VAN'S AIRCRAFT RV-7
I-MKLK

AIRCRAFT FLIGHT MANUAL

Make:	Van's Aircraft
Model:	RV-7 Serial
No:	74141
Registration:	I-MKLK

THE AIRPLANE MUST BE OPERATED IN COMPLIANCE WITH INFORMATION AND LIMITATIONS CONTAINED IN THIS DOCUMENT.

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Foreword

I-MKLK is a Van's aircraft (www.vansaircraft.com) RV-7 all- metal, low wing, two seat, high performance aircraft. It was built by Marco Grilli from a Van's quick-build kit during the years 2013 until 2014 under the supervision of C.A.P Club Aviazione Popolare (www.federazionecap.it).

Disclaimer

This aircraft is classified as "experimental". Hence certain design features may deviate from the typical "spam can" certified production aircraft. This aircraft has been built by the builder to the best of his knowledge and quality of craftsmanship. Nonetheless, operating this aircraft is at the sole risk of the pilot.

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0.1 RECORD OF REVISIONS

Rev No	Affected Section	Affected Pages	Date	Description	Signature
15.0	All	All	01.01.15	Original Issue	

0.2 LIST OF EFFECTIVE PAGES

Section	Page	Date	Section	Page	Date
0.0	4-5	01.01.2015	9.0	144-146	01.01.2015
1.0	6-22	01.01.2015			
2.0	23-35	01.01.2015			
3.0	36-50	01.01.2015			
4.0	51-65	01.01.2015			
5.0	66-71	01.01.2015			
6.0	72-89	01.01.2015			
7.0	90-142	01.01.2015			
8.0	143	01.01.2015			

0.3 TABLE OF CONTENTS

1.0 GENERAL

1.1 INTRODUCTION

THIS AIRPLANE FLIGHT MANUAL CONTAINS INFORMATION AND LIMITATIONS FOR THE SAFE AND EFFICIENT OPERATION OF THIS EXPERIMENTAL AIRPLANE.

1.2 CERTIFICATION BASIS

EXPERIMENTAL

DAY VFR NOT IN VISUAL CONTACT WITH GROUND

NOT IN ICING CONDITION

NORMAL AND UTILITY CATEGORIES, ADDITIONAL AEROBATIC MANEUVERS ON AFM

DOCUMENTS AVAILABLE:

THE FOLLOWING IS A CHECK LIST OF DATA, INFORMATION AND LICENSES THAT ARE PART OF THE AIRCRAFT FILE AND REQUIRED BY REGULATIONS. THEY SHOULD BE CARRIED ON BOARD AT ALL TIMES.

1. PERMIT TO FLY
2. AIRCRAFT STATION LICENSE
3. AIRCRAFT FLIGHT MANUAL
4. QUICK REFERENCE HANDBOOK
5. CHECK LIST
6. LIABILITY INSURANCE CERTIFICATE FOR AIRCRAFT

1.3 WARNINGS, CAUTIONS AND NOTES

THE FOLLOWING DEFINITIONS APPLY TO WARNINGS, CAUTIONS AND NOTES USED IN THIS AFM.

WARNING MEANS THAT THE NON-OBSERVATION OF THE CORRESPONDING PROCEDURE LEADS TO AN IMMEDIATE OR IMPORTANT DEGRADATION OF THE FLIGHT SAFETY

CAUTION MEANS THAT THE NON-OBSERVATION 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 DEFINITIONS AND ABBREVIATIONS

AIRSPEEDS

KIAS INDICATED AIRSPEED IN KNOTS; AIRSPEED AS DISPLAYED ON THE INSTRUMENT. VALUES PUBLISHED IN THIS MANUAL ASSUME ZERO INSTRUMENT ERROR.

KCAS CALIBRATED AIRSPEED IN KNOTS; INDICATED AIR SPEED CORRECTED FOR INSTRUMENT AND POSITION ERROR

KTAS TRUE AIRSPEED IN KNOTS; AIRSPEED IN REFERENCE TO UNDISTURBED SURROUNDING AIR, CALIBRATED AIR SPEED CORRECTED FOR TEMPERATURE AND ALTITUDE.

GS GROUNDSPEED; SPEED IN REFERENCE TO GROUND

V_A MANEUVERING SPEED; FULL OR ABRUPT CONTROL SURFACE MOVEMENT ABOVE THIS SPEED NOT ALLOWED.

V_{FE} MAX. FLAPS EXTENDED SPEED. DO NOT EXCEED FOR A GIVEN FLAP SETTING.

V_{NO} MAX. STRUCTURAL CRUISING SPEED. DO NOT EXCEED IN CASE OF TURBULENCE.

V_{NE} NEVER EXCEED SPEED IN SMOOTH AIR. NEVER OPERATE IN EXCESS OF THIS SPEED. ATTENTION, KTAS FOR THE RV-7A!

V_{S0} STALLING SPEED WITH THE AIRPLANE IN LANDING CONFIGURATION.

V_{S1} STALLING SPEED WITH THE AIRPLANE IN CLEAN CONFIGURATION.

V_X BEST ANGLE-OF-CLIMB SPEED; GREATEST GAIN OF ALTITUDE OVER SHORTEST HORIZONTAL DISTANCE.

