

Pilot's Operating Handbook

11. Valid to aircraft S/N:

P1001060, P1001062, P1001063, P1001064, P1001065, P1001066, P1001067,
P1001069, P1001070, P1001071, P1001072, P1001073

Pilot's Operating Handbook

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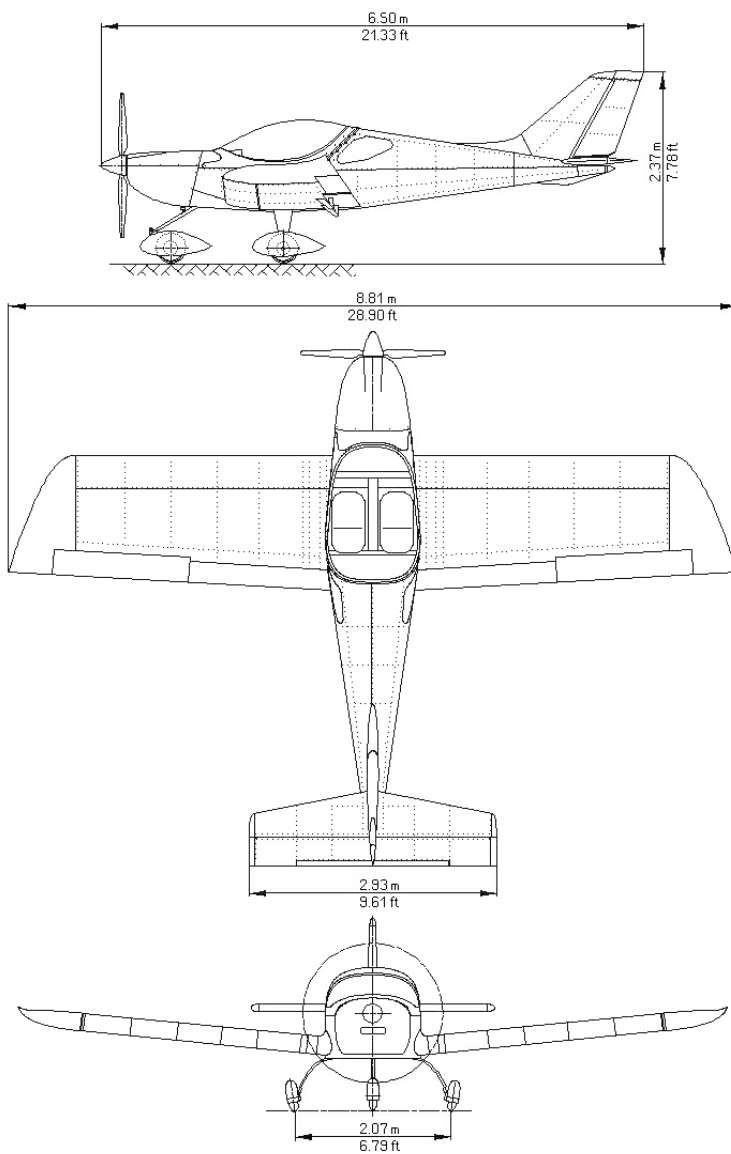
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Aircraft layout:



Main airplane dimensions:

Wing span.....	28.90 [ft]	(8.81 [m])
Length.....	21.33 [ft]	(6.50 [m])
Height	7.78 [ft]	(2.37 [m])
Wing area	132.3 [sq ft]	(12.3 [m ²])
Wing loading.....	10 [lb/sq ft]	(49 [kg/m ²])
Cockpit width	46 [in]	(1.17 [m])

Flight control surfaces travel:

Rudder.....	30° to each side
Elevator	+ 28°/- 25°
Aileron	+ 20°/- 15°
Flaps.....	0° to 30°
Aileron trim	+ 20°/- 20°
Elevator trim	+ 22°/- 28°

Engine:

Manufacturer	BRP-Rotax GmbH&Co.KG
Model number.....	912ULS
Maximum horsepower rating.....	98.6 hp (73.5 kW) at 5800 RPM
Cooling	liquid and air
Type	4-stroke, 4 cylinder, horizontally opposed, spark ignition engine with one central camshaft-push-rod-OHV

Propeller:

Manufacturer	WOODCOMP s.r.o.
Model number.....	KLASSIC 170/3/R
Number of blades	3
Diameter.....	68 [in] (1720 [mm])
Pitch setting.....	17.5 ± 0.5°
Type	three composite blades, ground adjustable

1.2 Summary of performances

Weights:

Max. takeoff and landing weight	1,320 [lb]	(600 [kg])
Max. weight of fuel.....	180 [lb]	(82 [kg])
Max. baggage weight in rear fuselage	40 [lb]	(18 [kg])
Max. baggage weight in each wing locker	44 [lb]	(20 [kg])
Empty weight (minimum equipment).....	760 [lb]	(345 [kg])

NOTE

Actual empty weight is shown in Section 9, Supplement No. 02

Wing loading.....	10 [lb/sq ft]	(49 [kg/m ²])
Power loading.....	13.39 [lb/hp]	(8.15 [kg/kW])

Speeds:

