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This is the minimal request from italian CAA(ENAC) rules. Format and rules may change but ... airplanes are same.

If you'll find some errors or if you prefer word format please email me to : info@rv8.it.

FLIGHT MANUAL

VAN'S AIRCRAFT RV-8



I-LUKE

s/n 82317

builder / pilot :

Luca Perazzolli

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FOREWORD

Aircraft I-LUKE – model Van's RV-8 s/n : 82317 - is a kit design, manufactured by Van's Aircraft, Inc., 14401 Keil Road NE, Aurora, OR 97002 USA. **Is a two place tandem conventional aerobatic aircraft**, low wing, high performances built by Luca Perazzolli from 2005 to 2010 with the rules and the criteria of Enac disposition NAV-15 under supervision of C.A.P. Club Aviazione Popolare.

DISCLAIMER

This amateur-built aircraft is registered in Experimental Category (Homebuilt) and does not comply with the federal safety regulations for standard aircraft. This handbook, while believed to be complete and accurate at the time of publication, may not contain ALL of the information needed to safely operate the aircraft described. However, any pilot intending to operate I-LUKE must study its content and operate accordingly. By virtue of its Experimental amateur-built status, all persons entering this aircraft do at their own risk.

LIST OF ABBREVIATIONS

AGL: Above Ground Level
CAS: Calibrated airspeed; Indicated speed corrected for installation and instrument errors. CAS is equal to TAS at standard atmospheric conditions at MSL. KCAS : CAS in knots
IAS: Indicated airspeed as shown on the airspeed indicator. KIAS: IAS indicated in knots.
GS: Ground Speed. Speed of the airplane relative to the ground.
TAS: True airspeed. Speed of the airplane relative to air. TAS is CAS corrected for altitude and temperature errors.
VA: Maneuvering speed. Maximum speed at which the airplane is not overstressed at full deflection of control surfaces.
VFE: Maximum speed with flaps extended.
VNE: Speed which must never be exceeded in any operation.
VNO: Maximum structural cruising speed which should only be exceeded in calm air, and then only with caution.
VS: The power-off stall speed with the airplane in its standard configuration.
VSO: The power-off stall speed with the airplane in landing configuration.
VX: Best angle-of-climb speed.
VY: Best rate-of-climb speed.

ISA: International Standard Atmosphere. The temperature at mean sea level is 15° C (59° F), the air pressure at sea level is 1013.25 mbar (29.92 inHg), the temperature gradient up to the altitude at which the temperature reaches -56.5° C (-67.9° F) is -0.0065° C/m (-0.0036° F/ft) and 0° C/m (0° F/ft) above.

OAT: Outside air temperature.

AGL: Above Ground Level.

Indicated Pressure Altitude: Altitude reading with altimeter set to 1013.25 mbar (29.92 inHg) air pressure.

Pressure Altitude: Altitude measured at standard pressure at MSL (1013.25 mbar / 29.92 inHg) using a barometric altimeter. Pressure altitude is the indicated altitude corrected for installation and instrument errors. Within this manual the instrument errors are assumed to be zero.

Take-off Power: Maximum engine power for take-off.

Demonstrated Crosswind Component: The maximum speed of the crosswind component at which the manoeuvrability of the airplane during take-off and landing has been proved during test flights.

Service Ceiling: The altitude at which the maximum rate of climb is 0.5 m/s (100 ft/min.).

Jack Points : Points on the airplane identified by the manufacturer as suitable for support of the airplane. for weighing, maintenance or other purposes.

Datum : An imaginary vertical plane from which all horizontal distances for the center of gravity calculations are measured. It is the plane through the leading edge of the wing root rib, perpendicular to the longitudinal axis of the airplane.

Station: A defined point along the longitudinal axis which is generally presented as a specific distance from the reference datum.

Moment: The weight of a component multiplied by its lever arm.

Center of Gravity (CG): Point of equilibrium for the airplane weight.

CG position: Distance from the reference datum to the CG. It is determined by dividing the total moment (sum of the individual moments) by the total weight.

Center of Gravity Limits: The CG range which an airplane with a given weight must be operated within.

Usable Fuel: The amount of fuel available for the flight plan calculation.

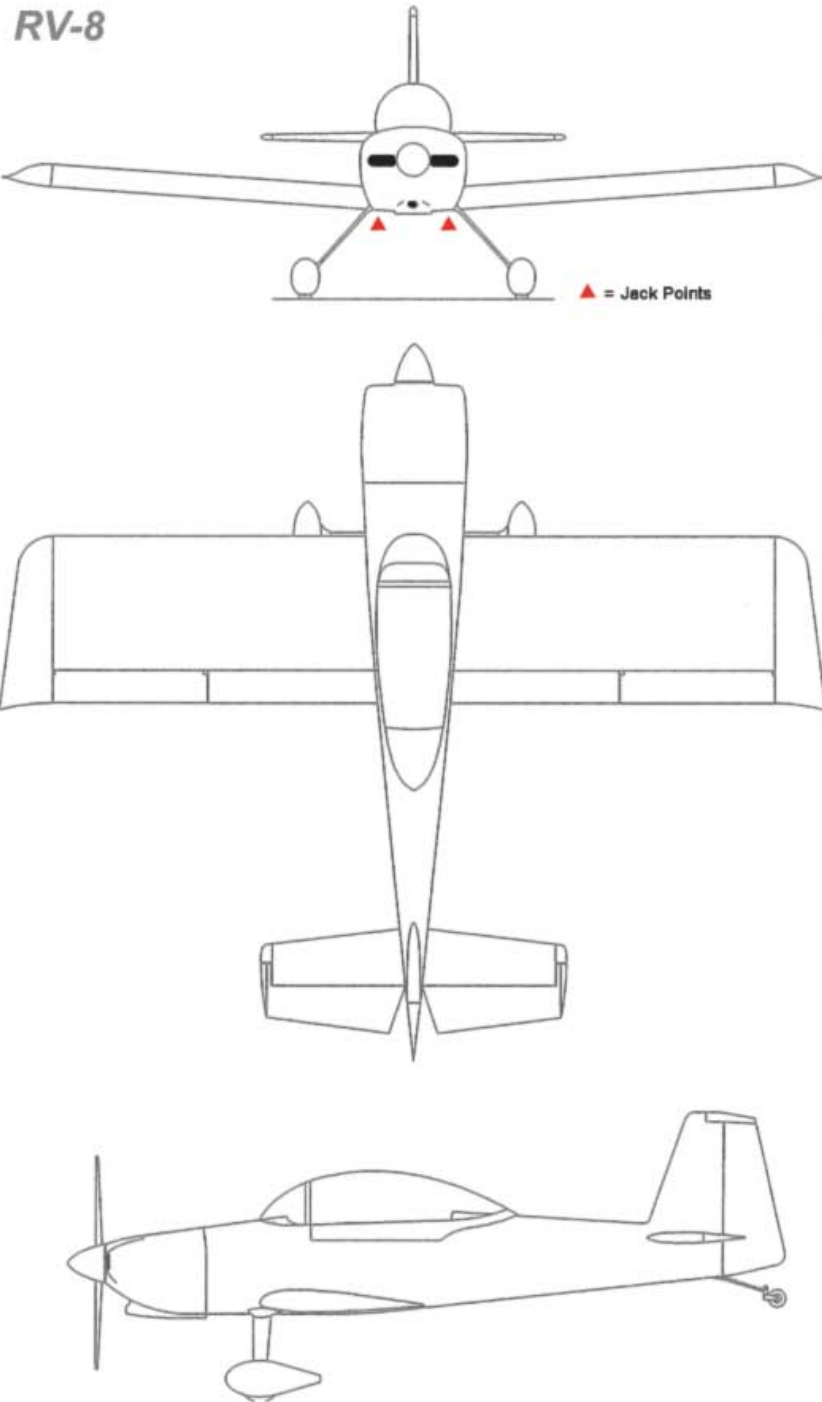
Unusable Fuel: The amount of fuel remaining in the tank, which cannot be safely used in flight.