V_Y BEST RATE-OF-CLIMB SPEED; GREATEST GAIN OF ALTITUDE OVER SHORTEST AMOUNT OF TIME

METEOROLOGICAL TERMS

ISA INTERNATIONAL STANDARD ATMOSPHERE, IN WHICH:

- THE AIR IS DRY PERFECT GAS
- THE TEMPERATURE AT SEA LEVEL IS 15°C
- THE TEMPERATURE GRADIENT FROM SEA LEVEL TO THE ALTITUDE AT WHICH THE OUTSIDE AIR TEMPERATURE IS -56.5°C IS -0.00198°C PER FOOT AND ZERO ABOVE THAT ALTITUDE.

MSL MEAN SEA LEVEL.

OAT OUTSIDE AIR TEMPERATURE; FREE AIR STATIC TEMPERATURE, OBTAINED EITHER FROM ONBOARD TEMPERATURE INDICATORS OR GROUND METEOROLOGICAL SOURCES.

QNH THEORETICAL ATMOSPHERIC PRESSURE AT MSL, CALCULATED FROM THE ELEVATION OF THE MEASURING POINT ABOVE MSL AND THE ACTUAL ATMOSPHERIC PRESSURE AT THE MEASURING POINT.

PRESSURE ALTITUDE

ALTITUDE ABOVE MSL INDICATED BY A BAROMETRIC ALTIMETER SET TO STANDARD PRESSURE (1013.25 HPA), CORRECTED FOR INSTRUMENT ERRORS.

DENSITY ALTITUDE

PRESSURE ALTITUDE CORRECTED FOR TEMPERATURE

STATION PRESSURE

ACTUAL ATMOSPHERIC PRESSURE AT FIELD ELEVATION.

WIND WIND VELOCITIES USED AS VARIABLES IN THIS MANUAL ARE TO BE REGARDED AS HEAD OR TAILWIND COMPONENTS OF THE REPORTED WINDS.

PERFORMANCE AND FLIGHTPLANNING

AOA ANGLE OF ATTACK. INCIDENCE OF THE AERODYNAMIC CHORD IN RELATION TO THE STILL AIR.

CLIMB GRADIENT

THE RATIO OF THE CHANGE IN ALTITUDE DURING A PORTION OF A CLIMB, TO THE HORIZONTAL DISTANCE TRAVELED IN THE SAME TIME INTERVAL.

MAX. DEMONSTRATED CROSSWIND COMPONENT

THE DEMONSTRATED CROSSWIND COMPONENT FOR WHICH ADEQUATE CONTROL OF THE AIRPLANE DURING TAKE-OFF AND LANDING WAS ACTUALLY DEMONSTRATED. THE VALUE IS CONSIDERED TO BE LIMITING.

ROUTE SEGMENT

PART OF A ROUTE. EACH END OF A LEG IS DEFINED BY A FIX.

LPH LITERS PER HOUR FUEL FLOW
GPH GALLONS PER HOUR FUEL FLOW

MASS AND BALANCE

REFERENCE DATUM

AN IMAGINARY VERTICAL PLANE FROM WHICH ALL HORIZONTAL DISTANCES FOR CENTER OF GRAVITY CALCULATIONS ARE MEASURED.

STATION

A LOCATION ALONG THE AIRPLANE FUSELAGE, USUALLY GIVEN IN TERMS OR DISTANCE FROM THE REFERENCE DATUM.

ARM

THE HORIZONTAL DISTANCE FROM THE DATUM TO THE CENTER OF GRAVITY (CG) OF A COMPONENT.

MOMENT

THE MASS OF A COMPONENT MULTIPLIED BY ITS MOMENT ARM.

AIRPLANE CG

AIRPLANE CENTER OF GRAVITY. IMAGINARY POINT IN WHICH THE AIRPLANE MASS IS ASSUMED TO BE CONCENTRATED FOR MASS AND BALANCE CALCULATIONS. THE DISTANCE FROM THE REFERENCE DATUM IS FOUND BY DIVIDING THE TOTAL MOMENT BY THE TOTAL MASS OF THE AIRPLANE.

CG ARM

THE ARM OBTAINED BY ADDING THE AIRPLANE'S INDIVIDUAL MOMENTS AND DIVIDING THE SUM BY THE TOTAL MASS.

CENTER OF GRAVITY LIMITS

THE EXTREME CENTER OF GRAVITY LOCATIONS WITHIN WHICH THE AIRPLANE MUST BE OPERATED AT A GIVEN MASS.

USABLE FUEL

THE QUANTITY OF FUEL AVAILABLE FOR FLIGHT PLANNING PURPOSES.

UNUSABLE FUEL

THE QUANTITY OF FUEL REMAINING IN THE SYSTEM AT THE POINT WHEN ENGINE OPERATION CAN NO LONGER BE SUSTAINED.

BASIC EMPTY MASS

IS THE MASS OF AN AIRPLANE PLUS STANDARD ITEMS SUCH AS: UNUSABLE FUEL AND OTHER UNUSABLE FLUIDS; LUBRICATING OIL IN ENGINE AND AUXILIARY UNITS; FIRE EXTINGUISHERS; PYROTECHNICS; EMERGENCY OXYGEN EQUIPMENT; SUPPLEMENTARY ELECTRONIC EQUIPMENT.