Maximum at sea level.....	119 [knot]	(137 [mph])
Cruise, 75% power at 3,000 ft	93 [knot]	(107 [mph])

Range and endurance:

Range.....	516 [NM]	(594 [SM])
Endurance	5:25 [h:mm]	

Conditions:

Usable fuel.....	29.85 [US gal]	(113 [liter])
75% power of engine.....	5,000 RPM	
Altitude.....	3,000 [ft]	
Reserve	30 minutes	

Rate of climb:

At sea level	825 [fpm]	
Best angle of climb speed (v_x)	56 [knot]	(64 [mph])
Best rate of climb speed (v_y)	62 [knot]	(71 [mph])

Stall speeds:

V_{S0} – flaps down, power - idle	32 [knot]	(37 [mph])
V_{S1} – flaps up, power - idle	39 [knot]	(45 [mph])

Fuel:

Total fuel capacity	30.12 [US gal]	(114 [liter])
Total usable fuel	29.85 [US gal]	(113 [liter])
Approved types of fuel	see chapter 2.11	

Engine power:

Maximum power at 5,800 RPM	98.6 [hp]	(73.5 [kW])
Max. continuous power at 5,500 RPM	92.5 [hp]	(69 [kW])

2.3 Flap extended speed range - V_{S0} to V_{FE}

Flap operating range (IAS):

32 - 75 [knot] (37 - 86 [mph])

2.4 Maneuvering speed - V_A

Maneuvering speed (IAS) at 1,320 [lb]:

88 [knot] (101 [mph])

Maneuvering speed (IAS) at 900 [lb]:

70 [knot] (80 [mph])

2.5 Maximum structural cruising speed – V_{NO}

Maximum structural cruising speed (IAS):

108 [knot] (124 [mph])

2.6 Never exceed speed - V_{NE}

Never exceed speed (IAS):

138 [knot] (158 [mph])

2.7 Service ceiling

Service ceiling 14,378 [ft]

2.8 Load factors

Maximum positive limit load factor + 4 g

Maximum negative limit load factor - 2 g

2.9 Approved maneuvers

The *PiperSport* is approved for normal and below listed maneuvers:

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

2.10 Operating weights and loading

Max. takeoff weight.....	1,320 [lb]	(600 [kg])
Max landing weight.....	1,320 [lb]	(600 [kg])
Max. weight of fuel.....	180 [lb]	(82 [kg])
Max. baggage weight in rear fuselage.....	40 [lb]	(18 [kg])
Max. baggage weight in each wing locker	44 [lb]	(20 [kg])
Empty weight (minimum equipment).....	760 [lb]	(345 [kg])

NOTE

Actual empty weight is shown in Section 9, Supplement No. 02

WARNING

Do not exceed maximum takeoff weight 1,320 [lb] (600 [kg]) !

Number of seats	2	
Minimum crew	1 pilot on the left seat	
Minimum crew weight	95 [lb]	(43 [kg])
Maximum crew weight on each seat.....	253 [lb]	(115 [kg])

2.11 Fuel

Fuel volume:

Wing fuel tanks capacity.....	2x15.06 [US gal]	(2x57 [liter])
Total fuel capacity.....	30.12 [US gal]	(114 [liter])
Unusable fuel.....	2x0.13 [US gal]	(2x0.5 [liter])
Total usable fuel	29.85 [US gal]	(113 [liter])

Recommended fuel type:

*(Refer to the ROTAX Operator's manual section 10.2.2 Fuel,
Rotax Service Instruction SI-912-016)*

MOGAS

European standard	- min. RON 95, EN 228 Super, EN 228 Super plus
US standard	- ASTM D4814
Canadian standard	- min. AKI 91, CAN/CGSB-3.5 Quality 3

CAUTION

Fuels that contain more than 5% ethanol blend have not been tested and are not permitted for use.

AVGAS

US standard	- AVGAS 100 LL (ASTM D910)
-------------	----------------------------

AVGAS 100 LL places greater stress on the valve seats due to its high lead content and forms increased deposits in the combustion chamber and lead sediments in the oil system. Thus it should only be used in case of problems with vapor lock or when other types of gasoline are unavailable.

2.12 Engine operating speeds and limits

Engine Model:		ROTAX 912 ULS
Engine Manufacturer:		Bombardier-Rotax GMBH
Power	Max. Takeoff:	98.6 hp (73.5 kW) at 5,800 rpm (max. 5 min.)
	Max. Continuous:	92.5 hp (69 kW) at 5,500 rpm
	Cruising (75%):	68.4 hp (51 kW) at 5,000 rpm
Engine RPM	Max. Takeoff:	5,800 rpm (max. 5 min)
	Max. Continuous:	5,500 rpm
	Cruising (75%):	5,000 rpm
	Idling:	1,400 rpm (minimum)
Oil pressure	Minimum:	12 psi (0.8 bar) below 3,500 rpm
	Maximum:	102 psi (7 bar) cold engine starting
	Optimum:	29 - 73 psi (2 - 5 bar) above 3,500 rpm
Oil temperature	Minimum:	122° F (50° C)
	Maximum:	266° F (130° C)
	Optimum:	194 - 230° F (90 - 110° C)
Cylinder head temper. (CHT)	Minimum:	122° F (50° C)
	Maximum:	275° F (135° C) *
Exhaust gas temperature (EGT)	Nominal:	1,472° F (800° C)
	Maximum:	1,562° F (850° C)
	Max. Takeoff:	1616° F (880° C)
Fuel press.	Minimum:	2.2 psi (0.15 bar)
	Maximum:	5.8 psi (0.4 bar)

