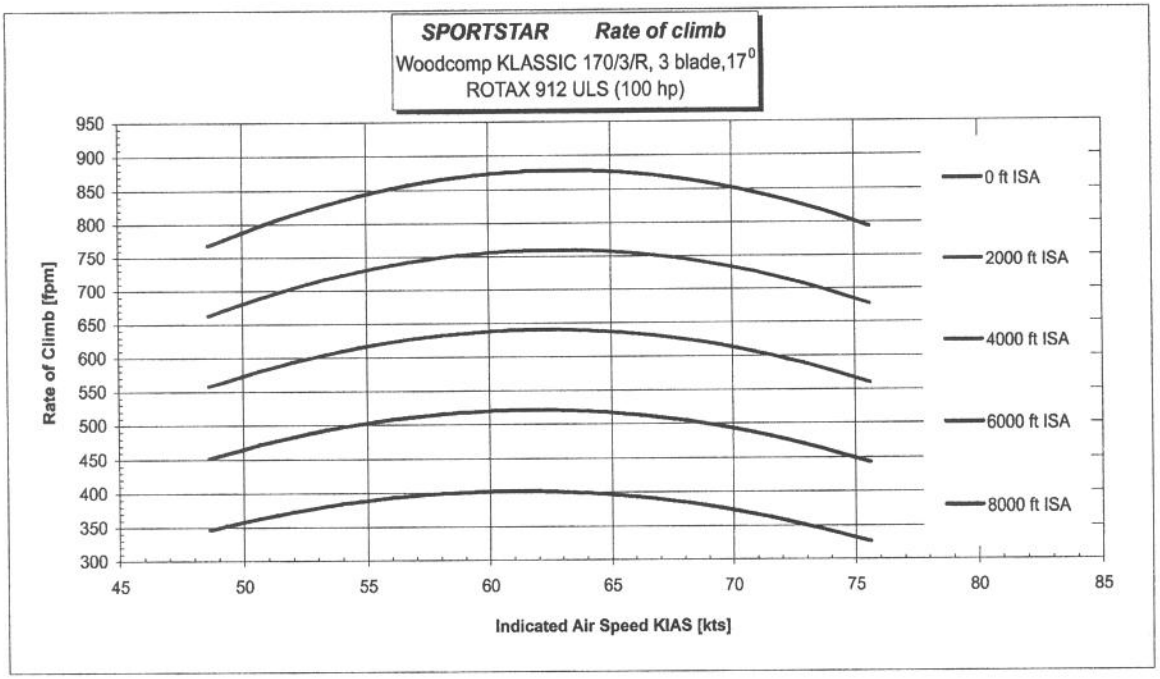
Conditions:
- engine: idle
- flaps: Landing 50°
- carburetter preheating: OFF
- airplane weight: 1213 lbs (550 kg)
- Altitude: 0 ft ISA
- ambient air temperature: ISA

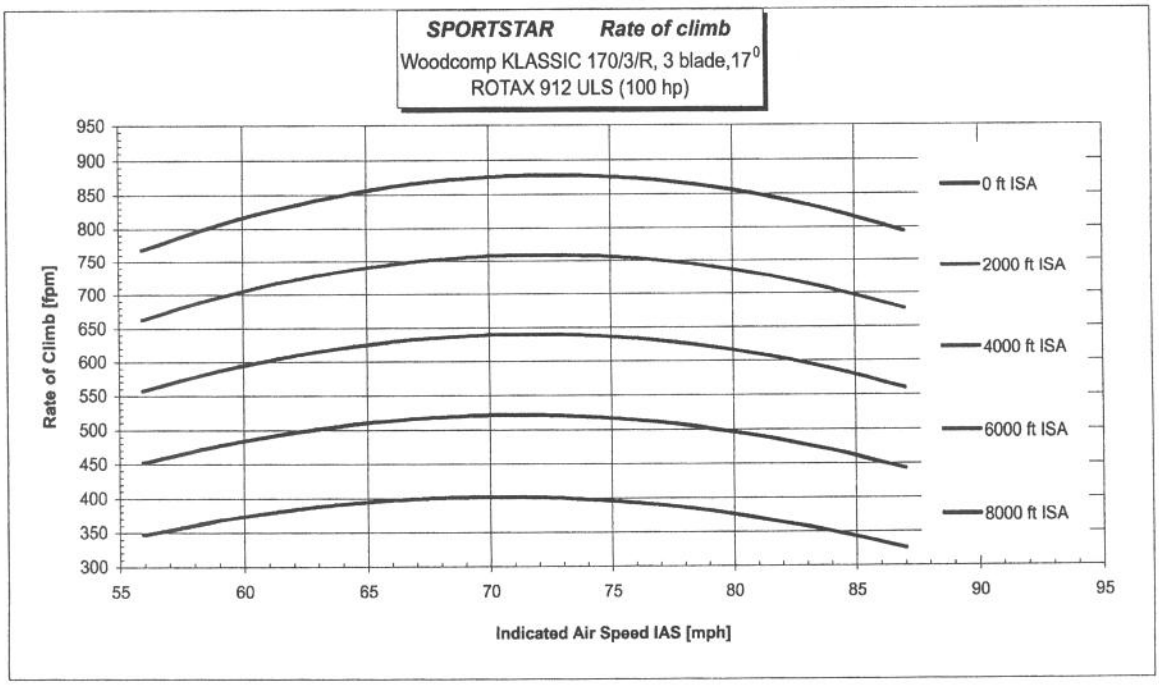
Dray concrete	1185 ft (360 m)	545 ft (165 m)
Grass	1125 ft (343 m)	485 ft (148 m)

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 ruway inclination down the slope

5.2.5 Climb performance

Conditions:
- engine: maximun take–off power
- flaps: retracted (0°)
- carburetter preheating: OFF
- airplane weight: 1213 lbs (550 kg)
- ambient air temperature: ISA

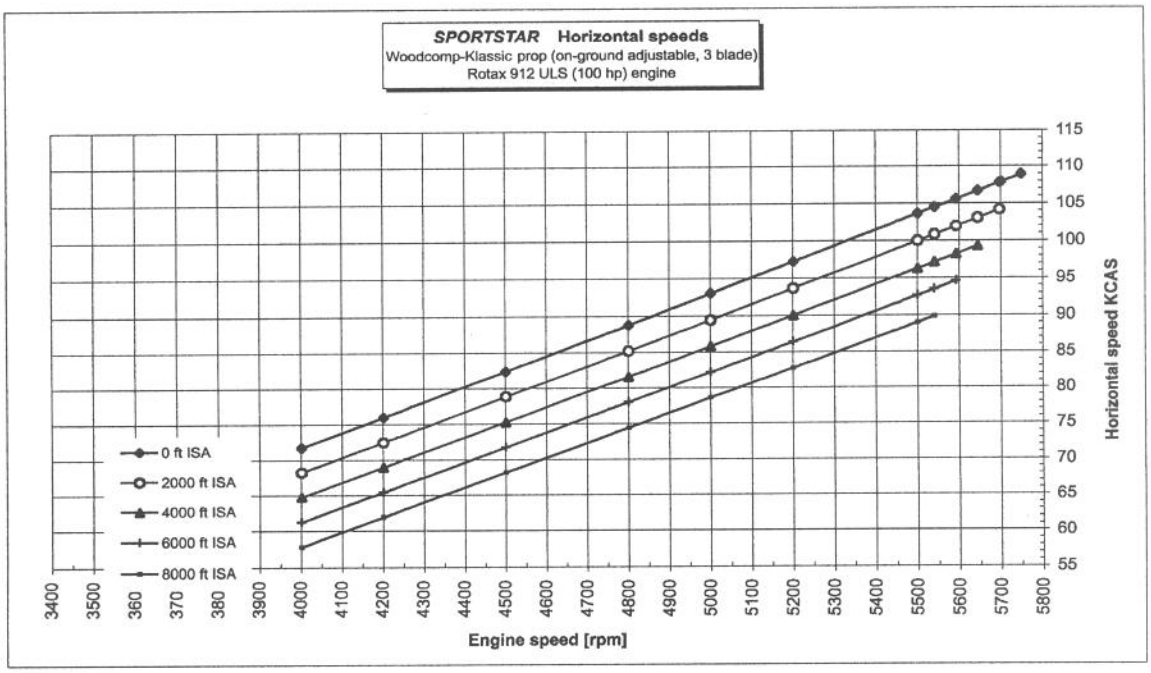


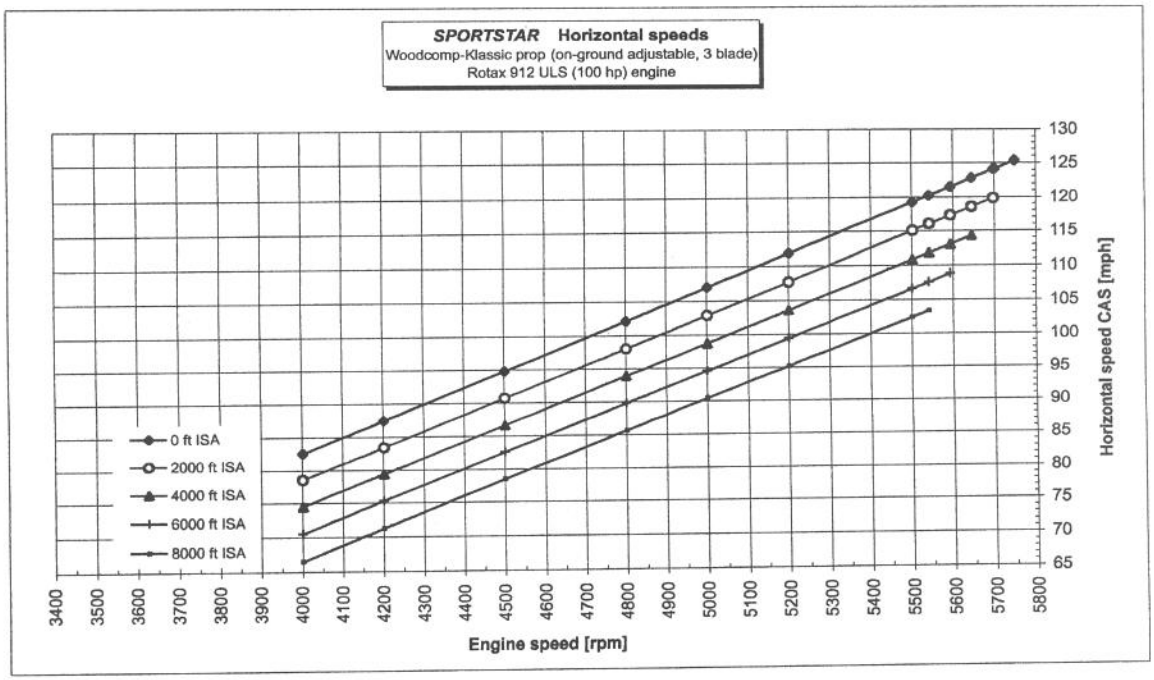


5.3 Additional information

5.3.1 Cruise

Conditions:
- flaps: retracted (0°)
- carburetter preheating: OFF
- airplane weight: 1213 lbs (550 kg)
- ambient air temperature: ISA





