



THE AIRPLANE FACTORY SLING 4

THE AIRPLANE FACTORY (Pty) Ltd.

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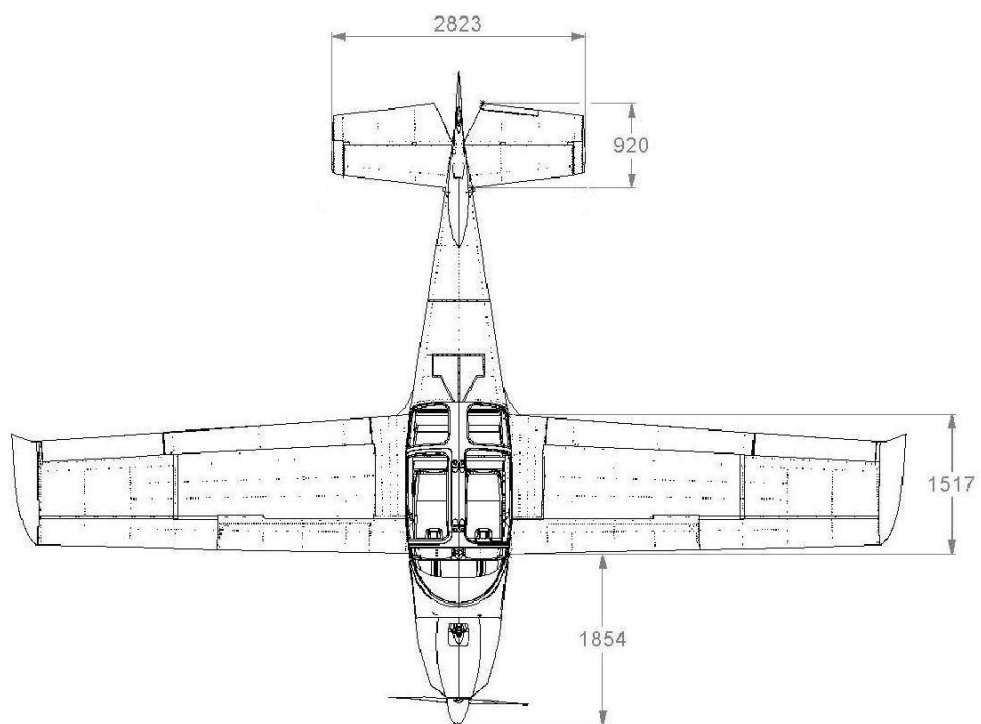
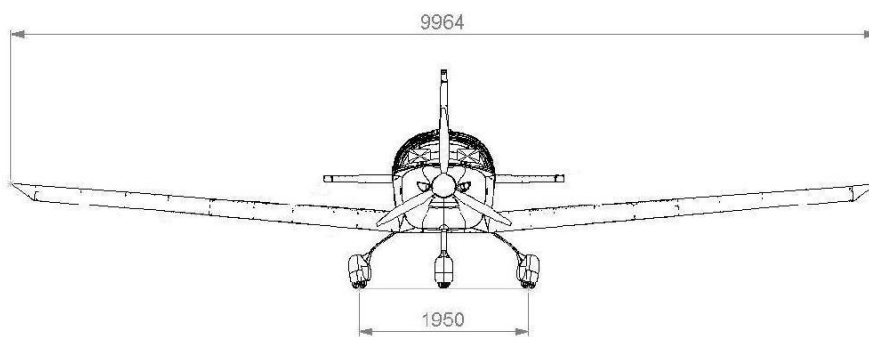
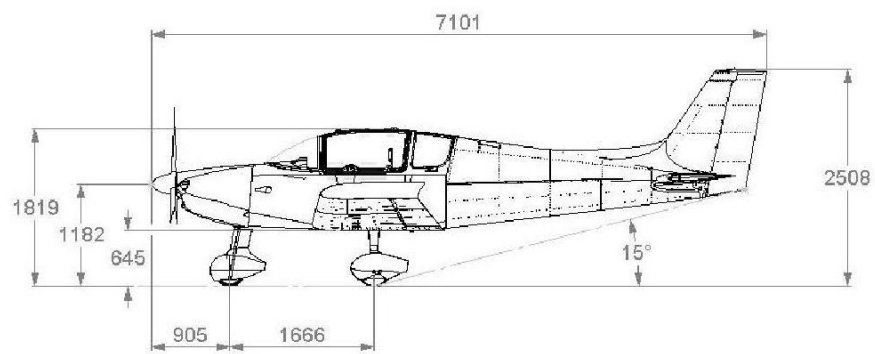
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Aircraft layout