* See the Rotax Operator's manual section 10.1.2 Operating speeds and limits and section 10.2.1 Coolant, Rotax Installation manual section 12 Cooling system, Rotax Service Instruction SI-912-016, POH Section 8, paragraph 8.5.3 Coolant and Section 9, Supplement No. 02. Type of coolant used in engine.

2.13 Engine instruments markings

Rotax 912ULS 73.5 [kW] (98.6 [hp])	Minimum Limit (red line)	Caution Range (yellow arc)	Normal Operating Range (green arc)	Caution Range (yellow arc)	Maximum Range (red line)
Engine speed [RPM]	-	0-1,400	1,400-5,500	5,500-5,800	5,800
Oil Pressure	12 psi (0.8 bar)	12-29 psi (0.8-2 bar)	29-73 psi (2-5 bar)	73-102 psi (5-7 bar)	102 psi (7 bar)
Oil Temperature	122°F (50°C)	122-194°F (50-90°C)	194-230°F (90-110°C)	230-266°F (110-130°C)	266°F (130°C)
Cylinder head Temperature (CHT)	-	-	122-275°F (50-135°C)	-	275°F (135°C)
Exhaust Gas Temp. (EGT)	-	752-932°F (400-500°C)	932-1,562°F (500-850°C)	1,562-1,616°F (850-880°C)	1,616°F (880°C)
Fuel Pressure	2.2 psi (0.15 bar)	-	2.2-5.8 psi (0.15-0.4 bar)	-	5.8 psi (0.4 bar)
Manifold Pressure	-	-	10-29 inHg	-	29 inHg

2.14 Other limitations

- **No smoking on board of the aircraft!**
- **Approved for Day VFR flights only.**
- **Flight in rain**

When flying in the rain, no additional steps are required. Aircraft qualities and performance are not substantially changed. However **VMC must be maintained !**

• **Minimum instruments and equipment list for Day VFR flights:**

- Airspeed indicator
- Altimeter
- Compass (is not required by ASTM F 2245)
- Fuel quantity indicator
- Tachometer (RPM)
- Engine instruments as required by the engine manufacturer :
 - Oil temperature indicator
 - Oil pressure indicator
 - Cylinder head temperature indicator
- Safety harness for every used seat

WARNING

IFR FLIGHTS AND INTENTIONAL FLIGHTS UNDER ICING CONDITIONS ARE PROHIBITED!

WARNING

EMERGENCY PARACHUTE APPROVED FOR UP TO MTOW 1,350 LBS (612 KG) AND MAX. VELOCITY 120 KNOTS !

WARNING

MINIMUM 1.58 US GAL (6 LITRES) OF FUEL QUANTITY ALLOWS APPROXIMATELY 15 MINUTES OF SAFE OPERATION!

CAUTION

Install air intake shields in front of water and oil cooler, if ambient air temperature is 32°F (0°C) or lower.

CAUTION

- *The starter should be activated for a maximum of 10 [sec], followed by 2 [min] pause for starter cooling.*
- *As soon as engine runs, adjust throttle to achieve smooth running at approx. 2,500 [rpm]. Check the oil pressure, which should increase within 10 [sec]. Increase the engine speed after the oil pressure has reached 29 [psi] (2 [bar]) and is steady.*
- *To avoid shock loading, start the engine with the throttle lever set for idling or 10 % open at maximum, then wait 3 [sec] to reach constant engine speed before new acceleration.*
- *Only one magneto should be switched ON (OFF) during ignition magneto check.*

4.2.3 Engine warm up, Engine check

Prior to engine check block the main wheels using chocks. Initially warm up the engine to 2,000 [rpm] for approximately 2 [min], then continue to 2,500 [rpm] till oil temperature reaches 122 [°F] (50 [°C]). The warm up period depends on ambient air temperature.

Check both ignition circuits at 4,000 [rpm] for Rotax 912 ULS. The engine speed drop during the time either magneto switched OFF should not exceed 300 [rpm]. The max. engine speed drop difference between circuits L and R should be 115 [rpm].

NOTE

Only one magneto should be switched ON (OFF) during ignition magneto check.

Set max. power for verification of max. static engine speed (5,000 ±100 [rpm]) with given propeller and engine parameters (*temperatures and pressures*).

Check acceleration from idling to max. power. If necessary, cool the engine at *idle [rpm]* before shutdown.

CAUTION

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

4.3 Taxiing

Apply power and brakes as needed. Apply brakes to control movement on ground. Taxi carefully when wind velocity exceeds 20 [knot]. Hold the control stick in neutral position.