5.3.2 Horizontal speeds

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

			Cruising Regime				Maximum Continuous Power	Maximum Takeoff Power
Engine speed RPM			**4500**	**4800**	**5000**	**5200**	**5500**	**5700**
Altitude [ft ISA]	**0**	KIAS	86	94	99	104	111	116
		KTAS	*82*	*89*	*93*	*97*	*104*	*108*
	2000	KIAS	82	90	94	99	107	
		KTAS	*81*	*88*	*92*	*96*	*103*	
	4000	KIAS	78	85	90	95	102	
		KTAS	*80*	*87*	*91*	*96*	*102*	
	6000	KIAS	74	81	86	91	98	
		KTAS	*78*	*85*	*90*	*94*	*101*	
	8000	KIAS	70	77	82	87	94	
		KTAS	*77*	*84*	*89*	*93*	*100*	

			Cruising Regime				Maximum Continuous Power	Maximum Takeoff Power
Engine speed RPM			**4500**	**4800**	**5000**	**5200**	**5500**	**5700**
Altitude [ft ISA]	**0**	IAS [mph]	99	108	113	119	128	133
		TAS [mph]	95	102	107	112	119	124
	2000	IAS [mph]	95	103	109	114	123	
		TAS [mph]	93	101	106	111	119	
	4000	IAS [mph]	90	98	104	109	118	
		TAS [mph]	92	100	105	110	118	
	6000	IAS [mph]	85	94	99	105	113	
		TAS [mph]	90	98	103	109	117	
	8000	IAS [mph]	80	89	94	100	108	
		TAS [mph]	89	97	102	107	116	

5.3.3 Endurance

Conditions:
- flaps: retracted (0°)
- carburetter preheating: OFF
- airplane weight: 1213 lbs (550 kg)
- ambient air temperature: ISA

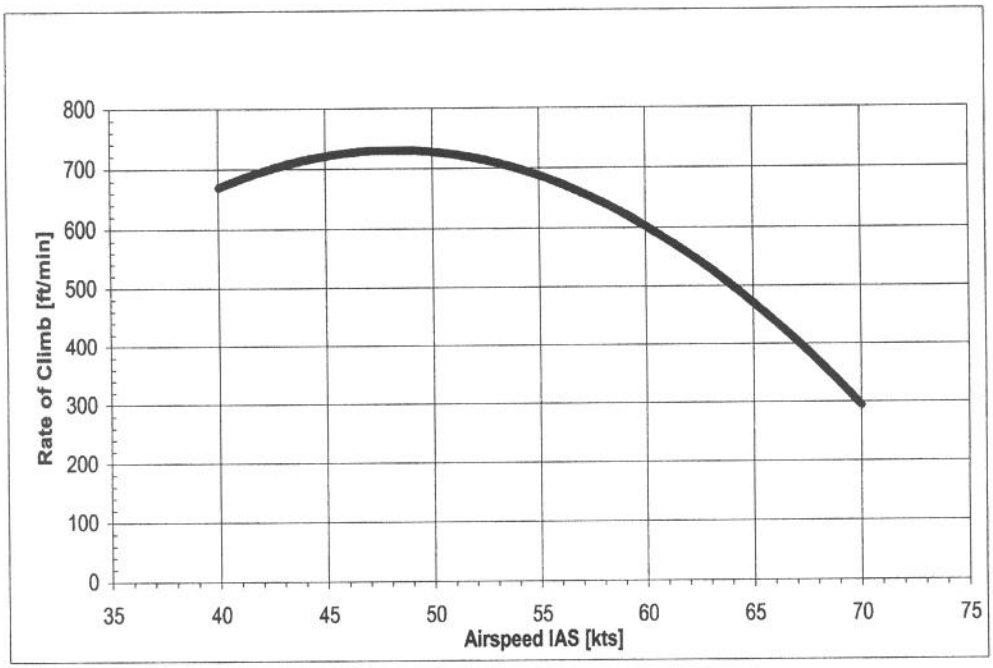
Usable Fuel Volume = 62 litres *16,4 USgals* *13,6 UKgals*

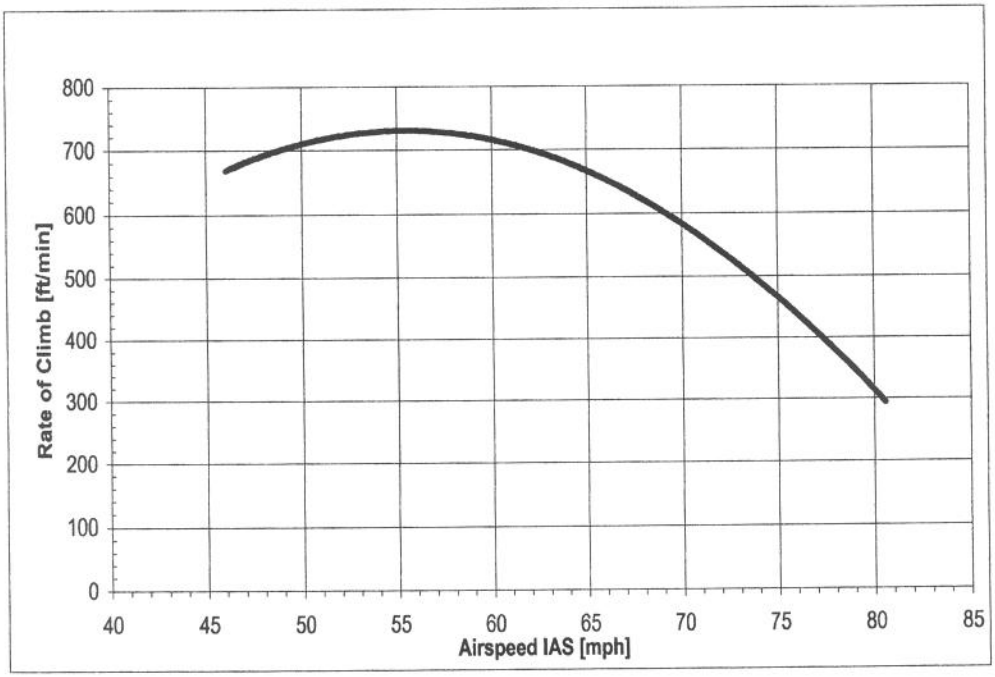
Altitude 2000 ft ISA

Engine speed	[rpm]	4200	4500	4800	5000	5200	5500	5700
Fuel consumption	[l/hr]	16,0	18,1	20,2	21,6	23,0	25,1	26,5
	[USgal/h]	4,2	4,8	5,3	5,7	6,1	6,6	7,0
	[UKgal/h]	3,5	4,0	4,4	4,7	5,1	5,5	5,8
IAS	[km/hr]	139	152	166	175	184	198	206
	[knots]	75	82	90	94	99	107	111
	[mph]	86	95	103	109	114	123	128
CAS	[km/hr]	134	146	158	166	173	185	193
	[knots]	73	79	85	89	94	100	104
	[mph]	83	91	98	103	108	115	120
TAS	[km/hr]	138	150	162	171	179	191	199
	[knots]	75	81	88	92	96	103	107
	[mph]	86	93	101	106	111	119	123
Total Endurance	[hour]	3,9	3,4	3,1	2,9	2,7	2,5	2,3
Total Range	[km]	540	520	500	490	480	470	470
	[NM]	292	281	270	265	259	254	254
	[miles]	336	323	311	304	298	292	292

5.3.4 Balked landing climb

Conditions:
- engine: maximum take–off power
- carburetter preheating: OFF
- flaps: landing position (50°)
- airplane weight: 1213 lbs (550 kg)
- 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)