WING

Wing span:	32.7 ft (9.96 m)
Mean Aerodynamic Chord:	4.5 ft (1.38 m)
Wing surface area:	134.2 ft ² (12.47 m ²)
Wing loading:	14.8lbft ² (72.2kgm ²)
Aspect ratio:	7.9
Taper ratio:	1.375
Dihedral:	5°

FUSELAGE

Fuselage length:	20.24 ft (6.17 m)
Overall length:	23.3 ft (7.10 m)
Overall width:	45.3 inches (1.15 m)
Overall height:	8.2 ft (2.50 m)

EMPENNAGE

Horizontal stabilizer span:	9.28 ft (2.83 m)
Horizontal stabilizer surface area:	10.3 ft ² (0.96 m ²)
Elevator surface area:	10.9 ft ² (1.02 m ²)
Horizontal stabilizer angle of incidence	-2.5°
Vertical stabilizer span:	4.82 ft (1.47 m)
Vertical stabilizer surface area:	5.7 ft ² (0.53 m ²)
Rudder surface area:	6.35 ft ² (0.59 m ²)

LANDING GEAR

Wheel track:	6.4 ft (1.95m)
Wheel base:	5.48 ft (1.67m)
Main gear tires:	15 X 6.00 - 6, 6 ply
Nose gear tires:	5.00-5, 6 ply

CONTROL SURFACE TRAVEL LIMITS

Ailerons:	22° up and down
Elevator:	28° up and 20° down
Trim tab:	20° up and 25° down
Rudder:	25° left and right
Flaps:	0° to 40° down

ENGINE

Manufacturer:	Bombardier-Rotax GmbH
Model:	914 UL
Type:	4 cylinder horizontally opposed with overall displacement 1211cc, mixed cooling (water-cooled heads and air-cooled cylinders), turbo charged, twin carburetors, integrated reduction gearbox with torque damper
Maximum power:	84.5 kW (115hp) @ 5,800 rpm (max 5 mins) 73.5 kW (100hp) @ 5,500 rpm (continuous)
Power loading:	7.8 kg hp ⁻¹

PROPELLER

Manufacturer:	Airmaster, electric constant speed
Model:	72.5 inch 3 blade composite
No of blades:	3
	70 inch
Diameter:	(1.78m)
Type:	composite

FUEL

Fuel grade:	High octane gasoline DIN 51600, O-NORM 1103 (red) Unleaded gasoline DIN 51603, O-NORM 1101 AVGAS 100LL
Fuel tanks:	2 wing tanks integrated within wing's leading edge, equipped with finger strainers outlet and drain fittings
Capacity of each tank:	24.4 gal (92.5 liters)
Total capacity:	48.8 gal (185 liters)
Total usable fuel:	48.3 gal (183 liters)

OIL SYSTEM

Oil system type:	forced, with external oil reservoir
Oil:	Automotive grade API "SF" or "SG" type oil preferably synthetic or semi-synthetic
Oil capacity:	3.5 liters

COOLING

Cooling system:	Mixed air and liquid pressurized closed circuit system
Coolant:	Antifreeze liquid (<i>type BASF Glysanthin Anticorrosion or equivalent</i>) and water mixture 75/25
Capacity:	3 liters

