

1 General Information

1.4 Quick Reference

Type:	Full composite carbon fiber aircraft with two seats.
Design:	High wing design with struts, front mounted engine and propeller, traditional stabilizer concept, differential ailerons. Electrically operated flaps (0° to 40°), electric elevator trim, three-wheel landing gear with steerable nose wheel. Main gear with hydraulic disc brakes. The cabin is equipped with two seats side by side and can be entered and exited by doors on the left and right side of the fuselage.
Layout:	Main components are built in half shells from composite fiber material, which are bonded together (carbon fiber, Kevlar and glass fiber).

1.5 Technical Specifications

wingspan	30 ft 6 in
length	21 ft 3 in
height	7 ft 5 in
wing area	118 sq ft
MTOW	1,320 lb
wing loading	11 lb /sq ft

4 Normal Procedures

4.10 Take-Off Procedure

short field take-off

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|-------------------------|----------------------|
| 1. oil cooler flap | AS REQUIRED |
| 2. carburetor heat | OFF |
| 3. electric fuel pump | ON |
| 4. brakes | SET |
| 5. flaps | UP, ON GRASS 15 deg |
| 6. elevator trim | 2/3 UP |
| 7. rudder and aileron | NEUTRAL |
| 8. engine power | FULL POWER |
| 9. brakes | RELEASE |
| 10. rotate and lift-off | VX = 56 mph = 49 kts |
| 11. steepest climb | VX = 56 mph = 49 kts |
| 12. best climb | VY = 75 mph = 65 kts |

NOTE	Take-off distances given in chapter 5 have been determined with this procedure. It is required to rotate and lift off the aircraft with significant elevator input. Take care not to stall the aircraft during this maneuver.
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NOTE	It is recommended to keep the electric fuel pump switched on during the entire flight.
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NOTE	Full power engine speed on ground is approx. 4,900 rpm with the Sensenich prop and approx. 5,000 rpm with the Tonini and Neuform props.
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NOTE	Take-off with reduced power is possible, though not recommended. No take-off shall be performed with engine speed lower than 4,000 rpm. A drastically reduced take-off performance must be taken into account.
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5 Performance

5.2 Take-Off and Landing Distances

Take-Off		Woodcomp or Tonini	Sensenich or Neuform
Take-off roll distance (Flaps 0°)	ft m	n/a	495ft 151m
Take-off air distance (Flaps 0°)	ft m	n/a	226ft 69m
Take-off distance (Flaps 0°)	ft m	n/a	721ft 220m
Take-off roll distance (Flaps 15°)	ft m	580ft 177m	525ft 160m
Take-off air distance (Flaps 15°)	ft m	325ft 99m	200ft 61m
Take-off distance (Flaps 15°)	ft m	905ft 265m	725ft 215m

Landing		all propellers
Landing roll distance (Flaps 40°)	ft m	341ft 104m
Landing air distance (Flaps 40°)	ft m	335 102m
Landing distance (Flaps 40°)	ft m	676ft 206m

NOTE	Take-off/landing conditions have been determined at ISA standard conditions at mean sea level and over a virtual 50ft obstacle.
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NOTE	Short field procedures apply. Diverting from the short field procedures defined in section 4 will lead to significant longer take-off and landing distances.
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5 Performance

Performance data apply under ISA conditions on a dry, hard runway surface. Various circumstances have an effect on take-off and landing performance. According to ICAO-circular 601AN/55/2, it is recommended to use following add-ons on roll- and air distances:

add-ons on take-off roll distance	
for dry grass	+ 20%
for wet grass	+ 30%
for soft surface	+ 50%
per 2 knots tailwind component	+ 10%
per 10 knots headwind component	- 10%
for high temperatures above standard	+ 10% per 10°C
for altitude above sea level (density altitude)	+ 5% per 1,000 ft

add-ons on take-off air distance	
for dirty wings/raindrops	+ 15%
per 2 knots tailwind component	+ 10%
per 10 knots headwind component	- 10%
for high temperatures above standard	+ 10% per 10°C
for altitude above sea level (density altitude)	+ 5% per 1,000 ft