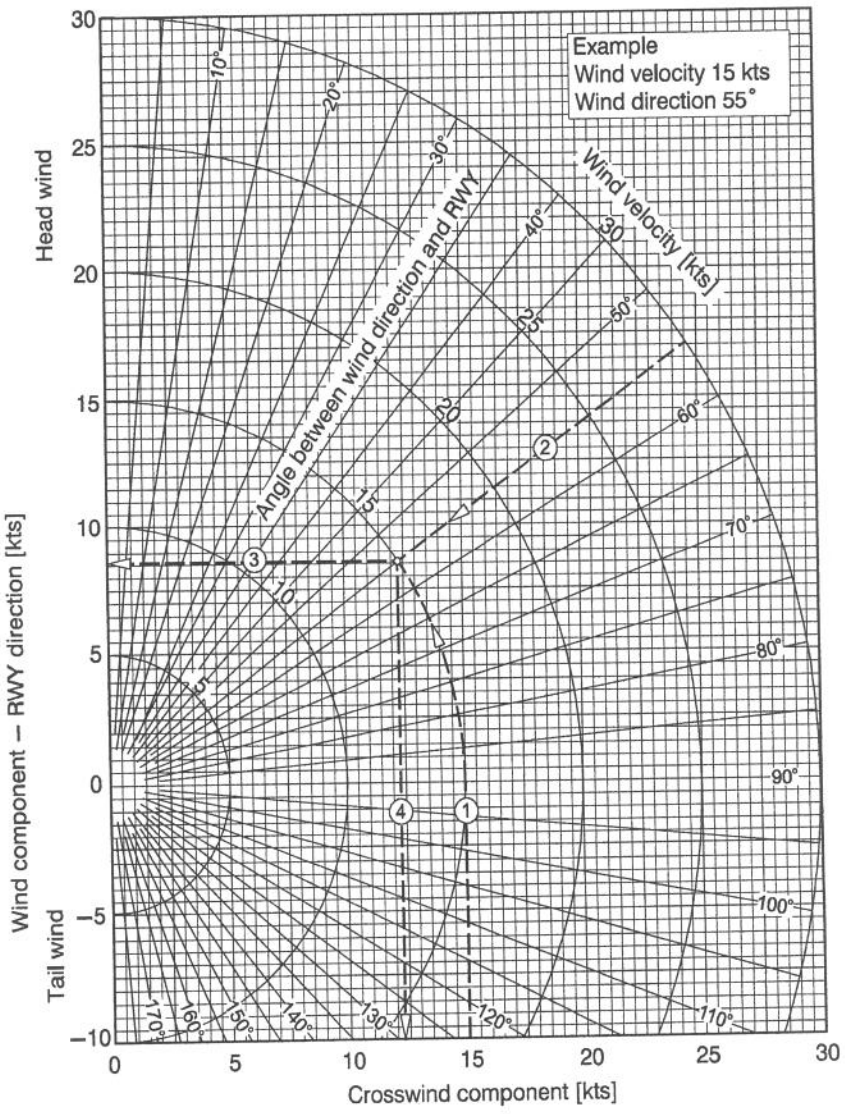


Figure 5-1 Influence of wind on take–off and landing

5.3.7 Ceiling

Service ceiling of SPORTSTAR ..... 12 000 ft

5.3.8 Noise data

Not measured.

CONTENTS

6. WEIGHT AND BALANCE

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6.1 Introduction

This section includes airplane weighing procedure a determination of its centre of gravity position, further then determination of allowed loading range at which SPORTSTAR airplane can be safely operated.

Proceduresfor weighing the airplane and the calculation method for establishing the permitted payload range are contained in the Maintenance manual for the SPORTSTAR airplane.

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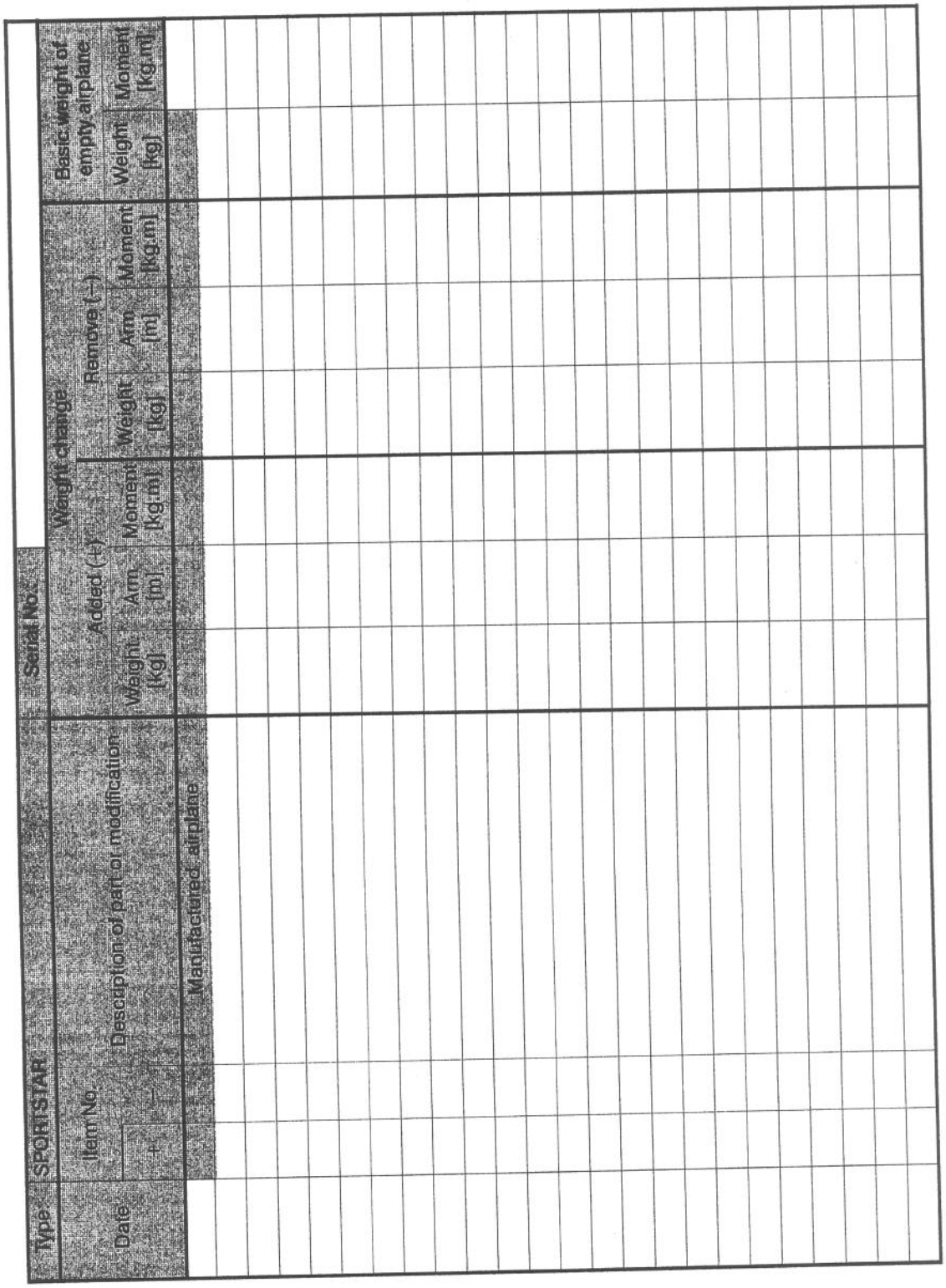
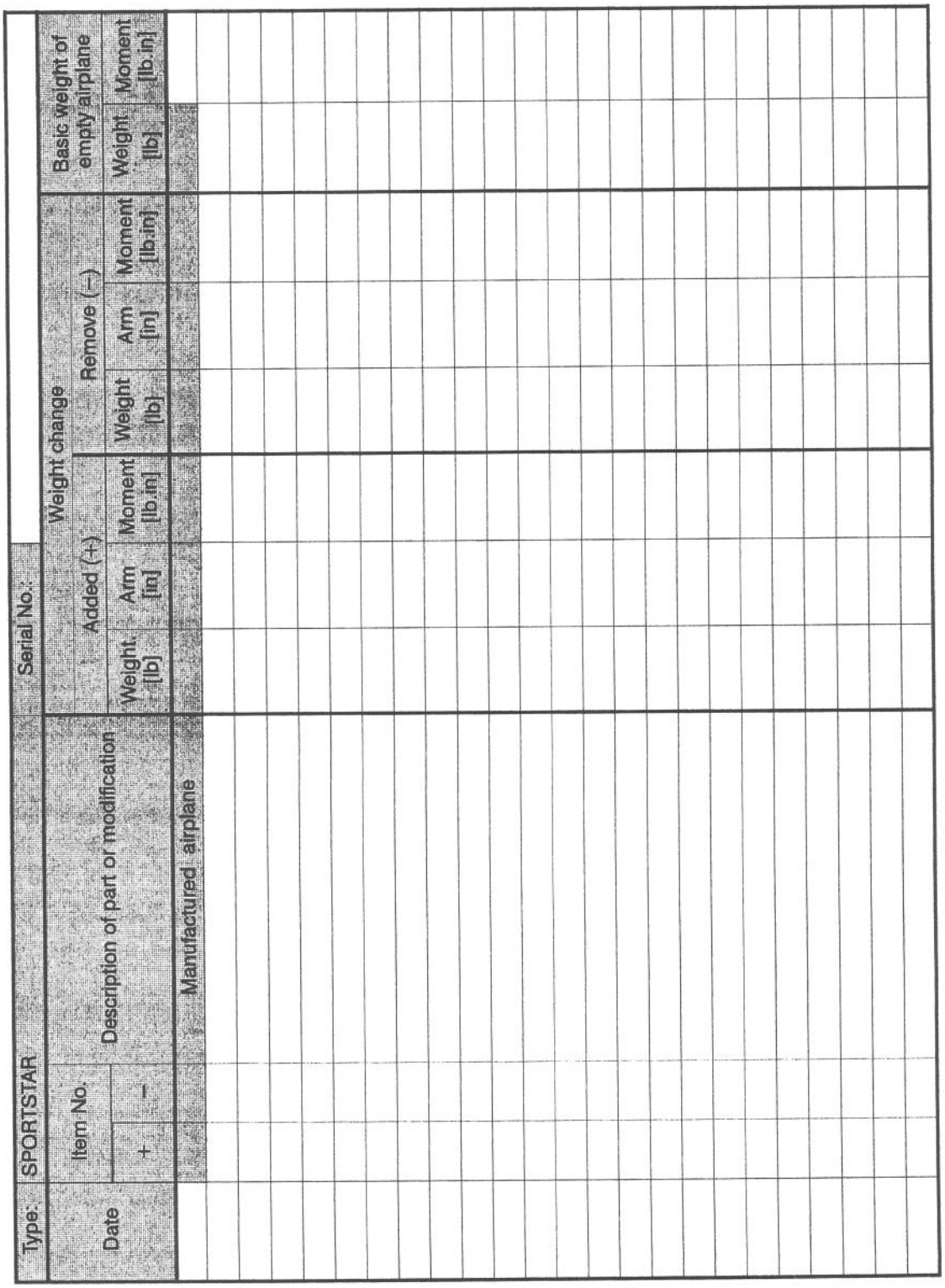
6.2 Weight and balance record