4.4 Normal Takeoff

4.4.1 Before takeoff

1. Altimeter - set
2. Trim - set neutral position
3. Control system - check free movement
4. Cockpit canopy - closed and locked

Recommendation: - **Before takeoff, manually check the canopy is locked by pushing the canopy upwards.**

5. Safety harness - fastened
6. Fuel selector - turn ON (*left or right fuel tank*)
7. Ignition switch - switched ON (*both magnetos*)
8. Wing flaps - extend as necessary

4.4.2 Takeoff

1. Brakes - apply to stop wheel rotation
2. Throttle - fully forward
3. Engine speed - check (*5,000 ±100 [rpm]*)
4. Engine gauges - within limits
5. Brakes - release
6. Elevator - control stick pull
7. Nose wheel unstick - *32 [knot] (37 [mph])*
8. Airplane lift-off - *42 [knot] (48 [mph])*
9. Climb - after reaching airspeed
65 [knot] (75 [mph])
10. Wing flaps - retract at safe altitude
(max. airspeed for flaps using is 75 [knot], 86 [mph])

WARNING

Takeoff is prohibited if:

- Engine is running unsteadily
- Engine instrument values are beyond operational limits
- Aircraft systems (e.g. brakes or controls) work incorrectly
- Crosswind velocity exceeds permitted limits
(see Section 5 Performance, 5.7 Demonstrated wind performance)

4.5 Climb

- | | |
|------------------|---|
| 1. Throttle | - fully forward
(max. 5,800 [rpm] for max. 5 [min],
max. continuous power (5,500 [rpm]) |
| 2. Airspeed | - $V_x = 56$ [knot] (64 [mph])
- $V_y = 62$ [knot] (71 [mph]) |
| 3. Trim | - trim the airplane |
| 4. Engine gauges | - oil temperature, oil pressure and
CHT within limits |

CAUTION

If the cylinder head temperature or oil temperature and/or coolant temperature approaches or exceeds limits, reduce the climb angle to increase airspeed and possibly return within limits. If readings do not improve, troubleshoot causes other than high power setting at low airspeed.

4.6 Best angle of climb speed (V_x): 56 [knot] (64 [mph])

4.7 Best rate of climb speed (V_y): 62 [knot] (71 [mph])

4.8 Cruise

Refer to Section 5, for recommended cruising figures

4.9 Descend

1. Optimum glide speed - 60 [knot] (70 [mph])

4.10 Approach

1. Approach speed - 60 [knot] (70 [mph])
2. Throttle - as necessary
3. Wing flaps - extend as necessary
4. Trim - as necessary
5. Safety harness - tighten

CAUTION

It is not advisable to reduce the engine throttle control lever to minimum on final approach and when descending from very high altitude. In such cases the engine becomes under-cooled and a loss of power may occur. Descent at increased idle (approximately 3,000 [rpm]), speed between 60-75 [knot] (70-86 [mph]) and check that the engine instruments indicate values within permitted limits.

4.11 Normal landing

4.11.1 Before landing

1. Throttle - as necessary
2. Airspeed - 60 [knot] (70 [mph])
3. Wing flaps - extend as necessary
4. Trim - as necessary

4.11.2 Landing

1. Throttle - idle
2. Touch-down on main wheels
3. Apply brakes - as necessary
(after the nose wheel touch-down)

4.11.3 After landing

1. Throttle - engine rpm set as required for taxiing
2. Wing flaps - retract
3. Trim - set neutral position

4.11.4 Engine shut down

- | | |
|----------------------|---|
| 1. Throttle | - idle |
| 2. Instruments | - engine instruments within limits |
| 3. Switches | - switch OFF - except Instrument and Master |
| 4. Ignition switch | - turn key to switch OFF |
| 5. Instrument switch | - switch OFF |
| 6. Master switch | - switch OFF |
| 7. Fuel Selector | - close |

CAUTION

Rapid engine cooling should be avoided during operation. This happens above all during aircraft descent, taxiing and low engine [rpm] or at engine shutdown immediately after landing. Under normal conditions the engine temperatures stabilize during descent, taxiing and at values suitable to stop engine by switching the ignition off. If necessary, cool the engine at *idle* [rpm] to stabilize the temperatures prior to engine shut down.

4.12 Short field takeoff and landing procedures

None

4.13 Balked landing procedures

- | | |
|--------------------------|---|
| 1. Throttle | - fully forward
(max. 5,800 [rpm] for max. 5 [min],
max. continuous power (5,500 [rpm]) |
| 2. Climb | - after reaching
65 [knot] (75 [mph]) |
| 3. Trim | - adjust as necessary |
| 4. Wing flaps | - retract at safe altitude
(max. airspeed for flaps using is
75 [knot], 86 [mph]) |
| 5. Trim | - adjust as necessary |
| 6. Repeat circle pattern | |

4.14 Aircraft parking and tie-down

- | | |
|------------------------|--------------------------------------|
| 1. Ignition switch | - OFF |
| 2. Master switch | - OFF |
| 3. Fuel selector | - close |
| 4. Parking brake | - use it as necessary (if installed) |
| 5. Canopy | - close, lock as necessary |
| 6. Secure the airplane | |

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.