USEFUL LOAD (AS USED IN THIS MANUAL)

PILOTS PLUS PASSENGERS PLUS BAGGAGE PLUS USABLE FUEL THE DIFFERENCE BETWEEN MAX. TAKE-OFF MASS AND BASIC EMPTY MASS

MAXIMUM TAKE-OFF MASS

MAXIMUM MASS ALLOWED FOR TAKE-OFF.

MAXIMUM LANDING MASS

MAXIMUM MASS ALLOWED FOR LANDING TOUCHDOWN.

TARE

THE WEIGHT OF CHOCKS, BLOCKS, STANDS, ETC. USED ON THE SCALES WHEN WEIGHING THE AIRPLANE.

JACK POINTS

POINTS ON THE AIRPLANE IDENTIFIED BY THE MANUFACTURER AS SUITABLE FOR SUPPORT OF THE AIRPLANE. FOR WEIGHING, MAINTENANCE OR OTHER PURPOSES.

POWER

TAKE-OFF POWER (TOP)

MAXIMUM PERMISSIBLE ENGINE OUTPUT POWER FOR TAKE-OFF.

MAXIMUM CONTINUOUS POWER (MCP)

THE HIGHEST AVAILABLE POWER OUTPUT NOT LIMITED BY TIME.

CLIMB POWER (CLB)

THE POWER RECOMMENDED FOR CRUISE CLIMB, THE AIRPLANE IS CONTROLLABLE IN LANDING CONFIGURATION.

ENGINE CONTROLS / INSTRUMENTATION

RPM	REVOLUTIONS PER MINUTE
MP	MANIFOLD PRESSURE
BHP	BRAKE HORSEPOWER
CHT	CYLINDER HEAD TEMPERATURE
EGT	EXHAUST GAS TEMPERATURE
LOP	LEAN OF PEAK
ROP	RICH OF PEAK

1.5 UNITS OF MEASUREMENTS

1.5.1 CONVERSION FACTORS

Dimension	SI Unit	U.S. Units	Conversion
Length	[mm] millimeter [m] meter [km] kilometer	[in] inch [ft] feet [NM] Nautical Mile	[mm] / 25.4 = [in] [m] / 0.3048 = [ft] [km] / 1.852 = [NM]
Volume	[l] liters	[U.S. gal] Gallons [qts] quarts	[l] / 3.7854 = [gal] [l] / 0.9464 = [qts]
Speed	[km/h] kilometer per hour [m/s] meter per second	[kts] knots [fpm] feet per minute	[km/h] * 1.852 = [kts] [m/s] * 196.85 = [fpm]
Speed of Rotation	RPM Revolutions per minute		
Mass	[kg] Kilograms	[lb] pounds	[kg] * 2.2046 = [lbs]
Force, Weight	[N] Newtons	[lbf] pounds force	[N] * 0.2248 = [lbf]
Pressure	[hPa] hecto-pascals [bar] bars	[inHg] inches of Mercury [psi] pounds per square inch	[hPa] / 33.68 = [inHg] [bar] * 14.504 = [psi]
Temperature	[°C] degrees Celsius	[°F] degrees Fahrenheit	[°C] * 1.8 + 32 = [°F] ([°F] – 32) / 1.8 = [°C]

1.5.2 CONVERSION TABLE [L] /[U.S. GAL]

U.S.Gal	Liters
1	3.8
2	7.6
3	11.4
4	15.1
5	18.9
6	22.7
7	26.5
8	30.3
9	34.1
10	37.9
15	56.8
20	75.7
25	94.6
30	113.6
35	132.5
40	151.4
42	159.0

U.S.Gal	Liters
1	3.8
2	7.6
3	11.4
4	15.1
5	18.9
6	22.7
7	26.5
8	30.3
9	34.1
10	37.9
15	56.8
20	75.7
25	94.6
30	113.6
35	132.5
40	151.4
42	159.0

1.5.3 CONVERSION TABLE METER/FOOT

Meter	Feet
10	33
20	66
30	98
40	131
50	164
60	328
70	656
80	984
90	1312
100	1640
200	1969
300	2297
400	2625
500	2953
600	3281
700	3609
800	3937