Empty Weight: Weight of the airplane including unusable fuel, all operating fluids and maximum amount of oil.

Useful Load: The difference between take-off weight and empty weight.

Maximum Take-off Weight (MTOW) : Maximum weight permissible for take-off.

A - THREE VIEW AND DIMENSIONS



Wing span 7,315 mt. - Length 6,401 mt. - Height 1,7 mt. - Wing Area 10,78 m² - Wing Loading 75,7 kg/m²

A01 – Flight controls travel in degrees

Range	Elevator	Aileron	Rudder(L/R)	Flaps	Trim Tab
UP	27	32	33	0	24,5
DOWN	24	17	33	40	22

B – LIMITATIONS SECTION**B01 - Weight Limitation**

<i>Recommended Maximum Gross Weight</i>	<i>Normal</i>	816,46 kg.	(1800 lbs)
<i>Recommended Maximum Gross Weight</i>	<i>Aerobatic</i>	725,74 kg.	(1600 lbs)
<i>Maximum FRONT Baggage Weight Limit</i>		22 kg.	(50 lbs)
<i>Maximum REAR Baggage Weight Limit</i>		34 kg.	(75 lbs)

B02 – Operating Limitations

Crosswind : proved crosswind component for take-off and landing is 20 kts.
Stall : stall recovery occurs in less than 200 ft – each condition

B03 - Center Of Gravity Limits

DATUM : 177,80 cm. forward of the wing leading edge (70")

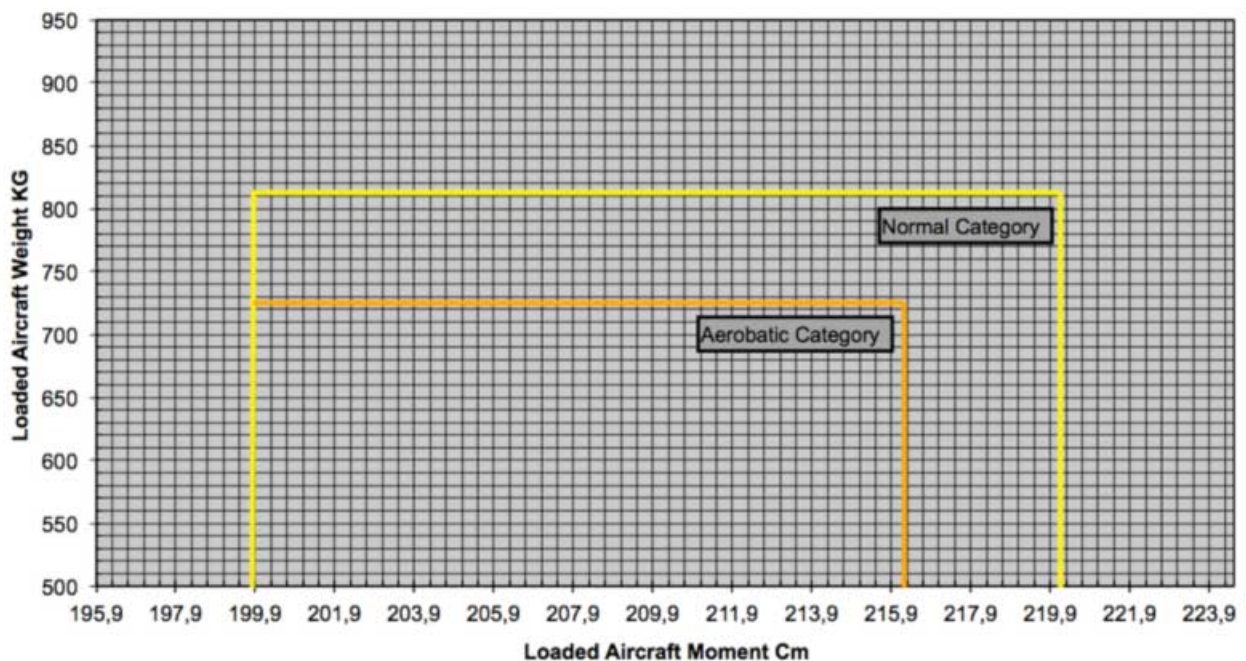
LIMITS : Design C.G. Range 199,90 cm. <-> 220,52 cm. of Datum (78.7" <-> 86.82")

LIMIT : Aerobatic Aft CG Limit 216,66 cm. of Datum (85.3")

ARMS :

<i>Fwd Baggage</i>	148,61 cm. of Datum	(58.51")
<i>Fuel</i>	203,20 cm. of Datum	(80.00")
<i>Pilot</i>	231,90 cm. of Datum	(91.30")
<i>Passenger</i>	302,56 cm. of Datum	(119.12")
<i>Aft Baggage Floor</i>	350,52 cm. of Datum	(138.00")
<i>Aft Baggage Shelf</i>	388,39 cm. of Datum	(152.91")

Van's RV-8 I-LUKE * Center of gravity limits
Airplane C.G. Location - Millimeters Aft of datum



B04 - Fuel and Oil Limitations**Fuel**

SPECIFIED FUELS ASTM D910 - Certificated For Use With Grade 91/96 - Commercial Grade Designation is 100LL or 100 - Alternate Military and Commercial Grades AVGAS 91/96UL

Fuel type : Refer to Service Instruction Lycoming No.1070Q

Total fuel capacity is 42 US gallons (Lt. 158). Each Fuel Tank contains : 79 Liters. Total of unusabel fuel is 2 liters (LEFT 1,3 Liters / RIGHT 0,8 Liters). If slipped each tank need 5 liters. Total of available fuel for Both tank is 156 Liters. Minimum fuel for take off is the fuel needed for 30 minuts flight at maximum countinuos power : 25 Liters.