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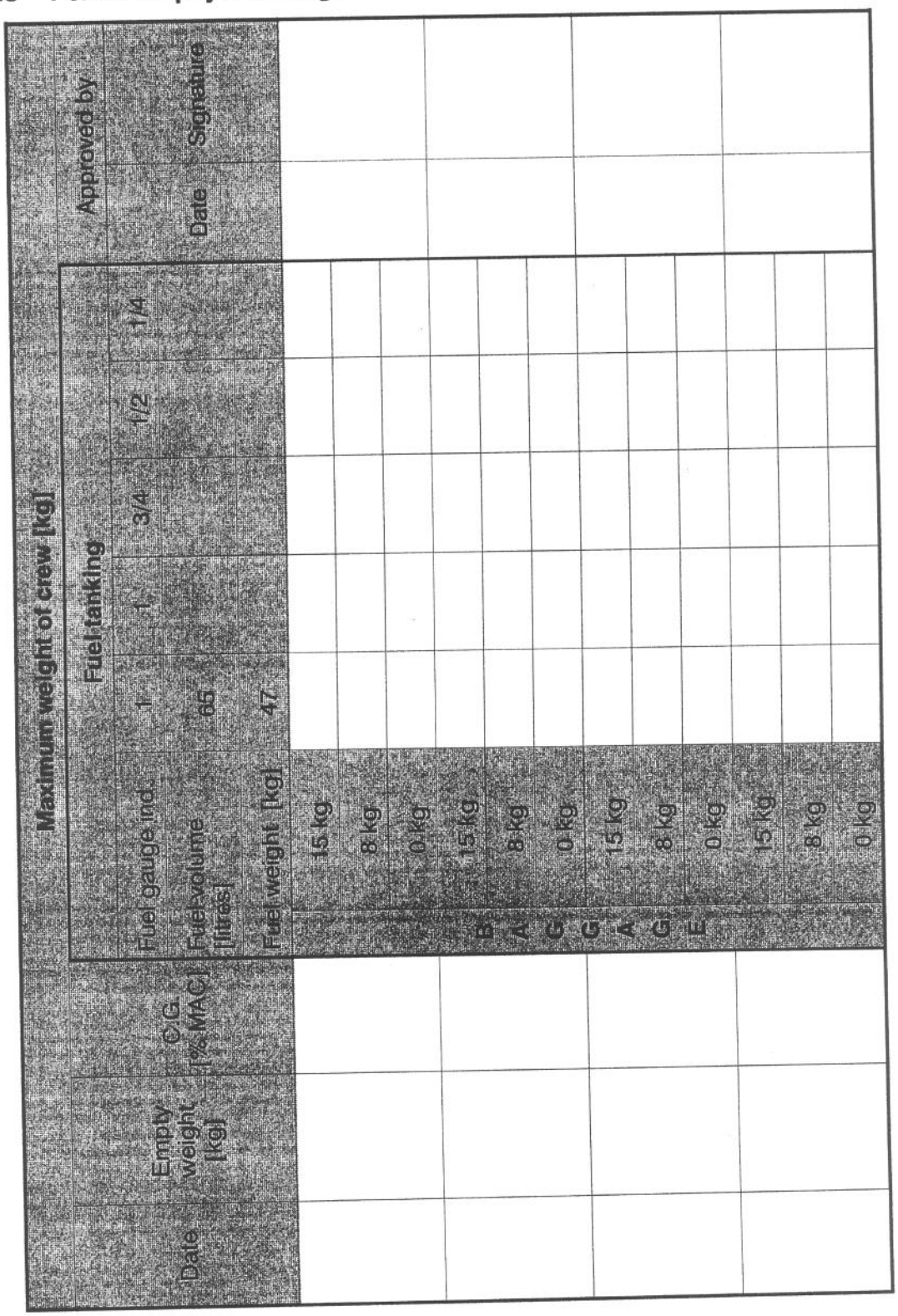
SPORTSTAR
Serial No.:
Date
Item No.
+
−
Description of part or modification
Weight change
Added (+)
Weight [lb]
Arm [in]
Moment [lb.in]
Remove (−)
Weight [lb]
Arm [in]
Moment [lb.in]
Basic weight of empty airplane
Weight [lb]
Moment [lb.in]
Manufactured airplane

6.3 Permitted payload range



Maximum weight of crew [lbs]											
Date	Empty weight [lbs]	C.G. [% MAC]	Fuel tanking							Approved by	
			Fuel gauge ind.		1	1	3/4	1/2	1/4	Date	Signature
			Fuel volume [U.S. gallons]		17.2	13.2	10.6	7.9	4.2		
			Fuel weight [lbs]		103	79	63	48	25		
			BAGGAGE	33 lbs	382	406	421	438	460		
				17 lbs	398	422	437	454	476		
				0 lbs	415	439	454	471	493		
				33 lbs							
				17 lbs							
				0 lbs							
				33 lbs							
				17 lbs							
				0 lbs							
				33 lbs							
				17 lbs							
				0 lbs							

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 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 eliptic 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 eds.

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 coupled 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

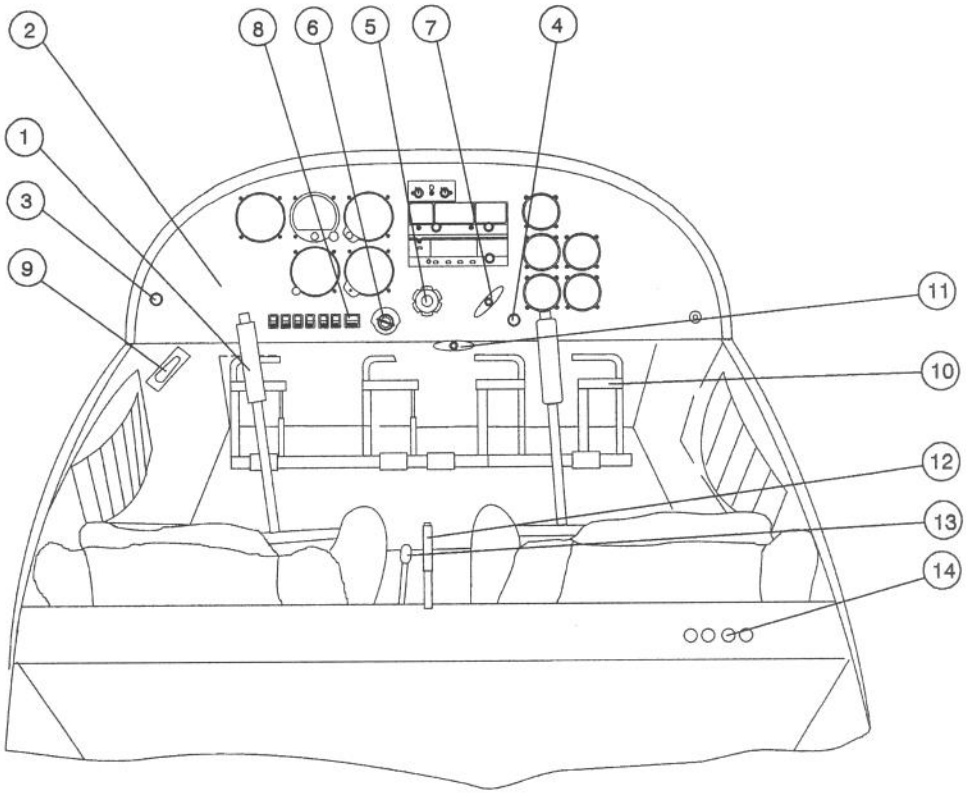
WARNING

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 controled by the lever located in between the pilot seats. The control lever is interconnected with the trim tab by means of cables and pulleys.

7.4 Controls in cockpit



1 Control stick
2 Instrument panel
3 Heating knob
4 Carburetter pre–heating knob (if installed)
5 Throttle lever
6 Ignition
7 Choke
8 Master switch
9 Fuel cock
10 Rudder control pedals
11 Emergency parachute system lever (if installed)
12 Flap control lever
13 Trim control lever
14 Headset sockets

Figure 7-1 Cockpit control elements

7.5 Instrument panel

See section 9 – supplements.

7.6 Inside and outside marking and placards

See Maintenance Manual.

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 wheeel is controllable, wheel control is coupled with rudder control by means of two pull rods. Wheels can be fitted with fiber–glass aerodynamic covers.

7.7.2 Brakes

The SPORTSTAR 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 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 33 lbs (15 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 cocpit 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 S. is used to power SPORTSTAR airplane as a standard. ROTAX 912 S is a four–cylinder, four–stroke engine with opposite cylinders, central cam shaft and OHV valve mechanism with maximum power of 100 hp (73.5 kW) at 5800 RPM.

The on–groun adjustable, composite, 3–blade propeller WOODCOMP KLASSIC 170/3/R. is standardly mounted on the engine ROTAX 912 S Other propeller type can be installed on customer's request – see section 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 carburetters.

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 intruments

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.. Colour code is stated in section 2, page 2–5.

Cylinder head thermometer

The cylinder head thermometer transmitter senses temperature of cylinder No. 3. Working range of the cylinder head thermometer is 50 ÷ 150 °C (120 ÷ 300°F). Colour code is stated in section 2, page 2–5.

Oil thermometer

Oil temperature on engine input is measured by the sensor located behind the oil pump. Working range of oil thermometer is 50 ÷ 150 °C. (120 ÷ 300°F). Colour code is stated in section 2, page 2–5.

Oil pressure gauge

Oil pressure on the oil input into engine is measured by means of sensor which is located behing the oil filter. Working range is 0 – 10 bar. (0 ÷ 150 PSI). Colour code is stated in section 2, page 2–5.

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.