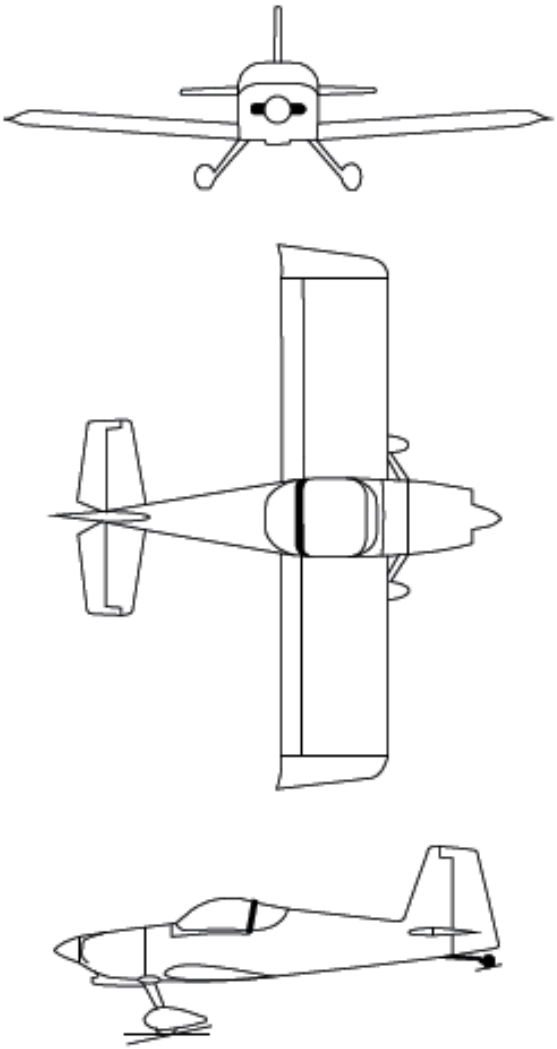
Feet	Meter
100	33
200	66
300	98
400	131
500	164
1000	328
2000	656
3000	984
4000	1312
5000	1640
6000	1969
7000	2297
8000	2625
9000	2953
10000	3281
11000	3609
12000	3937

1.5.4 CONVERSION TABLE KILOGRAM/POUNDS

Kilograms	Pounds
1	2,20
5	11,20
10	22,05
15	33,07
20	44,09
30	66,14
40	88,18
50	110,23
100	220,46
200	440,92
300	661,39
400	881,85
500	1102,31
600	1322,77
1000	2204,62

Pounds	Kilograms
1	0,45
5	2,26
10	4,53
20	9,07
50	22,68
100	45,36
200	90,72
300	136,08
400	181,44
500	226,80
600	272,16
700	317,51
800	362,87
900	408,23
1000	453,59

1.6 THREE VIEW DRAWING



1.7 SPECIFICATIONS

1.7.1 AIRFRAME

Dimension				
Lenght	6.192	m	20 ft 4	in
Wingspan	7.62	m	25 ft 0	in
Height	1.778	m	5 ft 10	in
Wing Area	11.24	mq	121	sq ft
Wing Airfoil	NACA 23013.5			
Wing Incidence	1	deg		
Wing Dihedral	3,5	deg		
Wing Twist	0	deg		
Wing Washout	0	deg		
Flat Plate Area	0,22	mq	2,45	sq ft
Main Gear	2,3	m	91	in
Wheel base	1,38	m	54,5	in
Cabin Height	1,06	m	42	in
Cabin Widht	1,10	m	43	in
Cabin Lenght	1,30	m	51	in

Flight Control	
Elevator Travel	30 Up / 25 Down
Aileron Travel	32 Up / 17 Down
Rudder Travel	35 Right / 35 Left
Flaps Travel	40

Weights				
Empty weight	522,5	kg	1151	lbs
Max TO weight	816,4	kg	1800	lbs

Loadings				
Wing load	72.26	kg/sq m	14.8	lb/sq in
Power load	4,0	kg/hp	9,0	lbs/hp

1.7.2 ENGINE / PROPELLER

ENGINE:
FOUR CYLINDER, PARALLEL VALVE, DIRECT DRIVE, HORIZONTALLY OPPOSED, AIR- COOLED, ELECTRONICALLY FUEL-INJECTED, EXPERIMENTAL LYCOMING-CLONE AERO SPORT POWER IO-375-M1S,RED PAINTED OPTION, ECI CARBIDE NICKEL TAPERED FIN CYLINDERS, SUPERIOR COLD AIR HORIZONTAL INDUCTION OIL SUMP, FLYEFII DUAL ELECTRONIC INJECTION AND IGNITION SYSTEM, 8.5:1 PISTONS, 195 H.P. @ 2700 RPM

PROPELLER:
WHIRLWIND 200RV CONSTANT SPEED
72" DIAMETER
2 CARBON FIBER BLADES WITH NICKEL LEADING EDGE EROSION SHIELD

GOVERNOR:
JIHOSTROJ P920-028

1.7.3 INSTRUMENTATION / PANEL

Dynon Avionics Skyview System 2 displays SV-D1000 10"
Dynon Avionics System Battery Back-Up SV-BAT-320
Dynon Avionics AOA Heated Angle of Attack p/n100667-0
Dynon Avionics Single module SV-ADAHRS-200
Dynon Avionics Engine Monitoring System SV-EMS-220
Dynon Avionics Mode S Transponder SV-XPNDR-261
Dynon Avionics 2 Axis Autopilot System
Dynon Avionics 5 Hz WAAS GPS receiver SV-GPS-250
Dynon Avionics Com Radio SV-COM-C25
Dynon Avionics Navigation Software SV-MAP-270
Dynon Avionics EFIS D6 Back-Up Instruments (ATT,ASI,ALT,VSI,HDG,TURN COORD)
Garmin GPS Aera 795
Garmin 225 Nav/Com 8.33 Khz Channel Spacing
PS Engineering Audio Panel PMA 8000BT
ACK Technologies ELT 406 Mhz ACK E-04
Magnetic Compass SIRS 2400
Vertical Power VP-X PRO
PLX Air/Fuel Ratio indicator DM-6SM-AFR

2.0 LIMITATIONS

2.1 INTRODUCTION

SECTION 2 OF THIS AIRPLANE FLIGHT MANUAL INCLUDES OPERATING LIMITATIONS, INSTRUMENT MARKINGS, AND BASIC PLACARDS NECESSARY FOR THE SAFE OPERATION OF THE AIRPLANE, ITS ENGINE, STANDARD SYSTEMS AND EQUIPMENT.