MAXIMUM WEIGHTS

Maximum take-off weight:	2,028 lbs (920kg)
Maximum landing weight:	2,028 lbs (920kg)
Maximum baggage weight:	88 lbs (40kg)
Maximum rear seat/baggage weight	308 lbs (140 kg)

STANDARD WEIGHTS

Standard Empty Weight:	1,036 lbs (470 kg)
Maximum Useful Load:	992 lbs (450 kg)

Introduction

This section includes operating limitations, instrument markings and basic placards necessary for the safe operation of the Airplane Factory Sling, its engine, systems and equipment.

Airspeed limitations

SPEED		KIAS	REMARKS
V_{NE}	Never exceed speed	140	Never exceed this speed in any operation
V_{NO}	Maximum structural cruising speed	120	Never exceed this speed unless in smooth air, and then only with caution
V_A	Maneuvering speed	100	Do not make full or abrupt control movements above this speed as this may cause stress in excess of limit load factor
V_{FE}	Maximum flap extended speed	85	Never exceed this speed unless the flaps are fully retracted
V_H	Maximum speed in level flight	128	The aircraft will not exceed this speed at MAUW in level flight
V_S	Stall speed at MTOW	44	At maximum all up weight in the most forward CG configuration the aircraft will stall if flown slower than this speed

Airspeed indicator markings

MARKING	KIAS	SIGNIFICANCE
White arc	42-85	Positive Flap Operating Range (lower limit is V_{SO} at maximum weight, and upper limit is the maximum speed permissible with flaps deployed)
Green arc	45-120	Normal Operating Range (lower limit is V_{S1} at maximum weight and most forward CG with flaps retracted and upper limit is maximum structural speed V_{NO})
Yellow arc	120-140	Maneuvers must be conducted with caution and only in smooth air
Red line	140	Maximum speed for all operations

Crosswind and wind limitation (demonstrated)

Max. permitted cross wind velocity
for take-off and landing 15 kts

Service ceiling

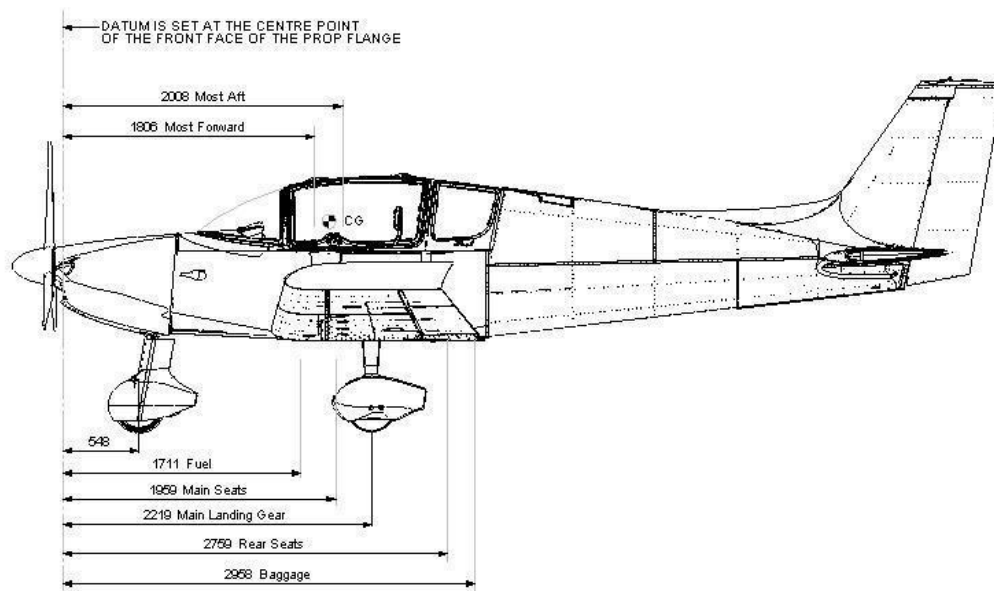
Service ceiling 15,000 ft

Load factor

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

Maximum positive load factor with flaps 2g
Maximum negative load factor with flaps -1g