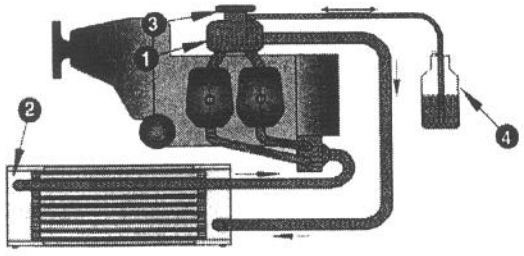


Figure 7-2 Scheme of cylinder head cooling system

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 recervoir 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.

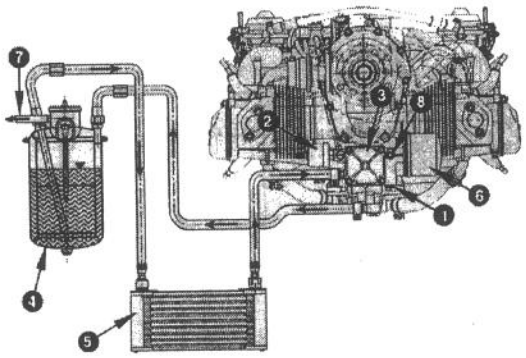


Figure 7-3 Scheme of engine lubrication system

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 carburettor 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 airplane is composed of fuel tank, fuel line, fuel cock, 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 gauge and fuel tank draining valve.

7.12.1 Fuel tank

Fuel is contained in airplane in the fuel tank having volume of 17.2 U.S. gallons (65litres) which is located behind crew seats. The tank is fitted with air venting and draining valve. Fuel is led by hoses from the tank towards the fire wall through the fuel cock located in the cockpit on the left airframe panel.

7.12.2 Fuel cock

The fuel cock serves for fuel delivery interruption in case of engine fire or long parking of airplane. It is controlled by the **FUEL VALVE** selector on the left fuselage side. In order to open the fuel cock, it is necessary to turn the selector to **OPEN** position. In order to close the fuel cock, it is necessary to turn the selector to **CLOSE** position.

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 the float fuel gauge transmitter and is indicated by the indicator on the instrument panel.

7.12.5 Fuel tank draining

Draining of the fuel tank is specified in chapter 8.5 in page 8–6.

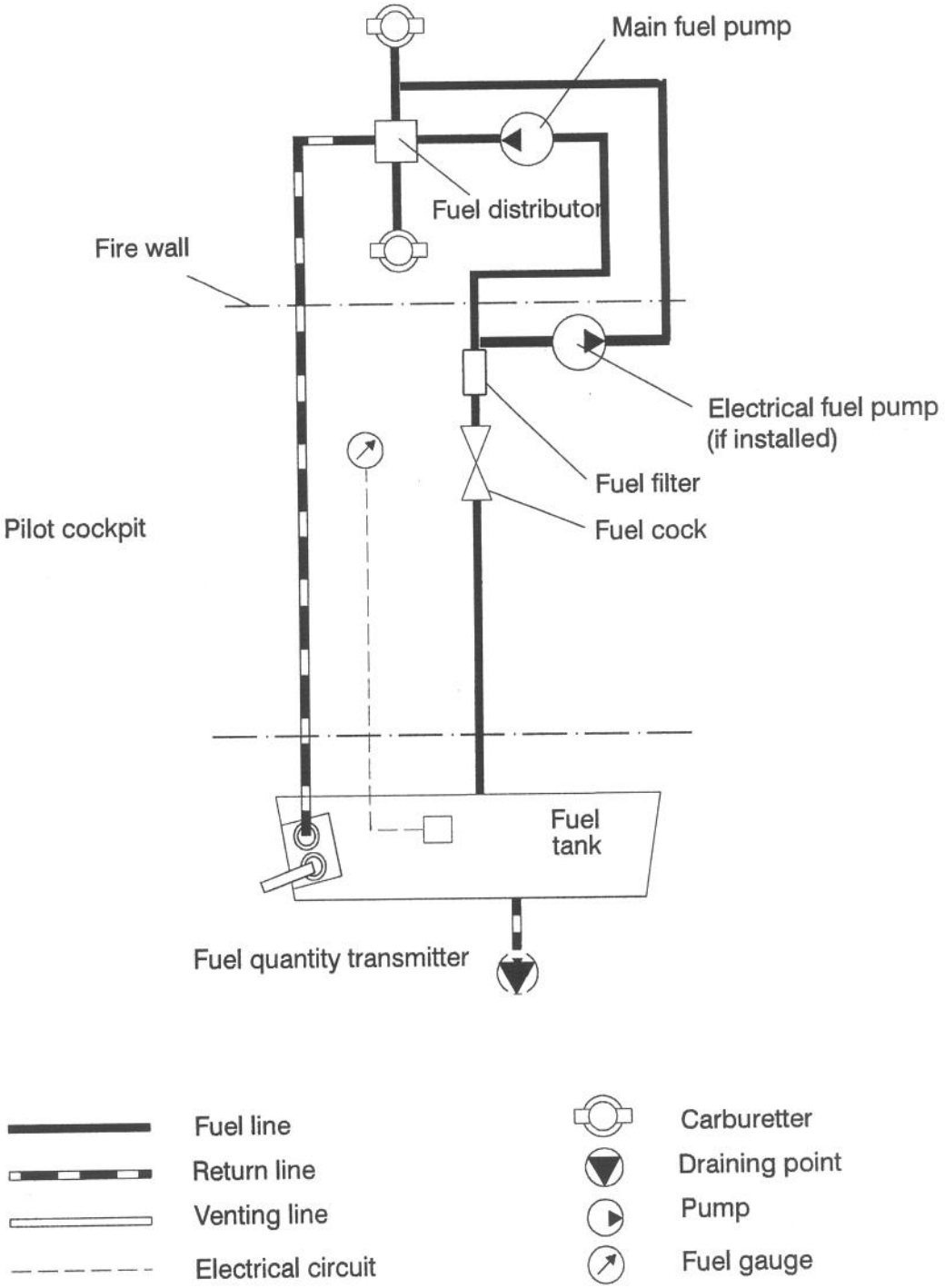


Figure 7-4 Scheme of fuel system

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 fuse or circuit breakers. If overloading of any of the circuits occurs, then the fuse is broken or circuit breaker is pulled out. The fuses or circuit beakers are listed in the Maintenance Manual.

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 Lightning

Airplane can be equipeed 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 Maintenance Manual.

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.

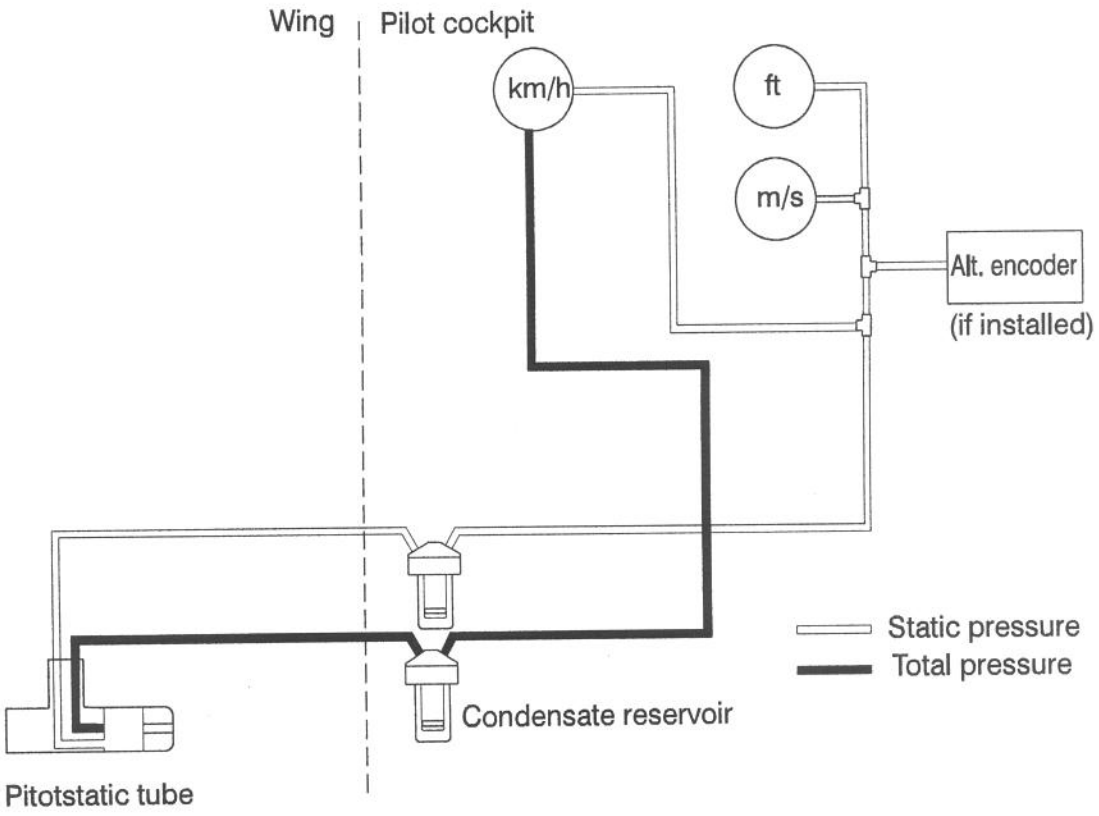


Figure 7-5 Scheme of pitot–static system

7.15 Supplementary equipment

7.15.1 Ventilation and heating system

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

Cocpit heating is ensured by hot air from the heat exchanger. The heat exchanger is located on the exchaust 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 **COCKPIT HEATING** 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.

CONTENTS

8. AIRPLANE HANDLING, SERVICING AND MAINTENANCE

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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 periodocity of preventive maintenance depending on climatic and flight conditions according to the Maintenance manual of SPORTSTAR.

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 Manual and on the production plate behind the rest of pilot seats.

The manufacturer delivers along with airplane SPORTSTAR the" Flight manual" and the " Maintenance Manual".