WARNING Operation of the airplane outside of the specified operating limitations is not permitted

2.2 AIRSPEEDS

	Speed	Limit	Remarks
V_{NE}	Never exceed speed	200 KTAS	
V_{NO}	Max. structural cruising speed.	167 KIAS	Do not exceed this speed except in smooth air, and then only with caution.
V_A	Maneuvering speed.	123 KIAS	Do not make full or abrupt control movement above this speed, because the airframe may be overstressed .
$V_{FE\ 1+2}$	Max. Speed with flaps setting 1+2	95 KIAS	
$V_{FE\ FULL}$	Max. Speed with flaps setting FULL	87 KIAS	
V_{S0}	Stalling speed in landing configuration.	50 KIAS	
V_{S1}	Stalling Speed in clean configuration	55 KIAS	
V_{BG}	Best Glide	85 KIAS	
V_X	Best angle-of-climb speed	70 KIAS	
V_Y	Best rate-of-climb speed.	85 KIAS	

WARNING Pay special attention to the maneuvering speed. As it is a function of stall speed in clean configuration, it is relatively low compared to the cruising and top speeds of this airplane. Above this speed, maximum elevator deflection can induce loads way beyond the design limit!
The pilot must respect this!
At V_{NE}, max elevator would result in loads > 10g's!!

2.3 AIRSPEED TAPE INDICATOR MARKING

Marking	(IAS)
Bottom of white arc (V_{S0})	50 kts
Top end of white arc (V_{F40})	87 kts
Bottom of green arc (V_{S1})	55 kts
Top end of green arc (V_{NO})	167 kts
Blue Line (V_A)	123 kts
Yellow arc ($V_{NO} – V_{NE}$)	167-200 kts
Red Line (V_{NE})	200 kts

2.4 POWERPLANT

Engine manufacturer:	Aero Sport Power
Engine model:	IO-375-M1S
Max RPM:	2700
Max Cylinder Head Temperature:	260˚C/500˚F
Max Oil Temperature:	118˚C/245°F
Oil pressure:	MAX MIN IDLE
Normal Operations	95 psi 55 psi 25 psi
Start,Warm-up,Taxi,T.O	115 psi
Fuel pressure:	40 psi 30 psi
Fuel Grade:	MOGAS (95-98UL) AVGAS(100LL)
Min oil quantity:	4 US qts

Oil Grade:

All Temperatures	SAE 15W50/SAE 20W50
Above 27°C :	SAE 60
-l °C to 32°C :	SAE 40

Propeller

Propeller Manufacturer:	Whirlwind Propeller
Propeller Model:	RV 200
Propeller Diameter:	72"

CAUTION RPM Recommendation
It is raccomended to avoid continuos operation in the RPM range between 2050 to 2300 and 2600 to 2700

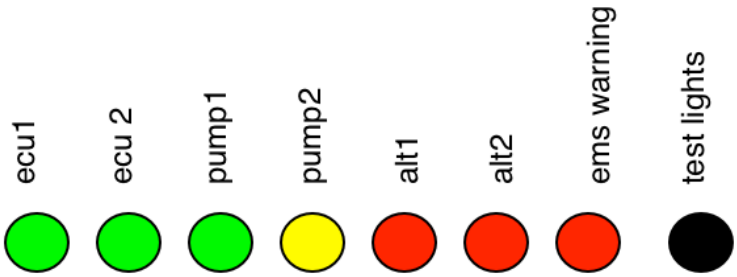
2.5 POWERPLANT INSTRUMENT MARKING

Indication	Lower red arc/bar	Yellow arc/bar caution range	Green arc band	Yellow arc/bar caution range	Red arc/ band upper range
MAP			13-30		
RPM		2050-2300	500-2050 2050-2600	2600-2700	2700
Oil Pressure	< 25 psi	25 - 55 psi	55 - 95	95 - 115 psi	> 115 psi
Oil Temp	< 40 °C	40 - 60 °C	60 - 100 °C	100 - 118 °C	> 118 °C
CHT		65 - 120 °C	120-205 °C	205 - 260 °C	> 260 °C
EGT			535-815 °C	815-895 °C	> 895 °C
Fuel Press	< 25 psi	25 - 30 psi	30 - 40 psi	40 - 45 psi	> 45 psi
Fuel flow			3,5-68 lt/h		> 68 lt/h

2.6 MISCELLANEOUS INSTRUMENT MARKING

2.7 WARNING, CAUTION AND STATUS LIGHT

THERE ARE 7 WARNING LIGHTS LOCATED AT THE TOP OF THE LEFT PRIMARY FLIGHT DISPLAY TO DRAW PILOT'S ATTENTION ON ESSENTIAL ITEMS. ALL INFORMATIONS ARE DISPLAYED ACCORDINGLY ON DYNON EFIS SYSTEM.