5.3 Rate of Climb

Propeller		Woodcomp or Tonini	Sensenich	Neuform
best angle of climb	mph	56	56	56
airspeed V_X	kts	49	49	49
best rate of climb	mph	75	75	75
airspeed V_Y	kts	65	65	65
best rate of climb at MSL	fpm	600	710	710

climb is flown with flaps retracted, see section 4

5 Performance

5.4 Cruise Speed, RPM, Fuel Consumption, Range

Rotax 912 UL-S, 100 hp engine, Woodcomp or Tonini Fixed Pitch Prop

Engine Speed rpm	Fuel Consumption gph	True Airspeed 3,000 ft, mph / kts	Maximum Endurance hr	Maximum Range NM
5,400	6.7	113 / 98	3.2	311
5,200	6.0	109 / 95	3.5	332
5,000	5.4	104 / 91	3.9	353
4,800	4.9	100 / 87	4.3	375
4,600	4.4	95 / 83	4.8	401
4,400	3.9	91 / 79	5.4	425
4,200	3.5	86 / 75	6.0	446

Rotax 912 UL-S, 100 hp engine, Sensenich Ground Adjustable Prop

Engine Speed rpm	Fuel Consumption gph	True Airspeed 3,000 ft, mph / kts	Maximum Endurance hr	Maximum Range NM
5,400	6.7	130 / 113	3.2	362
5,200	6.0	123 / 107	3.5	375
5,000	5.4	117 / 102	3.9	398
4,800	4.9	111 / 97	4.3	417
4,600	4.4	105 / 91	4.8	437
4,400	3.9	98 / 85	5.4	459
4,200	3.5	92 / 80	6.0	480

Rotax 912 UL-S, 100 hp engine, Neuform Ground Adjustable Prop

Engine Speed rpm	Fuel Consumption gph	True Airspeed 3,000 ft, mph / kts	Maximum Endurance hr	Maximum Range NM
5,400	6.7	130 / 113	3.2	362
5,200	6.0	123 / 107	3.5	375
5,000	5.4	117 / 102	3.9	398
4,800	4.9	111 / 97	4.3	417
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4,400	3.9	98 / 85	5.4	459
4,200	3.5	92 / 80	6.0	480

5 Performance

5.5 Low Airspeed and Stall

If the center of gravity is within the permissible range, the aircraft will be fully controllable until reaching the stall speed. If stall speed is reached, the pilot should lower the nose of the aircraft to re-establish a safe airspeed.

level stall

CG at most rearward position (airspeeds at IAS)

Flap Position	0°	15°	30°	40°
V _{min.} at idle	51 mph (44 kts)	47 mph (41 kts)	45 mph (39 kts)	44 mph (38 kts)
V _{min.} at full power	50 mph (43 kts)	47 mph (41 kts)	44 mph (38 kts)	44 mph (38 kts)

CG at most forward position (airspeeds at IAS)

Flap Position	0°	15°	30°	40°
V _{min.} at idle	50 mph (43 kts)	46 mph (40 kts)	44 mph (38 kts)	43 mph (37 kts)
V _{min.} at full power	47 mph (41 kts)	46 mph (40 kts)	44 mph (38 kts)	43 mph (37 kts)

2 Take-Off

Take-off under normal conditions

1. After the pre-flight check has been completed, extend flaps to 15° for a grass runway. On a hard surface runway, take-off with clean flaps.
2. Ensure that the elevator trim is in the correct position.
3. Whenever possible, take-off directly into the wind. The maximum demonstrated crosswind component for take-off is 15 kts.
4. Smoothly apply full throttle (fully forward) and maintain runway heading.
5. As the aircraft accelerates, gently pull back on the control stick to raise the nose slightly until the aircraft becomes airborne.
6. Once airborne, slowly release the back pressure on the control stick to allow the airspeed to increase to $V_X = 56 \text{ mph} = 49 \text{ kts}$. Maintain this speed and avoid making any climbing turns until a sufficiently safe altitude has been reached.
7. When all obstacles have been cleared, retract the flaps (if they were deployed) and accelerate to $V_Y = 75 \text{ mph} = 65 \text{ kts}$.

Take-off under tailwind conditions

Similar to normal take-off except that the take-off distance will be extended. Ensure that you determine the take-off distance required to ensure you have sufficient runway length prior to take-off.

Take-Off in rain or with a dirty aircraft

Surface conditions, high density altitude and temperatures, raindrops and bugs affect the performance of the aircraft. Be aware that in these conditions the performance figures will not meet the published figures, as they apply to a clean aircraft under standard atmospheric conditions. Expect a significant drop in performance.