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 hours of operation
- after every 50 hours of operation
- after every 100+ 5 hours of operation
- annual inspection

Details on periodical inspections are provided in the Maintenance Manual of SPORTSTAR.

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.

Before implementation of airplane repairs contact the Civil aviation authority of the country in which the airplane is registrated, which evaluates influence of modification on flight airworthiness.

Basic repairs of airplane are described in the Maintenance Manual of SPORTSTAR.

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, enventually 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 OF 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 cock closing, 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 airpplane 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 Levelling

Levelling procedure is described in the Maintenance manual for SPORTSTAR airplane.

8.4.6 Road transport

The airplane can be transported on communication after its laoding 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

Carry out draining after every fuel tank filling.

The drain point of the fuel tank is located on the lower side of fuselage right in direction of flight behing pilot seats.

Procedure:

1. Extend fully wing flaps
2. Put the vesel under the drain valve outlet
3. Open the drain valve
4. Drain the required quantity of fuel

NOTE

Draining serves to elmination of impurities and depo–sits from fuel. Drain untill clean fuel flows from the drain valve.

5. Close the drain valve and retract the wing flaps

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

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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

Instal.	Date	Doc. No.	Title of inserted supplement
	6/2003	S2003FM02ENS01	Transceiver KY97A
	6/2003	S2003FM02ENS02	Intercom PM 1000
	6/2003	S2003FM02ENS03	Transponder KT76A
	12/2003	S2003FM02ENS04	Airplane description of S/N
	11/2003	S2003FM02ENS05	GPS/COMM receiver KLX 135
	11/2003	S2003FM02ENS06	Flight clock LC–2
	12/2003	S2003FM02ENS07	Transceiver FILSER ATR 600
	3/2004	S2003FM02ENS08	GPS/NAV/COMM receiver GARMIN GNS 430/430A
	3/2004	S2003FM02ENS09	Transponder ATC GARMIN GTX 327
	3/2004	S2003FM02ENS10	Intercom PCD7100–I (PS ENGINEERING INCORPORATED)
	3/2004	S2003FM02ENS11	Rocket activated parachute rescue system Magnum Speed Soft 650
	3/2004	S2003FM02ENS12	Horizon RCA 26
	5/2004	S2003FM02ENS13	Float operation CZAW 1150
	6/2004	S2003FM02ENS14	Horizon LUN 1202

9.3 Supplements inserted

FLIGHT MANUAL SUPPLEMENT

INTERCOM

PM 1000

Registation number:

Serial number: **2004 0301**

This Supplement must be contained in Flight Manul if intercom PM 1000 is installed on the airplane in accordance with the approved documentation of airplane manufacturer.

Information contained in this Supplement add or replace information of basic Flight Manual in the further mentioned parts only. Limitations, procedures and information non mentioned in this Supplement are contained in basic Flight Manual.

RECORD OF REVISIONS

Rev. No.	Affected Pages	Description/validity	Approved/Date	Incorporated by/ Date

INTERCOM PM 1000

SECTION 1 – GENERAL

This Supplement adds information necessary for airplane operation with intercom PM 1000 that is installed according to the approved airplane manufacturer documentation.

SECTION 2 – LIMITATIONS – NOT AFFECTED

SECTION 3 – EMERGENCY PROCEDURES

FAILURE OF INTERCOM ELECTRICAL FEEDING

If electric current feeding of intercom is interrupted, then the installed relay interconnects pilot head set directly with the VHF radiostation.

SECTION 4 – NORMAL PROCEDURES

SWITCHING–ON

1. Left inner knob ..... SWITCH ON by clockwise turning. and set volume
2. Left outer knob ..... by turning set the level of intercomswitching

Volume level and squelch for co–pilot can be set by right outer and inner knob.

ISO MODE

1. Mode switch ..... **ISO**

Pilot is disconnected from communication with the co–pilot and can hear just received signal from the radiostation.

ALL MODE

1. Mode switch ..... **ALL**

Pilot and co–pilot can communicate with each other and both can hear the received signal from the radiostation.

SECTION 5 – PERFORMANCE – NOT AFFECTED

SECTION 6 – WEIGHT AND BALANCE – NOT AFFECTED

SECTION 7 – AIRPLANE AND SYSTEM DESCRIPTION

PM 1000 is a voice–activated intercom that enables to interconnect up to four headsets. It is equipped with setting volume and level of switching the intercom individually for pilot headsets and for co–pilot. For transmitting via VHF radiostation it is necessary to press down and hold the button on the control sticks.

PM 1000 works in two modes:

ISO – pilot is disconected from voice communication with the other crew member and is connected with VHF radiostation only.

ALL– both crew members are connected to radiostation receiving and can communicate with each other.

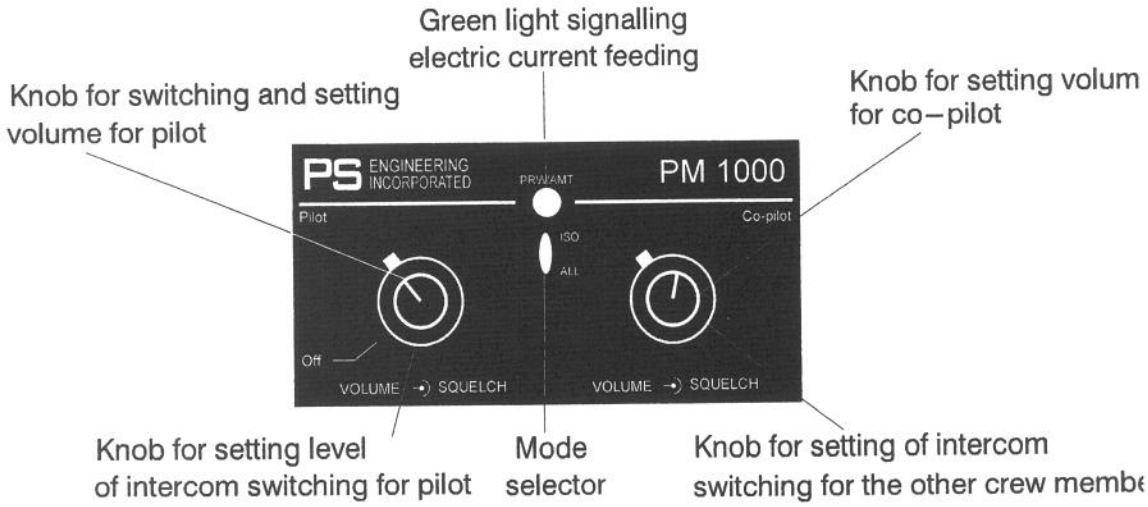

Figure 1 Intercom PM 1000

SECTION 8 – AIRPLANE HANDLING, SERVICING AND MAINTENANCE NOT AFFECTED

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FLIGHT MANUAL SUPPLEMENT

TRANSCEIVER

BENDIX/KING KY 97 A

Registration mark:

Serial number: **2004 0301**

This Supplement must be contained in the Flight Manual if communication system BENDIX/KING KY 97 A 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 Flight Manual in the further mentioned parts only. Limitations, procedures and information not mentioned in this Supplement are contained in the basic Flight Manual.

RECORD OF REVISIONS

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

COMMUNICATION SYSTEM BENDIX / KING KY–97 A

SECTION 1 – GENERAL

This Supplement adds information necessary for airplane operation with navigation and communication system *BENDIX/KING KY 97 A* installed on the airplane SPORTSTAR.

SECTION 2 – LIMITATIONS

During engine starting the navigation and communication system KY 97 A must be switched off.

SECTION 3 – EMERGENCY PROCEDURES NOT AFFECTED

SECTION 4 – NORMAL PROCEDURES

OPERATION OF COMMUNICATION RADIOSTATION (COMM)

POWER UP

1. **ON/OFF/VOLUME** knob ..... turn clockwise to the ON position

   The transceiver will display the last used frequencies in the USE and STBY windows.

   To override the automatic squelch, pull the ON/OFF/VOLUME knob out and rotate it for desired listening level on the noise being produced by the transceiver. Push the knob back in to activate the automatic squelch.

FREQUENCY MODE

1. **PULL 25K f**requency selection knobs ..... SET the required frequency (in the standby window STBY)
2. Transfer button ..... PRESS

   Frequency is transferred from the standby to the active window.

3. Button on the control stick
   - at transmitting ..... PRESS
   - at receiving ..... RELEASE

   "TX" lights up at receiving next to the active frequency.

   If transmitting takes longer than 35 s, transmitting mode is changed automatically to receiving and the active COMM frequency starts flashing.

PROGRAM MODE

The program mode is used to set memory locations for use in the channel mode.

1. CHAN button ..... PRESS and HOLD longer than 2 sec.

   PG annunciator appears in the display. The last used active frequency will remain tuned in the USE window and the last used channel will flash.

2. Turn eighter frequency selection knob changes the channel number.

   After selecting the desired channel number:

3. Transfer button ..... PRESS

   The channel number will fash.

4. **PULL 25K** frequency selection knobs ..... SET the required frequency

To exit the Program mode, momentairly press the CHAN button. The unit will also automatically exit the Program mode if approximately 20 seconds elapse with no programming.

CHANNEL MODE

The channel mode is used to recall preset channel stored in memory.

In frequency mode:

1. **CHAN** button ..... PRESS

   The last active frequency remains displayed in the USE window. The last used channel number is displaed in the channel window.

2. **PULL 25K** frequency selection knobs ..... TURN to change the channel number and the channel's corresponidng frequency in the STBY window

If there is no activity for 5 seconds the unit will return to the frequency mode with the channel frequency remaining in the STBY window.

If you press the transfer button, while the unit is in the channel mode, the channel frequency will become the USE frequency and the last USE frequency will become the STBY frequency.

COMM DIRECT TUNING MODE

1. Transfer button ..... PRESS and HOLD longer than 2 sec.
2. **PULL 25K** frequency selection knobs ..... SET the required frequency
3. Directly set the required frequency in the active window, the STBY window is not indicated.
4. Transfer button ..... PRESS

   The unit returns to the frequency mode.