NOTE

Use anchor eyes on the wings and fuselage rear section to fix the airplane. Move control stick forward and fix it together with the rudder pedals. Make sure that the cockpit canopy is properly closed and locked. The anchoring before leaving the airplane is important if the airplane is not equipped with a parking brake.

SECTION 5

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5. PERFORMANCE

The presented data has been computed from actual flight tests with the aircraft and engine in good conditions and using average piloting techniques. If not stated otherwise, the performance stated in this section is valid for maximum take-off weight (1,320 [lb] / 600 [kg]) and under ISA conditions.

The performance shown in this section is valid for aircraft equipped with **ROTAX 912 ULS** engine with maximum power 98.6 [hp] (73.5 [kW]) and **WOODCOMP KLASSIC 170/3/R** three composite blades ground adjustable propeller with pitch setting 17.5°.

CAUTION

Airspeeds values are valid for standard AVIATIK WA037383 pitot-static probe.

5.1 Takeoff distances

- Conditions: - Altitude: 0 ft ISA
 - Engine power: full throttle
 - Flaps: 15°

RUNWAY SURFACE	Take-off run distance	Take-off distance over 50 ft obstacle
	ft	ft
CONCRETE	463	1,270
GRASS	702	1,499

5.2 Landing distances

- Conditions: - Altitude: 0 ft ISA
 - Engine power: idle
 - Flaps: 30°
 - Brakes fully depressed immediately after touch-down

RUNWAY SURFACE	Landing distance over 50 ft obstacle	Landing run distance (braked)
	ft	ft
CONCRETE	1,188	479
GRASS	1,109	364

5.3 Rate of climb

Conditions: Engine: full throttle Flaps: 0°	Best rate of climb speed Vy (IAS)		Rate of climb Vz
	knot	mph	fpm
Altitude			
0 ft	62	71	825
3000 ft	62	71	685
6000 ft	62	71	540
9000 ft	62	71	355

5.4 Cruise speeds

Altitude	Engine speed	IAS		CAS		TAS		MAP	Fuel consumption
		knot	mph	knot	mph	knot	mph		
ft	rpm							in Hg	US gal/h
1,000	4,200	72	83	72	83	73	84	23.7	3.59
	4,500	81	93	80	92	81	93	24.6	4.15
	4,800	91	105	89	102	89	102	25.5	4.76
	5,000	96	110	94	108	95	109	26.1	5.15
	5,300	105	121	102	117	103	118	27.0	5.79
	5,500	112	129	108	124	109	125	27.7	6.26
3,000	4,200	68	78	69	79	72	83	22.2	3.49
	4,500	78	90	77	89	80	92	23.0	4.04
	4,800	86	99	85	98	88	101	23.8	4.62
	5,000	93	107	91	105	94	108	24.3	5.02
	5,300	102	117	99	114	102	117	25.1	5.65
	5,500	108	124	104	120	108	124	25.5	6.16
5,000	4,200	65	75	66	76	71	82	20.5	3.41
	4,500	74	85	74	85	79	91	21.3	3.94
	4,800	83	95	82	94	87	100	22.1	4.54
	5,000	89	102	87	100	93	107	22.7	4.94
	5,300	97	112	95	109	101	116	23.5	5.57
	5,500	103	118	100	115	107	123	24.1	6.02
7,000	4,200	62	71	63	72	69	79	19.3	3.30
	4,500	69	79	70	81	77	89	20.0	3.86
	4,800	79	91	78	90	85	98	20.6	4.44
	5,000	84	97	83	95	91	105	21.2	4.86
	5,300	92	106	90	104	99	114	22.0	5.49
	5,500	98	113	95	109	105	121	22.5	5.89
9,000	4,200	57	66	59	68	67	77	18.4	3.22
	4,500	64	74	65	75	74	85	19.0	3.78
	4,800	73	84	73	84	83	95	19.6	4.33
	5,000	79	91	78	90	89	102	20.0	4.76
	5,300	86	99	85	98	97	112	20.5	5.39
	5,500	92	106	90	104	103	118	20.8	5.76

5.5 RPM setting and fuel consumption

Altitude		ft	1,000					
Engine speed		rpm	4,200	4,500	4,800	5,000	5,300	5,500
Fuel consumption		US gal/h	3.59	4.15	4.76	5.15	5.79	6.26
		l/h	13.6	15.7	18.0	19.5	21.9	23.7
Airspeed	IAS	knot	72	81	91	96	105	112
		mph	83	93	105	110	121	129
	CAS	knot	72	80	89	94	102	108
		mph	83	92	102	108	117	124
	TAS	knot	73	81	89	95	103	109
		mph	84	93	102	109	118	125
Endurance and Range at 29.85 US gal (113 liters)								
Endurance	hh:mm	8:18	7:11	6:16	5:47	5:09	4:46	
Range	NM	607	583	558	551	531	520	
	SM	698	670	642	633	611	598	
Endurance and Range at 23.78US gal (90 liters)								
Endurance	hh:mm	6:37	5:43	4:59	4:36	4:06	3:47	
Range	NM	483	464	445	439	423	414	
	SM	556	534	511	504	486	476	
Endurance and Range at 15.85 US gal (60 liters)								
Endurance	hh:mm	4:24	3:49	3:19	3:04	2:44	2:31	
Range	NM	322	309	296	292	282	276	
	SM	371	356	341	336	324	317	
Endurance and Range at 7.93US gal (30 liters)								
Endurance	hh:mm	2:12	1:54	1:39	1:32	1:22	1:15	
Range	NM	161	155	148	146	141	138	
	SM	185	178	170	168	162	159	
Endurance and Range at 3.96 US gal (15 liters)								
Endurance	hh:mm	1:06	0:57	0:49	0:46	0:41	0:37	
Range	NM	81	77	74	73	70	69	
	SM	93	89	85	84	81	79	