2.8 WEIGHTS

EMPTY WEIGHT:	522,5 KG	1151 LBS
MAX GROSS WEIGHT:	816 KG	1800 LBS
AEROBATIC GROSS WEIGHT:	725 KG	1600 LBS
MAX BAGGAGE:	45 KG	100 LBS

2.9 CENTRE OF GRAVITY

DATUM

THE DATUM PLANE ON THIS AIRPLANE IS A VIRTUAL PLANE, NORMAL TO THE LONGITUDINAL AXIS OF THE FUSELAGE, AT A DISTANCE OF 70 IN FORWARD OF THE WING LEADING EDGES.

CENTER OF GRAVITY LIMITS

THE CENTER OF GRAVITY (CG) FOR FLIGHT CONDITIONS MUST MEET THE FOLLOWING CONDITIONS:

FORWARD CG LIMIT: 15% OF CHORD OR 78.7" AFT OF DATUM.

AFT CG LIMIT: 29% OF CHORD OR 86.82" AFT OF DATUM.

AEROBATIC AFT CG LIMIT: 25% OF CHORD OR 84.5" AFT OF DATUM.

WARNING Exceeding the CG limits will reduce controllability and stability of this airplane. This situation is dangerous to flight and must be avoided by careful M&B calculations. Refer to chapter 6 "Mass and Balance" for more information.

2.10 APPROVED MANEUVERS

THE AIRPLANE IS APPROVED FOR THE FOLLOWING AEROBATIC MANEUVERS, PROVIDED THE ADDITIONAL AEROBATIC GROSS WEIGHT AND CG CONDITIONS ARE MET.

Maneuver	Suggested Entry speed (IAS)
Loops, Cuban 8's	140 kts
Immelman Turns	140 kts
Aileron Rolls, Barrel Rolls	120 kts
Vertical Rolls	160 kts
Hammerheads	140 kts
Retournement	90 kts
Inverted Flight	130 kts

CAUTION Bank angles greater than 60°, accelerated flight and roll rates in excess of 200°/s may adversely affect the attitude and heading instruments. Such maneuvers may only be flown when the mentioned instruments are not required for the present kind of operation.

2.11 MANEUVERING LOAD FACTORS

MASS 1600 LBS (725 KG) AND BELOW:	+6G TO -3.0G
REDUCING LINEARLY TO 1800 LBS (817 KG):	+5G TO -2.5G
OPERATING MASS 1800 LBS (817 KG):	+5G TO -2.5G

WARNING Exceeding the maneuvering load factors will lead to an o verstressing of the airplane. Pay special attention to the G- meter during accelerated flight.

2.12 OPERATING ALTITUDE

CEILING: >20000 FT

CAUTION This aircraft has no oxygen system installed. For extended flights above 10'000 ft AMSL, a portable oxygen system is recommended.

2.13 FLIGHT CREW

THIS AIRPLANE MUST BE OPERATED BY MINIMUM ONE CREW. HOWEVER, THE AIRCRAFT MAY BE OPERATED FROM EITHER THE RIGHT OR LEFT SEAT. CONTROLS ARE FULLY REDUNDANT.

2.14 KIND OF OPERATION

DAYTIME FLIGHTS ACCORDING TO VISUAL FLIGHT RULES (VFR) NOT IN CONTACT WITH GROUND, NOT IN ICING CONDITIONS.

2.15 FUEL

TANK CAPACITY:	21 U.S. GAL EACH	79 L
TOTAL FUEL:	42 U.S. GAL	157 L
USABLE FUEL:	41 U.S. GAL	153 L
UNUSABLE FUEL:	1,2 U.S. GAL	4 L
FUEL GRADES:	AVGAS 100LL MOGAS 95/98UL	
	MAX ETHANOL	10%

2.16 ELECTRIC

BOTH ALTERNATORS MUST BE FULLY FUNCTIONAL WHEN COMMENCING A FLIGHT.

FOR EXTENDED DEMONSTRATIONS OF THE AVIONICS ON GROUND, AN EXTERNAL GROUND POWER SUPPLY IS REQUIRED TO KEEP A GOOD STATE OF BATTERY.

2.17 CROSSWIND

MAX RECOMMENDED CROSSWIND COMPONENT FOR T.O. AND LANDING 15 KTS.

2.18 MAXIMUM PASSENGER SEATING

ONE EXTRA SEAT IS AVAILABLE FOR A PASSENGER. FOR MASS AND BALANCE CALCULATIONS REFER TO CHAPTER 6 "MASS AND BALANCE" OF THIS AFM.

2.19 LIMITATION PLACARD

THE FOLLOWING PLACARDS AND MARKINGS ARE REQUIRED FOR CERTIFICATION OF AN EXPERIMENTAL AMATEUR BUILT AIRCRAFT:

1. THE WORD "EXPERIMENTAL", IN 30 MM HIGH BLOCK LETTERS VISIBLE CLEARLY WHEN ENTERING THE COCKPIT.

2. A PERMANENT WRITING ON INSTRUMENT PANEL "PASSENGER WARNING AEROMOBILE DI COSTRUZIONE AMATORIALE LA RISPONDENZA AD UNO SPECIFICO REGOLAMENTO DI NAVIGABILITÀ NON È STATA DIMOSTRATA THIS AIRCRAFT IS AMATEUR-BUILT AND DOES NOT COMPLY WITH SAFETY REGULATIONS FOR STANDARD AIRCRAFT"

2. A PERMANENTLY INSTALLED, FIREPROOF IDENTIFICATION PLATE THAT IS ENGRAVED WITH THE CALLSIGN OF THE AIRCRAFT: I-MKLK, MOUNTED BELOW THE HORIZONTAL STABILIZER ON THE LEFT SIDE OF THE FUSELAGE.