DEFAULT MODE

1. Transfer button ..... PRESS and simultaneously switch on the unit

   In this way it is possible to set frequency of 120.00 MHz automatically at random in case of frequency indication failure on the display.

2. **PULL 25K** frequency selection button ..... SET the required frequency

   By turning the **outer knob** of frequency selection clockwise (CW), frequency of 120.00 MHz is increased by **1 MHz**, by turning it counter– clockwise (CCW), this frequency is decreased by 1 MHz, by every turning the **inner knob** of frequency selection CW, the frequency is increased by **50 kHz**, by turing CCW, the frequency is decreased by 50 kHz, **by pulling the inner knob** of frequency selection and by turning it CW, the frequency is increased by **25 kHz**, by turning it CCW, the frequency is decreased by 25 kHz

SETTING VOLUMEOF LISTENING–IN

1. **PULL IDENT** knob ..... PULL, set volume by turning

SECTION 5 – PERFORMANCE – NOT AFFECTED

SECTION 6 – WEIGHT AND BALANCE – NOT AFFECTED

SECTION 7 – AIRPLANE AND SYSTEM DESCRIPTION

Communication transceiver BENDIX/KING KY 97 A contains 760–channel communication VHF radiostation. Communication ratransceiver (COMM) works in frequency range of 118.000 up to 136.975 MHz with 25 kHz interval.

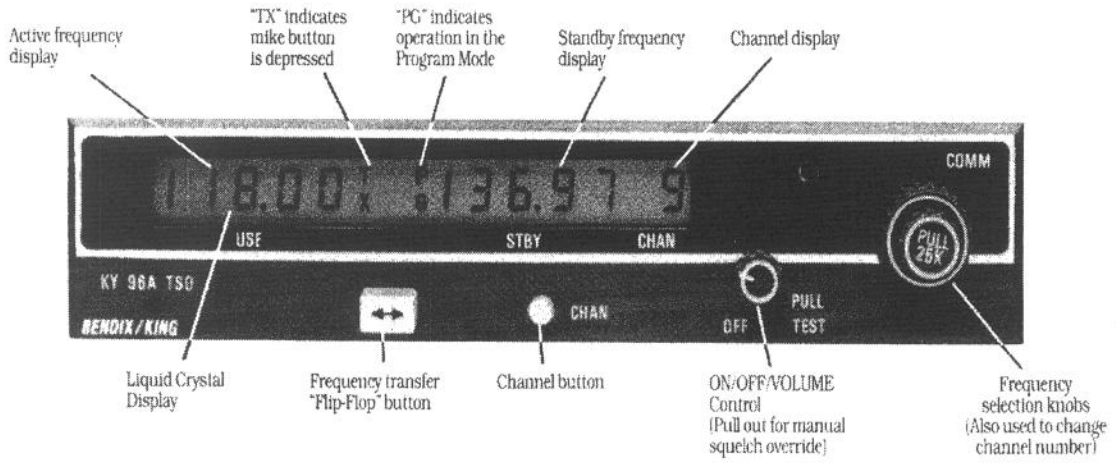

Figure 1 Front panel KY 97A

Communication transceiver has four operation modes: frequency mode, direct tuning mode, program mode and default mode. In the frequency mode it is possible to tune the standby frequency and to replace it by the active one. In the mode of direct tuning it is possible to set the active frequency directly. The program mode enables to store or recall frequnecy in/from the memory. The default mode enables to set frequency at random in case of a display failure.

Commucation radiostation is equipped with automatic squelch that is active in pressed down position of the controller **OFF/PULL TEST**. When the controller is pulled, the automatic squelch is supressed.

Frequency is set by two concentric knobs on the right side of the unit. By turning the bigger knob, the frequency is set left from decimal point (MHz), by turning the smaller knob, the frequency is set right from decimal point (kHz). If the smaller knob is pressed, the frequency is change by 50 kHz step, if pulled, the frequency is changed by 25 KHz step. By turning knobs clockwise, the frequency is increased, by turning counter–clockwise the frequency is decreased.

By pressing the transfer button for 2 sec., the frequency indication display goes over to the so called direct tuning mode. Only the active frequency is indicated which can be directly tuned by both of the concentric knobs. Display will return to the active mode/stand-by frequency mode by pressing the transfer button again.

SECTION 8 – AIRPLANE HANDLING, SERVICING AND MAINTENANCE NOT AFFECTED

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FLIGHT MANUAL SUPPLEMENT

ATC TRANSPONDER

BENDIX/KING KT 76A

Registration mark:

Serial number: **2004 0301**

This Supplement must be contained in the Flight Manual if transponer BENDIX/KING KT 76 A 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 Flight Manual in the further mentioned parts only. Limitations, procedures and information not mentioned in this Supplement are contained in the basic Flight Manual.

RECORD OF REVISIONS

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

ATC TRANSPONDER KT 76A

SECTION 1 – GENERAL

This Supplement adds information necessary for operation of the airplane with the ATC transponder BENDIX/KING KT 76A that is installed in accordance with the approved airplane manufacturer documentation.

SECTION 2 – LIMITATIONS

The transponder must be swithed off during engine starting.

SECTION 3 – EMERGENCY PROCEDURES

Meaning of emergency codes: **7500** – subject of illegal action
7600 – radiocommunication off
7700 – state of emergency
0000 – DO NOT USE, it is dsigned for military purposes

SECTION 4 – STANDARD PROCEDURES

SWITCHING ON THE TRANSPONDER

Before engine starting make sure that the transponder is switched off (OFF position). Switch the transponder on after its starting up.

1. Knobs of code selection ..... SET the required code

   After engine starting set the mode selector to SBY position.

2. Mode selector ..... **SBY**

   Wait 45–50 second until the tansporder is able to transmit. The transporder is in waiting mode now, it is ready for transmitting.

3. Mode selector ..... **ON** or **ALT**

   After take–off switch to ON position (the transponder will transmit in A mode) or to ALT position (the transmitter will transmit in A and also C mode, i.e. it will transmit airplane altitude, too)

RESETTING THE CODE

1. Mode selector ..... **SBY**
2. Knobs for code selection ..... SET the required code
3. Mode selector ..... **ON** or **ALT**

The required code is loaded in permanent memory (it does not require battery feeding) and will be transmitted automatically until it is resetted.

CAUTION

CODES MUST BE SET ACCORDING TO VALID REGULATIONS FOR AIRPLANE OPERATION OR ACCORDING TO ATC. INSTRUCTIONS (STANDARD STRANSPONDER SETTING CODE FOR FLIGHTS IN CONTROLLED AREA IS 2000 (UNLESS ATC SETS ANOTHER ONE), FOR FLIGHTS IN NON–CONTROLLED AREA IS STANDARD TRANSPONDER SETTING CODE 7000).

TRANSPONDER MUST NOT BE SWITCHED ON TO "ON" OR "ALT" MODE WITH SET EMERGENCY CODE 7500, 7600, 7700.

TRANSPONDER CODER CODES STANDARD ALTITUDE (29.92 in·Hg OR 1013.2 hPa).

If ATC requires for switching off transmitting altitude:

1. Mode selector ..... **ON**

Responder is liable for all valid requests in A mode. Information on altitude in C mode are supressed. .

If ATC requires for IDENT transmitting:

1. **IDENT** button ..... PRESS DOWN

The transponder will transmit code in A mode and special idnetificatin signal enabling ATC better to identify the airplane in a heavy traffic. During this time the transponder light above IDENT button will light. .

TESTING TRANSPONDER FUNCTION

1. Mode selector ..... HOLD IN POSITION **TST**

Transponder light will light up permanently at a proper feeding.

SECTION 5 – PERFORMANCE – NOT AFFECTED

SECTION 6 – WEIGHT AND BALANCE – NOT AFFECTED

SECTION 7 – AIRPLANE AND SYSTEM DESCRIPTION

Transponder KT 76A is a part of radiolocation ATC system installed on the airplane board. It enables air traffic controller to identify the airplane on the radar screen. In connection with the altitude encoder the transponder can transmit flight level of the airplane.

If interrogated by a ground radar in A mode, the transponder will respond by transmitting the encoded four–digit identification number allocated by the air traffic controller. This code is I entered by pilot into the responder and on the basis of it the air traffic controller can identify every airplane quipped with the transponder according to the set code. Code information is displayed on the ground radar screen in an appropriate area and azimuth.

Responder can send information on flight level altitude with step of 100 ft within the range from 1000 to 35 000 ft.

By turning the mode selector (Fig. 1) the individual modes of the transponder OFF, SBY, TST, ON and ALT can be selected. Special identification code transmitting for ATC. needs is activated by **IDENT** button.

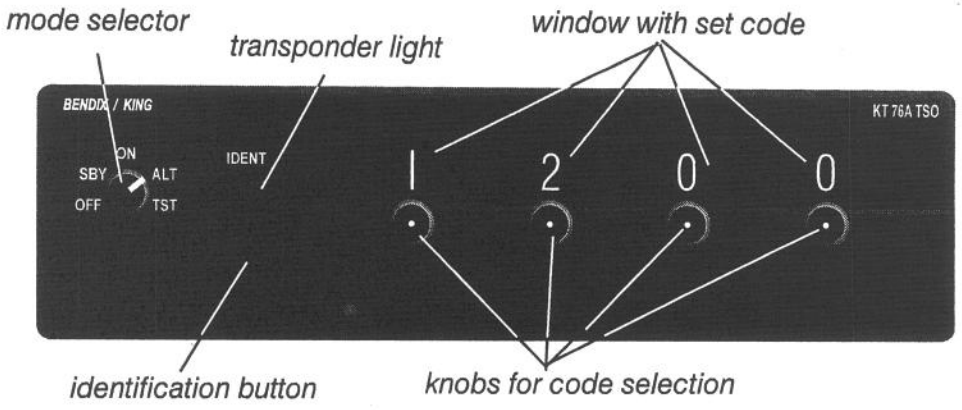


Figure 1 Front panel KT 76A

The transponder is not suppplied with power in OFF mode (switched off).