Oil

Oil type : Refer to latest revision of Service Instruction Lycoming No. 1014

Average Ambient Air Temperature	MIL-L-6082 or SAEJ1966 Spec. Mineral Grades	MIL-L-22851 or SAEJ1899 Spec. Ashless Dispersant Grades
All Temperature	-----	SAE15W50 or SAE20W50
Above 80°F.	SAE60	SAE60
Above 60°F.	SAE50	SAE40 or SAE50
30°F. to 90°F	SAE40	SAE40
0°F. to 70°F.	SAE30	SAE30, SAE40 or SAE20W40
0°F. to 90°F.	SAE20W50	SAE20W50 or SAE15W50
Below 10°F.	SAE20	SAE30 or SAE20W30

B05 - Powerplant Specification

Engine Manufacturer : TEXTRON LYCOMING INC.
 Engine Model Number : YO-360-A1A Serial No : L-41055-36E

B06 - Powerplant Limitations

Maximum Power	180 hp
Maximum Engine Speed	2700 rpm
Fuel grade Minimum Octane	100/100LL
Oil sump capacity Maximum	8 US Qts
Minimum safe quantity	2 US Qts
Cylinder Head Temperature (CHT)	500°F Maximum
75% power cruise and Economy cruise	Recommended Maximum 500°F
Range for max engine life in continuos operations	> 150°F and < 400°F°
Oil Temperature	245°F Maximum
Desired	180°F
Minimum for continuous operation	140°F
Oil pressure	
(start, warm-up, taxi and take-off)	115 psi Maximum
Idling	25 psi
Minimum	55 psi
Maximum	95 psi
Fuel pressure	
Minimum	0,5 psi
Desidered	3,0 psi
Maximum	8,0 psi

B07 - Propeller Specifications and Limit

The engine drives a propeller from Catto Propeller : 3-Bladed Wood/Glass for RV, Serial No. 06-796, 66" Diameter x 76" Pitch designed for Lycoming engine 0-360 180HP @ 2700 RPM. Top speed 215 Mph @ 2800 RPM

B08 - Airspeed Limitations

	SPEED	MPH	KNOT	REMARKS
V _{NE}	Never Exceed Speed	230	200	Do not exceed this speed in any operations
V _{NO}	Maximum Structural Cruising Speed	193	168	Exceed this speed only in smooth air
V _A	Maneuvering Speed	142	123	Do not make full control mov. above this speed
V _F	Maximum Flap Extended Speed	100	85	Do not exceed this speed with flaps down
V _y	Best Rate of Climb	120	104	
V _x	Best Angle of Climb	80	70	
V _S	Stall Speed Clean	64	56	
V _{SO}	Stall Speed Landing Configuration	58	50	

B09 - Kind of Operations, Flight Limits and Aerobatic Manouvers

Only Visual Meteorological flight rules are permitted

Flying into known icing condition is prohibited.

In **Normal category**, Maximum Gross Weight of 816,46 kg. (1800 lbs), no aerobatic maneuvers are allowed. This aircraft is stressed for **Aerobatic category** up to a Gross Weight of 725,74 kg. (1600 lbs) with the Aft CG Limit of 216,66 cm. of Datum (85.3"). His design strenghts is **6 Gs positive and 3 negative Gs** as per Vans Aircraft Inc. A fuel/oil system for inverted flight is not present so sustained negative Gs are not allowed.

These Aerobatic Manouvers are permitted :

Manouvers	Entry speed (IAS)
Loops, Cuban Eights	160 Mph
Immelman Turns	165 Mph
Aileron Rolls, Barrel Rolls	140 Mph
Hammerhead	160 Mph
Half Vertical Rolls	185 Mph

B10 – Minimum Flightcrew

This airplane must be operated by minimum one crew in the front seat.

C - INSTRUMENTS MARKING and PLACARDS**C01 - Instruments Markings**AIRSPEED INDICATOR MARKINGS

MARKING	MPH	SIGNIFICANCE
White Arc	58 – 100	Full Flap Operating Range. Lower limit is VS_0 . Upper Limit is maximum speed with flaps extended.
Green Arc	64 – 193	Normal Operating Range. Lower limit is VS . Upper limit is maximum structural cruising speed.
Yellow Arc	193 – 230	Operations must be conducted with caution and only in smooth air.
Blue Line	142	Maneuvering speed. Maximum permissible speed at which full control can be applied. Speed at which full elevator control impose loads exceeding limits.
Red Line	230	Maximum speed for all operations.

ENGINE INSTRUMENTS MARKINGS

Oil temperature gauge

Low temperature range (yellow arc):	50° to 140°F
Normal temperature range (green arc):	140° to 245°F
Maximum temperature (red line):	245°F

Oil pressure gauge

Minimum pressure (red line):	25 psi
Caution range, idling (yellow arc):	25 to 55 psi
Normal operating range (green arc):	55 to 95 psi
Maximum pressure (red line):	95 psi

Fuel pressure gauge

Minimum pressure (red line):	0,5 psi
Normal operating range (green arc):	0,5 to 8 psi
Maximum pressure (red line):	8 psi

Cylinder head temperature UBG-16 gauge

Normal operating range (programmed) *	150° to 400°F
Maximum temperature (programmed) *	500°F

* The engine monitor UBG-16 comes complete with programmable alarms for each individual input channel. The unit is programmed as per maximum head temperature of 400° F and minimum of 150° F as per Lycoming Engine Manual. A shock cooling CHT limit is set at 30°F / minute. An orange alarm light is clearly visible in front of the pilot.

Tachometer gauge

Normal operating range (green arc):	500 to 2700 RPM
Maximum RPM (red line):	2700 RPM

Fuel Level (L/R) gauges

Low fuel (red arc):	0,0 to 2,5 U.S. Gallons
Reserve (yellow arc):	2,5 to 5,0 U.S. Gallons
Normal quantity (no marking):	5,0 to 15 U.S. Gallons

Oil quantity indicator

As indicated on the oil dip stick

C02 - Placards

EXPERIMENTAL mark clearly visible to anyone.

In view of pilot and passenger :

QUESTO E' UN AEROMOBILE AMATORIALE. LA SUA RISPONDEZA AD UNO SPECIFICO REGOLAMENTO DI NAVIGABILITA' NON E' STATA DIMOSTRATA

By the airspeed indicator : V_{NO} 193 - V_A 142 marks.

By the compass there is the compass calibration card by FAR 23-1547.

On the instrument panel : NO SMOKING mark.

Painted on the left flap and clearly visible to the pilot and passenger there is the degrees mark with bars at 10°, 20°, 30°, 40°.

The switches are marked ON and OFF. By the way standard ON is up or forward and OFF is down or backward.