Altitude		<i>ft</i>	3,000					
Engine speed		<i>rpm</i>	4,200	4,500	4,800	5,000	5,300	5,500
Fuel consumption		<i>US gal/h</i>	3.49	4.04	4.62	5.02	5.65	6.16
		<i>l/h</i>	13.2	15.3	17.5	19.0	21.4	23.3
Airspeed	IAS	<i>knot</i>	68	78	86	93	102	108
		<i>mph</i>	78	90	99	107	117	124
	CAS	<i>knot</i>	69	77	85	91	99	104
		<i>mph</i>	79	89	98	105	114	120
	TAS	<i>knot</i>	72	80	89	95	103	109
		<i>mph</i>	83	92	101	108	117	124
Endurance and Range at 29.85 US gal (113 liters)								
Endurance		<i>hh:mm</i>	8:33	7:23	6:27	5:56	5:17	4:50
Range		<i>NM</i>	616	591	569	559	539	523
		<i>SM</i>	708	680	654	643	620	602
Endurance and Range at 23.78 US gal (90 liters)								
Endurance		<i>hh:mm</i>	6:48	5:53	5:08	4:44	4:12	3:51
Range		<i>NM</i>	490	471	453	445	429	417
		<i>SM</i>	564	541	521	512	494	479
Endurance and Range at 15.85 US gal (60 liters)								
Endurance		<i>hh:mm</i>	4:32	3:55	3:25	3:09	2:48	2:34
Range		<i>NM</i>	327	314	302	297	286	278
		<i>SM</i>	376	361	347	341	329	320
Endurance and Range at 7.93 US gal (30 liters)								
Endurance		<i>hh:mm</i>	2:16	1:57	1:42	1:34	1:24	1:17
Range		<i>NM</i>	163	157	151	148	143	139
		<i>SM</i>	188	180	174	171	165	160
Endurance and Range at 3.96 US gal (15 liters)								
Endurance		<i>hh:mm</i>	1:08	0:58	0:51	0:47	0:42	0:38
Range		<i>NM</i>	82	78	75	74	72	69
		<i>SM</i>	94	90	87	85	82	80

Altitude		<i>ft</i>	5,000					
Engine speed		<i>rpm</i>	4,200	4,500	4,800	5,000	5,300	5,500
Fuel consumption		<i>US gal/h</i>	3.41	3.94	4.54	4.94	5.57	6.02
		<i>l/h</i>	12.9	14.9	17.2	18.7	21.1	22.8
Airspeed	IAS	<i>knot</i>	65	74	83	89	97	103
		<i>mph</i>	75	85	95	102	112	118
	CAS	<i>knot</i>	66	74	82	87	95	100
		<i>mph</i>	76	85	94	100	109	115
	TAS	<i>knot</i>	71	79	87	93	101	107
		<i>mph</i>	82	91	100	107	116	123
Endurance and Range at 29.85 US gal (113 liters)								
Endurance		<i>hh:mm</i>	8:45	7:34	6:34	6:02	5:21	4:57
Range		<i>NM</i>	622	599	572	562	541	531
		<i>SM</i>	715	688	658	646	622	610
Endurance and Range at 23.78 US gal (90 liters)								
Endurance		<i>hh:mm</i>	6:58	6:02	5:14	4:48	4:16	3:56
Range		<i>NM</i>	495	477	456	448	431	423
		<i>SM</i>	569	548	524	515	496	486
Endurance and Range at 15.85 US gal (60 liters)								
Endurance		<i>hh:mm</i>	4:38	4:01	3:29	3:12	2:50	2:37
Range		<i>NM</i>	330	318	304	298	287	282
		<i>SM</i>	380	365	349	343	331	324
Endurance and Range at 7.93 US gal (30 liters)								
Endurance		<i>hh:mm</i>	2:19	2:00	1:44	1:36	1:25	1:18
Range		<i>NM</i>	165	159	152	149	144	141
		<i>SM</i>	190	183	175	172	165	162
Endurance and Range at 3.96 US gal (15 liters)								
Endurance		<i>hh:mm</i>	1:09	1:00	0:52	0:48	0:42	0:39
Range		<i>NM</i>	83	79	76	75	72	70
		<i>SM</i>	95	91	87	86	83	81