3. BESIDE THE FUEL CAPS ON EACH TANK THE FOLLOWING PLACARD: FUEL CAPACITY 21USG (79 L) AVGAS 100LL OR MOGAS 98UL

4. ON THE BACK WALL OF THE BAGGAGE COMPARTMENT A PLACARD: BAGGAGE 100LBS / 45KG MAX

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3.0 ABNORMAL & EMERGENCY PROC.

3.1 INTRODUCTION

THIS SECTION PROVIDES CHECKLISTS AND AMPLIFIED PROCEDURES FOR COPING WITH EMERGENCIES THAT MAY OCCUR DURING THE OPERATION. SHOULD AN EMERGENCY ARISE, THE BASIC GUIDELINES DESCRIBED IN THIS SECTION SHOULD HELP WITH THE CORRECT HANDLING AND A SUCCESSFUL OUTCOME.

3.2.0 ELECTRICAL

3.2.1 PRIMARY ALTERNATOR FAULT

LAND ASAP

PRIMARY ALTERNATOR FAILURE IS INDICATED BY RED LIGHT ALT 1 ON ANNUNCIATOR PANEL, THE ESS BUS VOLTAGE INDICATOR AND BATTERY VOLTAGE INDICATOR

- IF 60A CB OUT
  - 60A CB……..RE-ENGAGE
    - IF SUCCESSFUL……...RESUME NORMAL OPS
      MONITOR VOLTAGE AND ELECTRICAL LOAD
    - IF UNSUCCESSFUL…GO TO ALT 2 ON LINE PROCEDURE

- IF OVER VOLTAGE OR OVER CURRENT DETECTED BY VP-X
  - ALT 1……RESET THROUGH VP-X
    - IF SUCCESSFUL……...RESUME NORMAL OPS
      MONITOR VOLTAGE AND ELECTRICAL LOAD
    - IF UNSUCCESSFUL… GO TO ALT 2 ON LINE PROCEDURE

ALT 2 ON LINE PROCEDURE

- ALT 1……OFF
- BAT 2……..ON
- ALT 2……..ON
- BATT/ESS BUS VOLTAGE……..CHECK INCREASING
- ELECTRICAL LOAD……SHED BELOW 25 A

ACCORDING TO FLIGHT CONDITIONS SHED THE ELECTRICAL LOAD, DISPLAYED ON VP-X PAGE, BY SWITCHING OFF EQUIPMENTS AND/OR DIMMING DISPLAY BRIGHTNESS

3.2.2 DUAL ALTERNATOR FAULT / ON BATTERY ONLY

LAND ASAP

IN CASE ALT 2 FAILED FOLLLOWING THE FAILURE OF ALT 1 TRY TO RESET ALT 2 BY :

- ALT 2 MAIN CB……..……...RESET
- ALT 2 FIELD CB……..……..RESET
  - IF SUCCESSFUL

    ELECTRICAL EMERGENCY CONFIGURATION…… APPLY
  - IF UNSUCCESFUL

    ON BATTERY ONLY PROCEDURE……APPLY

ON BATTERY ONLY PROCEDURE

- ESS BUS PWR…….. EMER

  ELECTRICAL LOAD AUTOMATICALLY SHED
- BAT 2…….OFF

  WHEN BAT 1 VOLTAGE DROPS BELOW 11 VOLTS
- BAT 2…….. ON
- BAT 1…….OFF

VERIFY CURRENT DRAW

THE FOLLOWING EQUIPMENTS ONLY MUST BE ON

3.2.3 VP-X FAULT

3.2.4 ECU 1/ECU 2 FAULT

LAND ASAP

INJECTION SWITCH SET TO A FAULTY ECU LEADS TO AN ENGINE FAILURE

ECU 1 FAULT

- INJECTION .....ECU 2
  - IF ENGINE AND PROPELLER STOP
  - STARTER.....ENGAGE

ECU 2 FAULT

ECU 2 FAULT CAN BE DETECTED FROM A SUDDEN 50/100 RPM DROP

- INJECTION..... .CHECK ECU 2

3.2.5 ELECTRICAL EMERGENCY CONFIGURATION

APPLY THIS PROCEDURE WHENEVER A FAILURE IS AFFECTING THE ELECTRICAL SYSTEM AND IT'S NOT CLEARLY IDENTIFIED THE FAULTY EQUIPMENT. THE PROCEDURE GIVES TIME TO DIAGNOSIS KEEPING SAFE AND ISOLATED THE ELECTRICAL POWER TO SUPPLY CRITICAL INJECTION AND IGNITION COMPONENTS.