The fuel selector is marked for LEFT - RIGHT – OFF positions.

By the lock handle bar of the canopy : CANOPY LOCKED marks.

Rear Seat (back of the front seat) : SOLO PILOT FRONT SEAT ONLY mark.

Forward Baggage Area : MAXIMUM BAGGAGE LOAD 22 KG mark.

Aft Baggage Area : MAXIMUM BAGGAGE LOAD 34 KG mark.

On the cabin extinguisher : VIETATO L'USO IN VOLO

C03 - Fuel Placards

By FUEL Tank Caps (each) : FUEL CAPACITY 79 LT. AVIO 100 LL

On the OIL filler Caps : OIL 8 QTS

C04 - Tires And Tubes Placards

By the main wheels, on the gear legs **40 PSI** mark.

C05 - Other Placards

On the canopy external Handle (left side) a Red Arrow show the OPEN direction movemet.

An indestructible stainless steel nameplate is placed under the horizontal stabilizer, right side.

The top longeron under the canopy slide (fuselage level point) is painted in RED color.

D - EMERGENCY PROCEDURES**D00 - Introduction**

This section provides the pilot with procedures that enable him to cope with emergencies that may be encountered in operating the Van's Aircraft RV-8 airplane. If proper pre-flight inspections, operating procedures and maintenance practice are used, emergencies due to airplane malfunction should be rare. Likewise, careful flight planning and good pilot judgment can minimize en route weather emergencies. However, should any emergency develop, the guidelines in this section should be considered and applied as necessary to correct the problem.

D01 - Airspeed For Safe Operations (Ias)

Engine Failure After Takeoff (FLAPS UP)	90 Mph
Engine Failure After Takeoff (FLAPS DOWN)	80 Mph
Maneuvering Speed	140 Mph
Maximum Glide	90 Mph

D02 - Engine Failure During Takeoff Run

THROTTLE	IDLE
BRAKES	APPLY
FLAPS	RETRACT
MIXTURE	IDLE CUT-OFF
MAGNETOS	OFF
MASTER SWITCH	OFF

D03 - Engine Failure Immediately After Take Off

FLY THE AIRPLANE, AIRSPEED	80 Mph
MIXTURE	IDLE CUT-OFF
FUEL SELECTOR	OFF
MAGNETOS	OFF
FLAPS	AS REQUIRED
MASTER SWITCH	OFF

D04 - Engine Failure During Flight

FLY THE AIRPLANE, AIRSPEED	90 Mph
MIXTURE	FULL RICH
FUEL PUMP	ON
FUEL SELECTOR	SWITCH TANKS
CARBURETOR HEAT	ON
MAGNETOS	SWITCH POSITIONS
TRANSPONDER	7700

If the engine does not resume to normal operations, be prepared for a forced landing.

D05 - Forced Landing

FLY THE AIRPLANE, AIRSPEED	90 Mph
MIXTURE	IDLE CUT-OFF
FUEL SELECTOR	OFF
MAGNETOS	OFF
FLAPS	AS REQUIRED
SEATBELTS	ADJUSTED AND SECURE
RADIO CALL : 121,50 Mhz	MAYDAY
CANOPY	OPEN BEFORE TOUCH DOWN
MASTER SWITCH	OFF BEFORE TOUCH DOWN

D06 - Ditching

RADIO CALL : 121,50 Mhz	MAYDAY REPORTING LATEST KNOWN POSITION AND ANY OTHER USEFUL INFORMATION
FLAPS	AS REQUIRED
FLIGHT PATH	PARALLEL TO SWELLS
CANOPY	OPEN BEFORE TOUCH DOWN

D07 - Fire During Start On Ground

CRANKING	CONTINUE TO GET A START WICH WOULD SUCK THE FLAMES AND ACCUMULATED FUEL THROUGH THE CARB AND INTO THE ENGINE
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If engine starts:

THROTTLE	1700 RPM FOR A FEW SECOMDS
ENGINE	SHUT DOWN

If engine does not start:

THROTTLE	FULL OPEN
MIXTURE	IDLE CUT OFF
CRANKING	CONTINUE FOR FEW SECONDS
ENGINE	SECURE

D08 - Engine Fire In Flight

MIXTURE	IDLE CUT OFF
FUEL SELECTOR	OFF
MASTER SWITCH	OFF
CABIN HEAT AND AIR VENT	OFF

Be prepared to perform an emergency/forced landing

D09 - Cabin Fire

MASTER SWITCH	OFF
VENTS AND CABIN HEAT	OFF
CANOPY	OPEN
Land as soon as possible	
FIRE EXTINGUISHER	USE

D10 - Wing Fire

NAV AND STROBE LIGHTS	OFF
LANDING LIGHT	OFF
Land as soon as possible	

D11 - Icing

Indication: carburetor icing leads to a power rating drop and slight vibration. Moreover the carburetor temperature indicator would show less than +5° C (+41° F).

CARBURETOR HEATING	ON
CABIN HEAT	ON
ENGINE	INCREASE POWER AND CHANGE PERIODICALLY RPM
After disappearing icing condition:	
CARBURETOR HEATING	OFF

Pulling the carburetor heating control may cause the power rating to drop and increase the vibration level. After having pulled fully the carburetor heating control, it is mandatory to adjust the mixture to suppress vibration. The use of carburetor heating increases appreciably the hourly fuel consumption. Turn back or change altitude to obtain outside air conditions that are less likely to cause icing. If icing continues plan a landing at the nearest airport. With an extremely rapid ice build-up, select a suitable "off airport" landing site. With an ice accumulation on or near the wing leading edges, a higher stalling speed may be expected. Plan all maneuvers accordingly.

D12 - Alternator Failure

Indication is that the amperometer shows 0 (needle exactly in the middle).

ALTERNATOR	OFF
ALL SWITCHES	OFF
ALTERNATOR BREAKER	IN
ALTERNATOR	ON
If the alternator is still off-line:	
MASTER SWITCH	ON
ALTERNATOR	OFF
Reduce as much as possible the needed electrical load and land as soon as practical, aircraft is on battery reserves only.	

D13 – AMPLIFIED EMERGENCY PROCEDURES**Engine power loss during takes off**

Action depends on circumstances. If sufficient runway remains then land straight ahead. If insufficient runway remains, maintain a safe airspeed and make only shallow turns to avoid obstructions. Use of flap depends on circumstances; they would normally be fully extended for landing. With sufficient altitude and safe speed established engine restart procedure can be initiated. Fuel pump on with mixture rich, carburetor heat should be on. Engine failure due to fuel exhaustion may require up to 10 seconds after switching tanks.