Altitude		<i>ft</i>	7,000					
Engine speed		<i>rpm</i>	4,200	4,500	4,800	5,000	5,300	5,500
Fuel consumption		<i>US gal/h</i>	3.30	3.86	4.44	4.86	5.49	5.89
		<i>l/h</i>	12.5	14.6	16.8	18.4	20.8	22.3
Airspeed	IAS	<i>knot</i>	62	69	79	84	92	98
		<i>mph</i>	71	79	91	97	106	113
	CAS	<i>knot</i>	63	70	78	83	90	95
		<i>mph</i>	72	81	90	95	104	109
	TAS	<i>knot</i>	69	77	85	91	99	105
		<i>mph</i>	79	89	98	105	114	121
Endurance and Range at 29.85 US gal (113 liters)								
Endurance		<i>hh:mm</i>	9:02	7:44	6:43	6:08	5:26	5:04
Range		<i>NM</i>	624	595	571	559	538	532
		<i>SM</i>	718	685	657	643	619	612
Endurance and Range at 23.78 US gal (90 liters)								
Endurance		<i>hh:mm</i>	7:12	6:09	5:21	4:53	4:19	4:02
Range		<i>NM</i>	497	474	455	445	429	424
		<i>SM</i>	572	545	523	512	493	487
Endurance and Range at 15.85 US gal (60 liters)								
Endurance		<i>hh:mm</i>	4:48	4:06	3:34	3:15	2:53	2:41
Range		<i>NM</i>	331	316	303	297	286	283
		<i>SM</i>	381	364	349	341	329	325
Endurance and Range at 7.93 US gal (30 liters)								
Endurance		<i>hh:mm</i>	2:24	2:03	1:47	1:37	1:26	1:20
Range		<i>NM</i>	166	158	152	148	143	141
		<i>SM</i>	191	182	174	171	164	162
Endurance and Range at 3.96 US gal (15 liters)								
Endurance		<i>hh:mm</i>	1:12	1:01	0:53	0:48	0:43	0:40
Range		<i>NM</i>	83	79	76	74	71	71
		<i>SM</i>	95	91	87	85	82	81

Altitude		<i>ft</i>	9,000					
Engine speed		<i>rpm</i>	4,200	4,500	4,800	5,000	5,300	5,500
Fuel consumption		<i>US gal/h</i>	3.22	3.78	4.33	4.76	5.39	5.76
		<i>l/h</i>	12.2	14.3	16.4	18.0	20.4	21.8
Airspeed	IAS	<i>knot</i>	57	64	73	79	86	92
		<i>mph</i>	66	74	84	91	99	106
	CAS	<i>knot</i>	59	65	73	78	85	90
		<i>mph</i>	68	75	84	90	98	104
	TAS	<i>knot</i>	67	74	83	89	97	103
		<i>mph</i>	77	85	95	102	112	118
Endurance and Range at 29.85 US gal (113 liters)								
Endurance		<i>hh:mm</i>	9:16	7:53	6:53	6:16	5:32	5:10
Range		<i>NM</i>	621	584	572	558	537	534
		<i>SM</i>	714	672	658	642	618	614
Endurance and Range at 23.78 US gal (90 liters)								
Endurance		<i>hh:mm</i>	7:23	6:17	5:29	4:59	4:24	4:07
Range		<i>NM</i>	495	465	456	445	428	425
		<i>SM</i>	569	535	524	511	492	489
Endurance and Range at 15.85 US gal (60 liters)								
Endurance		<i>hh:mm</i>	4:55	4:11	3:39	3:19	2:56	2:45
Range		<i>NM</i>	330	310	304	296	285	283
		<i>SM</i>	379	357	349	341	328	326
Endurance and Range at 7.93 US gal (30 liters)								
Endurance		<i>hh:mm</i>	2:27	2:05	1:49	1:39	1:28	1:22
Range		<i>NM</i>	165	155	152	148	143	142
		<i>SM</i>	190	178	175	170	164	163
Endurance and Range at 3.96 US gal (15 liters)								
Endurance		<i>hh:mm</i>	1:13	1:02	0:54	0:49	0:44	0:41
Range		<i>NM</i>	82	78	76	74	71	71
		<i>SM</i>	95	89	87	85	82	81

5.6 Airspeed indicator system calibration

IAS	CAS
<i>knot</i>	
30	35
35	39
40	44
45	48
50	53
55	57
60	62
65	66
70	71
75	75
80	79
85	84
90	88
95	93
100	97
105	102
110	106
115	111
120	115
125	120
130	124
135	129
140	133

IAS	CAS
<i>mph</i>	
35	41
40	45
45	49
50	54
55	58
60	63
65	67
70	72
75	76
80	81
85	85
90	89
95	94
100	98
105	103
110	107
115	112
120	116
125	121
130	125
135	130
140	134
145	139
150	143
155	148
160	152