In SBY (standby) mode the transponder is supplied but does not transmit answers. It is possible to reset code in this mode.

In TST mode (testing) the transponder light is permanently on.

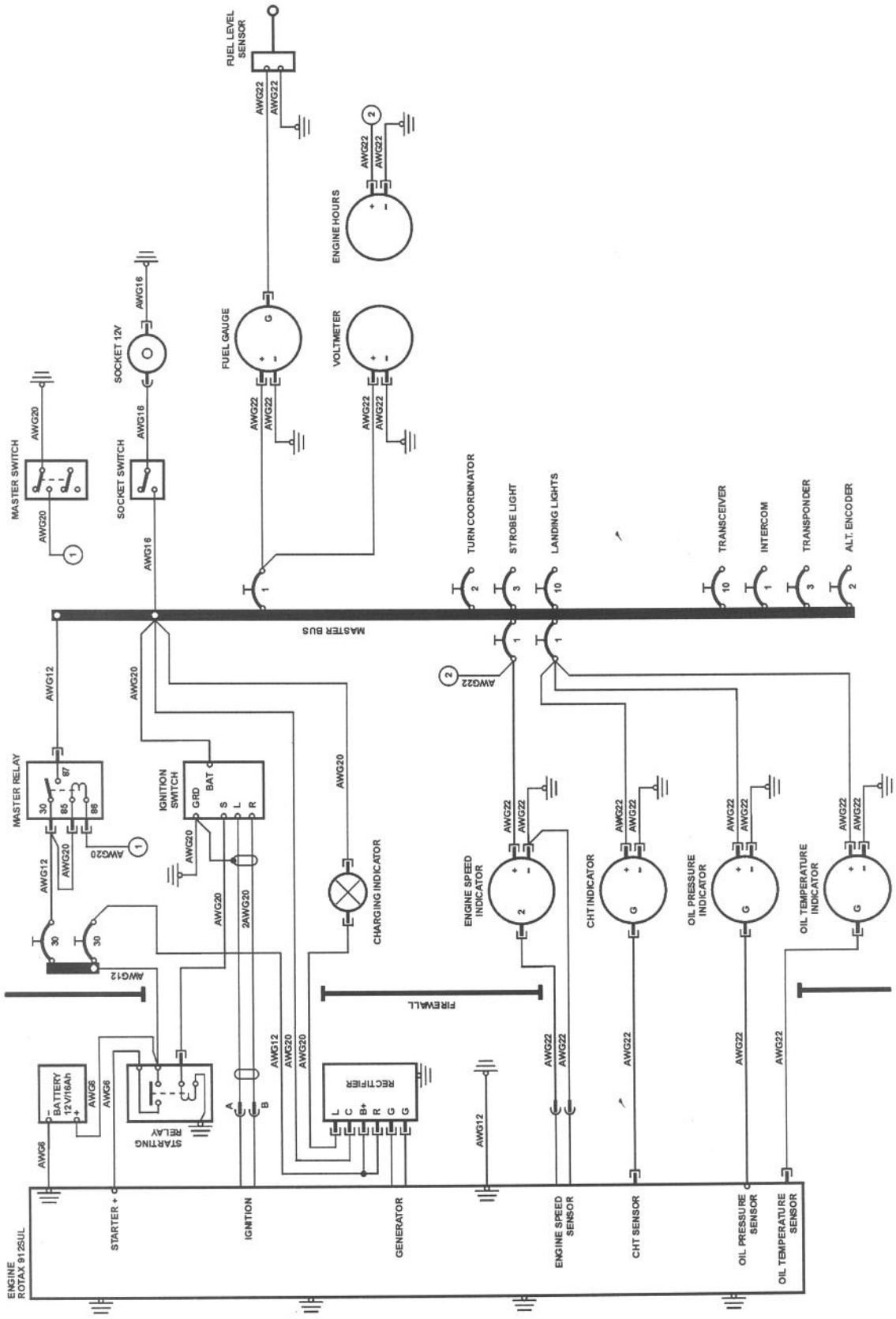
In On mode (operation) answers are transmitted to all valid interrogations in A mode.

In ALT mode (altitude) answers are transmitted to all valid interrogations in A and C mode. Information on altitude are transmitted in C mode.

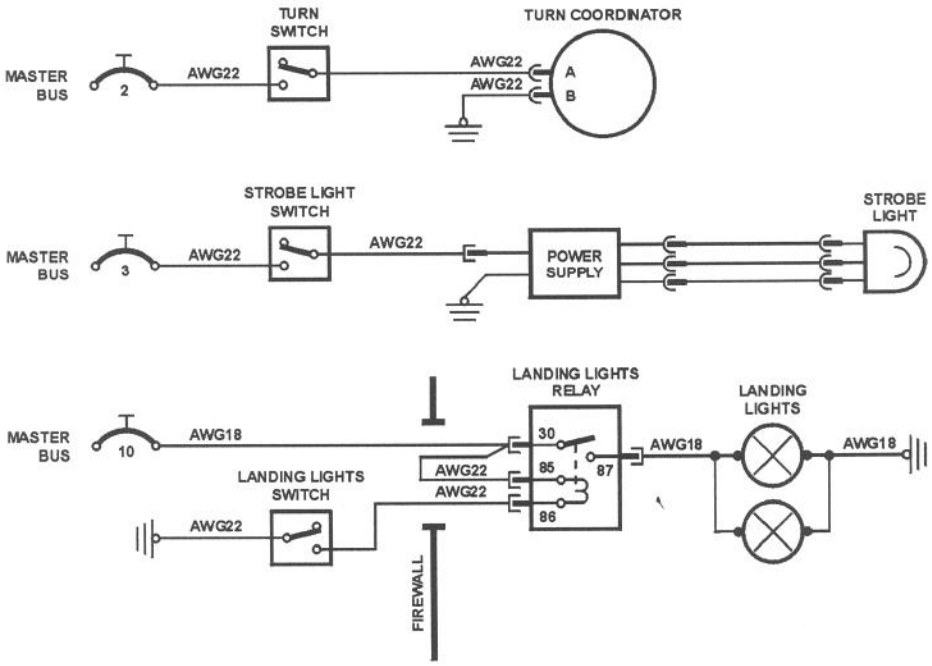
Transponder transmission is automatic and is indicated by transponder light flashing above IDENT button within interval of 10–15 s. Transponder light can light on more often, possibly nearly permanetly in case of location by more radars.

SECTION 8 – AIRPLANE HANDLING, SERVICING AND MAINTENANCE NOT AFFECTED

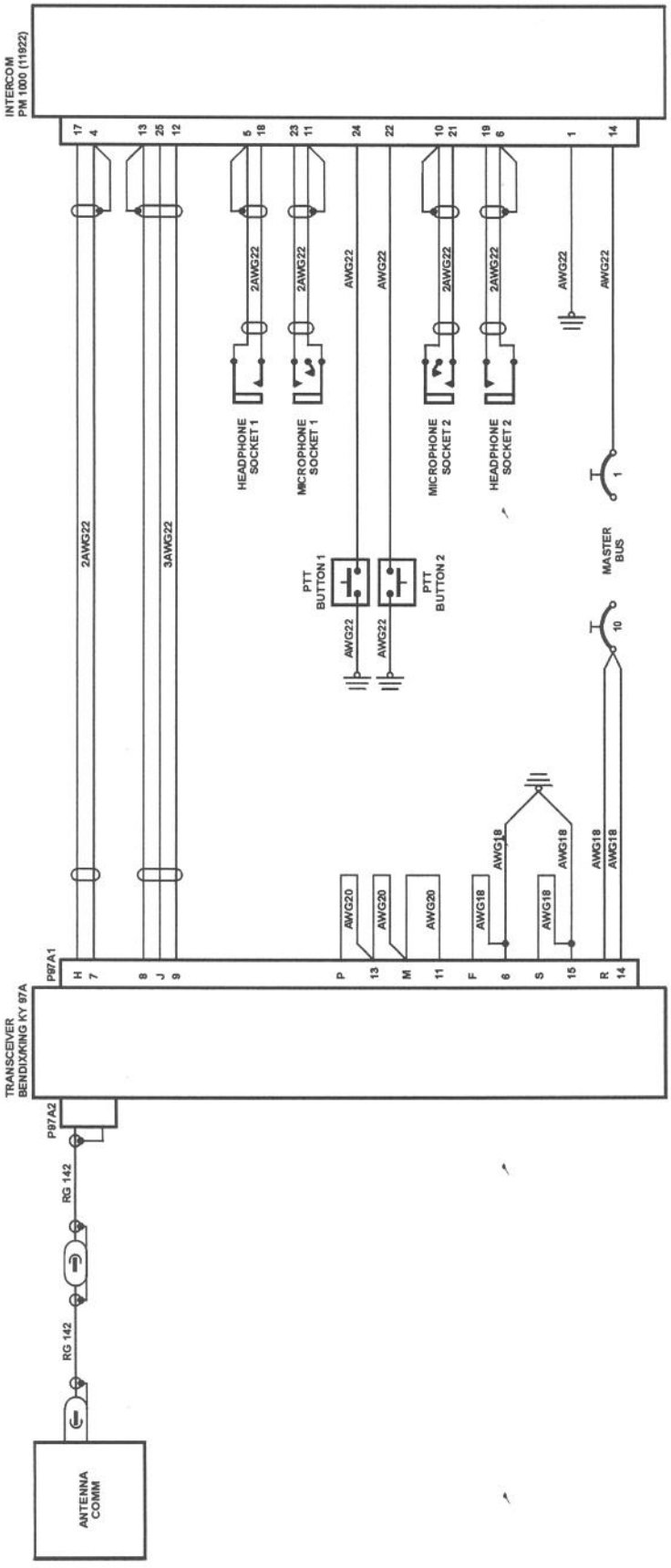
AIRPLANE WIRING DIAGRAM



AIRPLANE WIRING DIAGRAM



AIRPLANE WIRING DIAGRAM



AIRPLANE WIRING DIAGRAM