Engine power loss in flight

Complete power loss is usually due to fuel interruption, if this is so power will be restored when fuel flow is itself restored. The first action is to trim for best glide speed and establish if there is time to attempt restart or immediately prepare for an emergency "Power Off" landing. Restart procedure is to switch to the other tank (provided it is fuelled), turn on the fuel pump and move mixture to rich and the carburetor heat on. Check engine gauges for an indication of cause and if no fuel pressure is indicated change tank selection. When power is restored move carburetor heat to cold and turn fuel pump off. Try moving the throttle and/or mixture to different settings. This may restore power if mixture is too rich or too lean or if there is a partial fuel blockage. Try the other tank; water in the fuel may take time to clear the system. Allowing the engine to windmill may restore power. If failure is due to water then fuel pressure will be normal. Empty fuel lines may take ten seconds to refill.

Power Off Landing

The initial action is **ALWAYS TRIM FOR BEST GLIDE IAS** if power restoration measures are ineffective and time allows check for airports/strips available and notify of problem/intent if possible. Identify a suitable field, planning an into wind landing. Try to be 1000 ft at the end of the downwind leg to make a normal landing. Aim initially for the center of the field (drag with a wind milling propeller will be higher than you are used to) and only lower final stages of flap when you judge you can reach the field. Plan for slowest short field landing but do not stall. When committed to landing close throttle, turn off masters and ignition switches. Turn fuel selector to off and move mixture to idle cut off. Seat belts should be tight and touchdown at the slowest speed possible.

Engine Fire during Start

These are usually due to over priming. The first attempt to extinguish the fire is to draw the excess fuel back into the induction system. If the engine has started continue to operate to pull the fire into the engine. If the engine is not operating move mixture to idle cut off, open the throttle and crank the engine to draw fire into the engine. If in either case the fire continues for more than a few seconds it should be extinguished by external means. Fuel selector should be off and mixture at idle cut off.

Fire in Flight

Engine fire in flight is extremely rare. If it is present switch fuel selector off and close throttle. Mixture should be at idle cut off and booster pump off. Close heater and subject to radio requirements turn masters off. Proceed with Power off Landing. Cabin fire is identified through smell and smoke - be sure it is not from outside! It is essential the source be identified through instrument readings, nature of smoke or system failure. If an electrical fire is indicated masters should be turned off, cabin heat turned off and vents open. Fire extinguisher should be used with caution. Proceed with Power off landing procedure.

Oil Pressure Loss

This may be partial or complete, or it may be a gauge malfunction. Note the oil pressure gauge is electrical. A partial loss of oil pressure is usually a regulation problem. A landing should be made as soon as possible. A complete loss of pressure may signify oil exhaustion (or faulty gauge). Proceed to nearest airport/airfield and be prepared for a forced landing. The engine may stop suddenly. Maintain altitude and do not change power settings unnecessarily, as this may hasten power loss. An off airfield landing while power is available should be considered especially in the presence of additional indicators e.g. : rise in engine CHT or oil temperature, oil and/or smoke apparent.

Fuel Pressure loss

If fuel pressure falls, turn on the electric pump and check selector is on a full tank. If the problem remains land as soon as possible and check system.

High Oil Temperature

High oil temperature may be due to a low oil level, obstruction in oil cooler (internal or external), damaged baffle seals, a defective gauge (on this aircraft it is an electrical gauge), or other causes. A steady rise is a particular sign of trouble. Always land as soon as possible at an appropriate airport/airfield and investigate and be prepared for an engine failure. Watch the oil pressure and CHT (Cylinder Head Temperature) gauge to identify impending failure.

Alternator Failure

This is identified from progressive voltage drop (alternator warning light and voltmeter). Initially check operation by actuating a high load item (e.g. landing light Reduce electrical load as much as possible and check circuit breakers. Attempt to reset by turning off the alternator switch for one second and then back on again. If the cause was a momentary over voltage (16.5V+) this will return the system to normal working. If the indications are that there is zero alternator output turn Alternator switch off, use only minimum electrical load and land as soon as practicable. Note that the flaps are electrically driven so prepare for a flapless approach.

Engine Roughness

This is usually due to carburetor icing indicated by a drop in RPM and may be accompanied by slight loss of airspeed and/or altitude. If too much ice accumulates restoration of full power may not be possible, therefore prompt action is required. Turn carburetor heat on. RPM will decrease slightly and roughness increases. Wait for a decrease in engine roughness or increase in RPM, indicating ice removal. If no change in approximately one minute return carburetor heat to off. Partial carburetor heat may be worse than no heat as it may melt part of the ice, which will refreeze in the intake system. Therefore always use full heat and when ice is removed return to full cold position. If engine is still rough adjust mixture for maximum smoothness. Engine will run rough if too rich or lean. Switch fuel pump on and try other tank to check fuel contamination. Check engine gauges for normality and react accordingly. Move magneto switches to "L" then "R" and both. If operation is satisfactory on either magneto proceed at reduced power, with mixture rich, to nearest airport/airfield.

Spin Recovery

Van's Aircraft Inc. does not consider spins to be a recreational aerobatic maneuver, and recommends that they not be casually undertaken

Typical spin behavior for an RV is that the control pressures are released immediately following spin entry, recovery will be automatic and almost immediate-no more than 1/2 spin revolution. If spin rotation is held for approximately one full revolution, recovery can be accomplished quickly through application of anti-spin control (opposite rudder, stick centered). If pro-spin controls are held until two full revolution have been completed, the spin will be fully developed. Recovery techniques will vary.

The most effective technique is as follows:

1. Power off
2. Elevator centered - or stick free)
3. Full opposite rudder.
4. Recover from dive as soon as rotation stops.

Recovery time (time to stop rotation) will vary depending on C.G. position and other factors.

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E – NORMAL OPERATIONS**E00 - Cockpit Check**

Pilot's Operating Handbook/Doc.	IN AIRCRAFT
Required Charts/Navigation Aid	IN AIRCRAFT
Magnetos	OFF
All Switches	OFF
Master Switch	ON
Fuel	CHECK QUANTITY
Flaps	DOWN
Master Switch	OFF

Warning : WHEN TURNING ON MASTER SWITCH OR WHEN TURNING ON PROPELLER THROUGH BY HAND, ALWAYS TREAT THE PROPELLER AS IF THE IGNITION SWITCH IS ON. DO NOT STAND OR ALLOW OTHERS TO STAND WITHIN THE PROPELLER AREA.