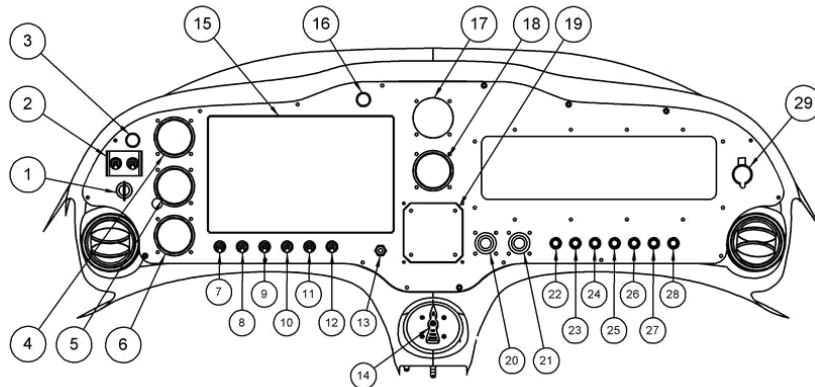
Center of gravity (CG) range and determination



Operating CG range

Datum	Center of front face of propeller flange without spacer
Reference for leveling	Center fuselage upper channel surface with canopy open
Forward limit	-1.805m (20% MAC)
Rear limit	-2,008m (32% MAC)

Cockpit



1	Master switch	18	Slip indicator
2	Magneto switches left and right	19	MGL V10 radio
3	Generator light	20	Engine choke control knob
4	Analogue airspeed indicator	21	Cabin heat control knob
5	Analogue altimeter	22	Main fuse (25A)
6	Transponder mode C	23	Instruments fuse (10A)
7	MGL Voyager switch	24	Radio fuse (5A)
8	Backup battery switch	25	MGL Voyager fuse (3A)
9	Electric fuel pump switch	26	Trim motor fuse (1A)
10	Taxi light switch	27	12V power socket and flap motor fuse (5A)
11	Landing light switch	28	Fuel pump fuse (5A)
12	Avionics switch	29	12V power source socket
13	Flap deployment switch		
14	Fuel selector valve		
15	MGL Odyssey		
16	MGL Voyager warning light		
17	Magnetic compass		

Instruments and Avionics

- MGL Odyssey is a multifunction “glass cockpit” instrument and incorporates –
 - ASI
 - VSI
 - ALT
 - Compass
 - Artificial Horizon
 - Turn co-ordinator
 - G meter
 - Clock/timer
 - Comprehensive mapping and navigation software and data
 - GPS
 - Stopwatch
 - Autopilot if fitted to servos
 - Full engine monitoring and management capacity including –
 - RPM indicator
 - CHT indicators
 - EGT indicators
 - Oil temperature indicator
 - Oil pressure indicator
 - Fuel level indicators
 - Fuel flow indicator
 - Tachometer
 - Flight time recorder
 - Charge current indicator
 - Voltmeter

See MGL Voyager operations manual for operating details.

Miscellaneous equipment

The following additional equipment and systems are used in the aircraft-

- Ballistic parachute
- MGL 2-axis auto-pilot
- Electric flaps
- Ray Allen elevator trim control motor in elevator with PTT on both control sticks
- Kuntzleman wing tip nav lights with red, green and white LED
- Kuntzleman strobe light on the tail
- Kuntzleman wing leading edge LED landing and taxi lights on left wing
- Hand actuated hydraulic brakes on main wheels with actuator in centre consol
- Park brake mechanism operated by brake fluid shutoff valve in centre consol
- First aid kit
- Fire extinguisher