5.7 Demonstrated wind performance

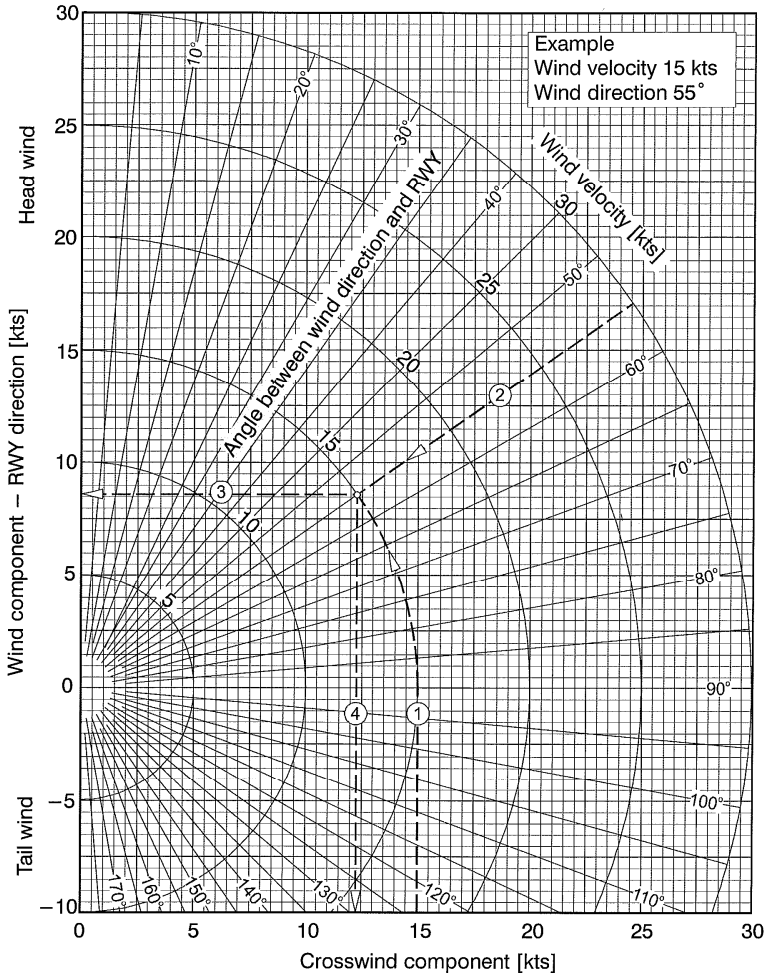
Max. demonstrated headwind velocity for take-off and landing:

24 [knot] (13 [m/s])

Max. demonstrated crosswind velocity for take-off and landing:

12 [knot] (6,5 [m/s])

Wind components figure



Example: 1. Wind velocity 15 knots 3. Headwind component 8.6 knots
 2. Wind direction 55° 4. Crosswind component 12.3 knots

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8.3 Towing instructions

To handle the airplane on ground use the *Tow Bar*, or if pushing the airplane by hand, push on the aft fuselage, placing your hands over an area of skin supported by a bulkhead.

CAUTION

*Avoid excessive pressure at the airplane airframe-especially at control surfaces.
Keep all safety precautions, especially in the propeller area.*

8.4 Tie-down instructions

The airplane should be moored when parked outside a hangar after the flight day. The mooring is necessary to protect the airplane against possible damage caused by wind and gusts.

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

Tie-down procedures:

1. Fuel Selector close, Master switch and other switches switched OFF, Ignition switch switched OFF
2. Fix the hand control using e.g. safety harness
3. Close air vent
4. Close and lock canopy
5. Moor the aircraft to the ground by means of a mooring rope passed through the mooring eyes located on the lower surfaces of the wings and below rear fuselage.

NOTE

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

8.5 Servicing operating fluids

See appropriate chapters in the ROTAX engine Maintenance and Operator's manuals and *PiperSport* aircraft Maintenance manual for more instructions.

8.5.1 Approved fuel grades and specifications

Recommended fuel type:

(refer to the ROTAX Operator's manual section 10.2.2 Fuel, Rotax Service Instruction SI-912-016)

MOGAS

- European standard - min. RON 95, EN 228 Super, EN 228 Super plus
- US standard - ASTM D4814
- Canadian standard - min. AKI 91, CAN/CGSB-3.5 Quality 3

CAUTION

Fuels that contain more than 5% ethanol blend have not been tested and are not permitted for use.

AVGAS

- US standard - AVGAS 100 LL (ASTM D910)

AVGAS 100 LL places greater stress on the valve seats due to its high lead content and forms increased deposits in the combustion chamber and lead sediments in the oil system. Thus it should only be used in case of problems with vapor lock or when other types of gasoline are unavailable.

Fuel volume:

- Wing fuel tanks volume.....2x15.06 [US gal] (2x57 [liter])
- Unusable fuel quantity2x0.13 [US gal] (2x0.5 [liter])

8.5.2 Approved oil grades and specifications

Recommended oil type:

- (refer to the Rotax Operator's manual section 10.2.3 Lubricants, Rotax Service Instruction SI-912-016)*
- Motorcycle 4-stroke engine oil of registered brand with gear additives.
- Use only oil with API "SG" classification or higher!
- Use multi-grade oil. Use of mineral oil is not recommended.

Type of oil used by aircrafts manufacturer:

- see Section 9, Supplement No. 02

Oil volume:

- Minimum.....0.87 [US gal] (3.3 [liter])
- Maximum1.0 [US gal] (3.8 [liter])