E01 - Exterior Check

Left Static Port	CHECK CLEAR
Elevator and Rudder	CHECK FREEDOM OF MOVEMENT
Elevator and Rudder nuts, bolts and pins	CHECK FIRMLY AND SOLID
Tail Light	CHECK CONDITION
Tailwheel	CHECK CONDITION
Right Static Port	CHECK CLEAR
Right Flap	CHECK SECURITY / ACTUATOR ROD
Right Aileron	CHECK FREEDOM OF MOVEMENT
Right Aileron nuts and bolts	CHECK FIRMLY AND SOLID
Right Nav and Landing Lights	CHECK CONDITION
Right Wing Tiedown	CHECK SECURITY
Right Main Tire	CHECK INFLATION 40 Psi (2,7 Bar)
Right Fuel Tank Vent	CHECK CLEAR
Right Fuel Sump	DRAIN AND CHECK
Right Fuel Tank Qty.	CHECK AND SECURE CAP
Engine Oil Level	CHECK (6 QUARTERS MINIMUM)
Engine Oil Cap and Door	CHECK SECURE
Engine Cowling	CHECK SECURITY
Propeller and Spinner	CHECK FOR DENTS or CRACKS
Engine Intake	CHECK CLEAR
Left Main Tire	CHECK INFLATION 40 Psi (2,7 Bar)
Left Fuel Vent	CHECK CLEAR
Left Fuel Sump	DRAIN AND CHECK
Left Fuel Tank Qty.	CHECK AND SECURE CAP
Pitot Tube	CHECK
Left Nav and Landing Lights	CHECK CONDITION
Left Aileron	CHECK FREEDOM OF MOVEMENT
Left Aileron nuts and bolts	CHECK FIRMLY AND SOLID
Left Flap	CHECK SECURITY / ACTUATOR ROD
Chocks	REMOVE

Warning : ENSURE GASCOLATOR DRAIN CLOSSES COMPLETELY AFTER DRAINING OR FIRE/FUEL STARVATION COULD RESULT INFLIGHT

E02 - Before Starting Engine

Canopy	CLOSED-CHECK HOOK IN PLACE
Seats and Seat Belts	ADJUST
All Switches	OFF
Breakers	IN
Carburetor Heat	COLD / OFF
Mixture	FULL RICH
Fuel Selector	FULLEST TANK
Master Switch	ON
Alternator	OFF
Strobe Light	ON
Fuel Pump	ON
Propeller Arc	CHECK CLEAR
Starter	ENGAGE (MAX 10 SECONDS)

E03 - After Starting Engines

Throttle	1200 RPM
Oil Pressure	CHECK GREEN IN 30 SEC.
Fuel Pump	OFF
Alternator Switch	ON
Amperometer	CHECK POSITIVE
Avionic Master Switch	ON
Equipment Master Switch	ON
Nav Light	ON
Strobe Light	ON
Altimeter	SET QNH
Radio Call	CHECK FREQ. AND SQUELCH

E04 - Taxi Check

Brakes	CHECK
Rudder	CHECK
EFIS Directional Gyro	CHECK (STEERING)
EFIS Turn Coordinator	CHECK (STEERING)
EFIS Compass	CHECK (STEERING)
Compass	CHECK (STEERING)

E05 - Engine Run Up

Aircraft	IN THE WIND
Brakes	APPLY
Throttle	1800 RPM
Magnetos	CHECK GROUND (BOTH-OFF-BOTH)
Magnetos	CHECK (MAX DROP 175 RPM)
Carburetor Heat	CHECK
Mixture	CHECK
Oil Pressure	CHECK GREEN
Fuel Pressure	CHECK GREEN
Throttle	1200 RPM

E06 - Pre Take-Off

Navigation Instruments	CHECK
Engine Instruments	CHECK
Avionics	SET
GPS	SET
EFIS	SET
Autopilot	OFF
Master Switch	ON
Alternator Switch	ON
Avionic Switch	ON
Equipment Switch	ON
Fuel Pump	ON
Magnetos	BOTH
Mixture	FULL RICH
Carburetor Heat	OFF
Flaps	AS REQUIRED
Trim	NEUTRAL
Aileron Trim	NEUTRAL
Fuel Selector	CHECK FULLEST TANK
Control Stick	CHECK FREEDOM OF MOVEMENT
Seat Belts	SET
Canopy	CLOSED-CHECK HOOK IN PLACE
Radio Call	SET FREQUENCY

E07 - After Take-Off Check

Engine Parameters	CHECK
Flaps	UP
Fuel Pump	OFF
Fuel Pressure	CHECK

E08 - Climb, Cruise And Descent Check

Engine Parameters	CHECK
Fuel selector	SWITCH EVERY 30'

E09 - Pre-Landing Check

Seat Belts	CHECK
Fuel Pump	ON
Carburetor Heat	ON
Mixture	FULL RICH
Fuel Selector	FULLEST TANK
Flaps	0 or AS REQUIRED
Autopilot	OFF
Flaps Final Leg	40°

E10 - Go Around Check

Carburetor Heat	OFF
Throttle	MAXIMUM PERMITTED
Flaps	AS REQUIRED

E11 - After Landing Check

Throttle	1200 RPM
Carburetor Heat	OFF
Flaps	UP
Transponder	STAND-BY
Fuel Pump	OFF
Trim	NEUTRAL

E12 - Engine Shut-Down And Parking Check

Landing Lights	OFF
Strobe Lights	OFF
Nav Lights	OFF
Equipment Switch	OFF
Avionic Switch	OFF
Throttle	1000 RPM
Magneto Ground Check	PERFORM
Throttle	1200 RPM
Mixture	FULL LEAN
Magnetos	OFF
Alternator	OFF
Master Switch	OFF
Chocks	SET

F - ELECTRICAL SYSTEM

F01 – Electrical System Description

Power is distributed to Main Bus from the Battery and Alternator. The Battery Bus is powered all the time, regardless of the state of the Battery Contactor (Master switch). The bus bar is separated in three busses. Main Buss, Avionics Buss and Electrical Equipment Buss. The Electrical system switches are positioned on the right switch console. The Master relay and the Alternator are controlled each by a single switch. Other switches are for : Avionics master, Electronic equipment, Nav Lights, Strobe Lights and Flood lights.

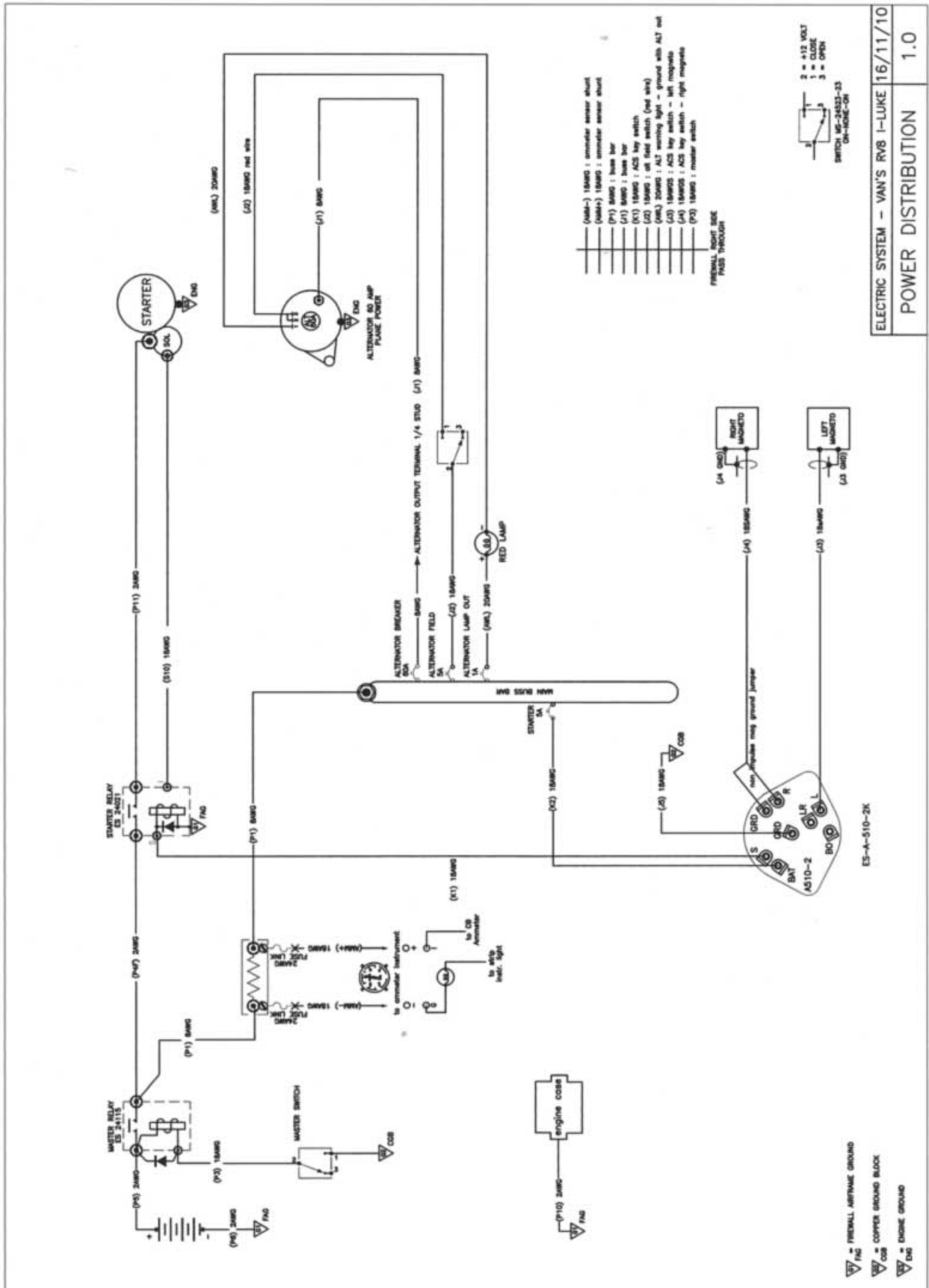
Aircraft electrical system equipment :

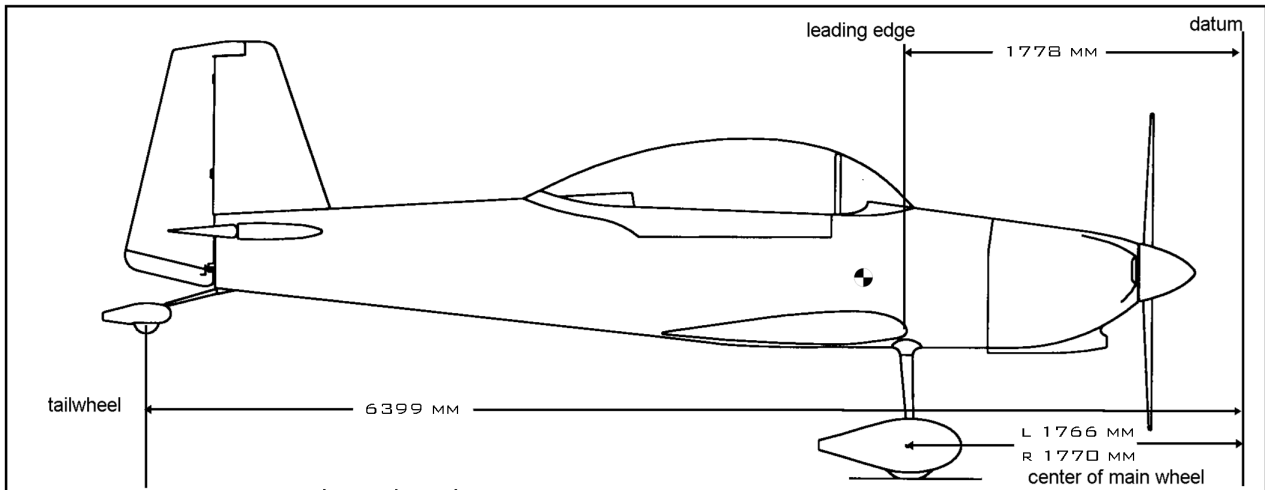
- Battery PC680 Odyssey 12 volt - 17 amp-hour and a Battery Contactor
- Alternator from PlanePower model AL14.E160/12 volt, 60 amp, internally regulated (14 volt +/-0.3)
- Starter Skytech
- Fuel electrical boos pump FACET
- Flaps electrical motor with switch
- Smoke pump
- Nav and Strobe lights (Right/left wing and rudder) Wheelen system
- Landing Light (one each wingtip)
- ELT Artex 406 mhz
- EFIS Dynon D-10A display with a A/P servo control and with backup battery unit
- Roll trim and Pitch trim servo Ray Allen
- Radio Comm SL-40
- Trasponder Garmin GTX 328 modo C/S
- GPS Garmin 695 with backup battery unit
- Intercom PS Engineering PM 1000 II
- Two headset David Clark Model H10-13.4 S

F02 - Circuit Breakers

ITEM	AMP CB	ITEM	AMP CB
Alternator 60 amp	60	Intercomm ps 1000II	1
Alternator field switch	5	Ubg-16	5
Starter motor SKY-TEC	5	Gps garmin 695	5
Electric equipment master	15	EFIS Dynon D-10A	2
Landing halogen lights 2x right wing	15	Ammeter	2
Nav lights-Tail/L wing/R wing	10	Trim - ailerons	1
Strobe lights power supply T/LW/RW	10	Trim – elevator	1
Engine instruments	10	Instruments light	1
Flaps motor	5	Alt out warning lights	1
Fuel pump	5	Warning lights	1
Fuel level left	2	Clock	1
Fuel level right	2	Hour meter	1
Dynon autopilot servo	2	Ammeter	2
Radio comm sl-40 tx	5	Smoke pump	15
Transponder gtx-328	5		

F03 – Electrical System scheme



G - WEIGHT AND BALANCE**G01 - WEIGHT AND BALANCE EMPTY AIRCRAFT (with oil and unusable fuel)**

DATUM : 177,80 cm. forward of the wing leading edge

LIMITS :

<i>Design C.G. Range</i>	199,90 cm. <—> 220,52 cm. of Datum
<i>Recommended Gross Weight</i>	816,46 kg.
<i>Aerobatic Gross Weight</i>	725,74 kg.
<i>Aerobatic Aft CG Limit</i>	216,66 cm. of Datum

ARMS :

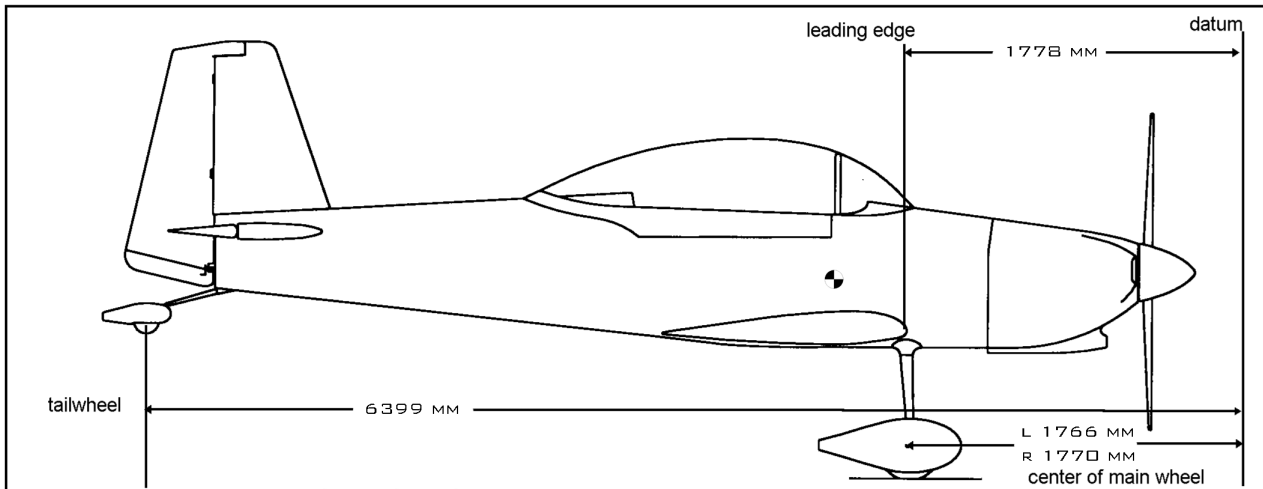
<i>Fwd Baggage</i>	148,61 cm. of Datum
<i>Fuel</i>	203,20 cm. of Datum
<i>Pilot</i>	231,90 cm. of Datum
<i>Passenger</i>	302,56 cm. of Datum
<i>Aft Baggage Floor</i>	350,52 cm. of Datum
<i>Aft Baggage Shelf</i>	388,39 cm. of Datum

	Weight (kg.)	Arm (mm.)	Moment (kg. – mm.)
Right Main Weight	233,10	1770	412580
Left Main Weight	228,40	1766	403354
Tail Wheel Weight	24,50	6399	156775
Empty Weight	486,00		972709
CG		200,14	

G02 – Equipment List

Equipment List	Model P/n	Weight (Kg.)	Arm (mm.)
Propeller Catto Three Blade	CATTO3BLADE	7,26	204
Starter Skytech	149-12LS	3,74	575
Alternator Plane&Power	AL12-E160/B	3,15	484
Engine Lycoming	(Y)O360A1A	131,54	735
Smoke injector & stainless steel hose	SA-100H-INJ/HS	0,23	745
Battery Odyssey	PC680	7,00	1268
Smoke system tank assembly, valve & pump	SA-100H	5,67	1486
Fuel Pump Facet	40108	0,51	1617
Wheel Pant Left	WHL PRFLT RV-8	1,40	1930
Wheel Pant Right	WHL PRFLT RV-8	1,40	1933
Compass Airpath Lighted TSO'd	C2300-L4	0,34	2041
Air Speed Indicator	UMA16310261D	0,25	2041
EFIS Dynon w/backup battery unit	D-10A	0,88	1944
Altimeter United Instruments TSO'd	5934PM-3	0,37	2041
Vertical Speed Indicator UMA 2 ¼	T8-210-20	0,21	2041
Engine Monitor Electronic Instruments	UBG-16	0,62	2041
Clock GT-50	GT-50	0,07	2041
Tachometer Van's Series	IE VTACH3500	0,13	2041
Fuel Pressure Gauge Van's Series	IE VFP15	0,13	2041
Oil Temperature Gauge Van's Series	IE VOT250	0,13	2041
Oil Pressure Gauge Van's Series	IE VOP100	0,13	2041
Radio COM Garmin	SL-40	0,91	1896
Transponder XPDR Garmin	GTX-328	1,54	1917
Intercom PS Engeneering	PM1000II	0,34	2041
GPS Garmin	GPS695	1,02	2023
Hour meter Dynatime	MIL-M-7793	0,02	2041
Fuel Quantity Gauge Left Van's Series	IE VFL15	0,13	2041
Fuel Quantity Gauge Right Van's Series	IE VFL15	0,13	2041
Fuel selector Andair	FS20x7	0,21	2190
Ammeter Gauge Van's Series	IE VAM40	0,13	1885
Roll trim servo Ray Allen	T3-12A	0,11	2358
Front Seat foam	RV8-PKG11F	3,18	2527
Harness and safety belts Hooker Harness Fd	HH-SP5R	1,31	2527
Estintore	RT-A600	0,72	2600
Flap motor mount Pittman	ES 85615-157-1	0,68	3161
Rear Seat foam	RV8-PKG11R	2,80	3310
Harness and safety belts Hooker Harness Aft	HH-SP5R	1,48	3310
Strobo Power Supply Whelen	HDACF	0,95	3903
ELT with strap and tray	ARTEX ME 406	0,94	3986
First Aid kit	Medaire VLJ Kit	1,36	3900
EFIS compass sensor Dynon	EDC-D10A	0,10	4850
EFIS OAT sensor	D-10A-OAT	0,08	5550
Pitch trim servo Ray Allen	T3-12A	0,11	5838

G04 - WEIGHT AND BALANCE EMPTY FORM



DATUM : 177,80 cm. forward of the wing leading edge

LIMITS :

<i>Design C.G. Range</i>	199,90 cm. <-> 220,52 cm. of Datum
<i>Recommended Gross Weight</i>	816,46 kg.
<i>Aerobatic Gross Weight</i>	725,74 kg.
<i>Aerobatic Aft CG Limit</i>	216,66 cm. of Datum

Empty Aircraft Weight	486,681	2000	973249
Forward baggage		1486	
Fuel _____ Lt. * 0,72 = _____ Kg.		2032	
Pilot		2319	
Passenger		3026	
After baggage floor		3505	
After baggage shelf		3883	
Total			
CG			