- ESS BUS PWR.....EMER
- BATT 2.....OFF
- ALT 1.....OFF
- BATT 1.....OFF

ONLY THE FOLLOWING EQUPMENTS ARE POWERED

PAGE INTENTIONALLY

LEFT BLANK

3.3.0 ENGINE

3.3.1 ENGINE FAILURE DURING TAKEOFF

- THROTTLE.....IDLE
- BRAKES.....APPLY
  - IF RWY OVERRRUN IS LIKELY
  - FUEL SELECTOR.....OFF
  - BATT 1.....OFF
  - BATT 2.....OFF
- CANOPY.....UNLATCH

3.3.2 ENGINE FAILURE IN FLIGHT

- AIRSPEED
  - FLAPS UP.....85 KNOTS
  - FLAPS DOWN.....70 KNOTS
- INJECTION.....SWITCH
- THROTTLE.....FULL FWD
- MIXTURE.....FULL RICH
- FUEL PUMP 2.....ON
- FUEL SELECTOR.....OTHER TANK
- ALTERNATE AIR.....PULL
  - IF PROP STOPPED
  - STARTER.....ENGAGE

- IF STILL NOT SUCCESSFULL
- FORCED LANDING.....ATTEMPT
  Look for an adequate landing site, considering wind and the RV glide ratio with a fine pitch prop setting. Use flaps only once "field is made"
- PROPELLER.....FULL FWD
  If it is absolutely necessary to "stretch the glide", gliding distance might be extended by pulling the prop control lever back
- FUEL PUMPS 1 AND 2.....OFF
- FUEL SELECTOR.....OFF
- MAYDAY..... DECLARE
- TRANSPONDER..... 7700

3.3.3 ROUGH RUNNING ENGINE

- MIXTURE.....ADJUST
- THROTTLE .....ADJUST
- FUEL SELECTOR.....OTHER TANK
- ALTERNATE AIR.....PULL
- PRECAUTIONARY OR FORCED LANDING.....CONSIDER

3.3.4 FUEL PRESSURE LOW

- FUEL PUMP 2…… ...ON
- FUEL SELECTOR.....…….....……OTHER TANK
- FUEL QUANTITY ……..……CHECK

3.3.5 HIGH OIL OR/AND CHT TEMPERATURES

- AIRSPEED…….....…… INCREASE
- POWER…….……..….. REDUCE
- MIXTURE……...…….ENRICH

3.3.6 OIL PRESSURE LOW

LAND ASAP

- ENGINE FAILURE…….….. EXPECT ANY MOMENT

3.3.7 AIR FILTER ICING

- ALTERNATE AIR…….……PULL
- THROTTLE…….....….ADJUST
- STARTER……..…….. .AS REQUIRED

3.4.0 FLIGHT CONTROL

3.4.1 FLAP SYSTEM FAULT

A FLAP SYSTEM FAILURE CAN EITHER BE CAUSED BY A PROBLEM IN THE ELECTRICAL SUPPLY OR A MECHANICAL PROBLEM WITH THE GEAR, ELECTRIC MOTOR AND CLUTCH SYSTEM.

- VP-X PAGE.....DIAGNOSIS/RESET

3.4.2 RUNAWAY / FROZEN TRIM

THE AIRPLANE IS FULLY CONTROLLABLE FOR A LANDING IN ALL EXTREME RUNAWAY TRIM SCENARIOS. AIRSPEED NEEDS TO BE MORE CLOSELY MONITORED HOWEVER.

- VP-X PAGE.....DIAGNOSIS/RESET
- AIRSPEED.....REDUCE

3.4.3 AUTOPILOT OUT OF COMMAND

- AUTOPILOT.....OFF

3.5.0 SMOKE & FIRE

3.5.1 ENGINE/FUEL FIRE AND SMOKE IN FLIGHT

LAND ASAP

- FUEL PUMPS……..……OFF
- FUEL SELECTOR…… OFF
- CABIN HEAT……..CLOSE
- AIR VENT ……CLOSE
- THROTTLE…….FULL FWD
  - IF STILL ON FIRE
  - FORCED LANDING.....ATTEMPT

    Look for an adequate landing site, considering wind and the RV glide ratio with a fine pitch prop setting. Use flaps only once "field is made"
  - PROPELLER.....FULL FWD

    If it is absolutely necessary to "stretch the glide", gliding distance might be extended by pulling the prop control lever back
  - FUEL PUMPS 1 AND 2.....….OFF
  - FUEL SELECTOR.....…..OFF
  - MAYDAY……..…….DECLARE
  - TRANSPONDER……7700

3.5.1 ELECTRICAL FIRE OR SMOKE IN FLIGHT

LAND ASAP

- ESS BUS PWR.....EMER
- BATT 1.....OFF
- AIR VENTS.....OPEN
- CABIN HEAT.....OPEN
- TRIM .....CHECK FROZEN TRIM
- FLAPS.....CHECK FLAP FAULT
- MAYDAY.....COM 1 DECLARE

AFTER LANDING

- THROTTLE.....CLOSE
- FUEL PUMPS.....OFF
- ESS BUS PWR.....OFF
- FUEL SELECTOR .....OFF
- CANOPY.....OPEN

3.5.0 MISCELLANEOUS

3.3.7 RECOVERY FROM UNINTENTIONAL SPIN

- POWER……….....………......................……....………….......………IDLE
- AILERONS.........................……..……......…….……...……NEUTRAL
- RUDDER.......………….................……..OPPOSITE SPIN DIRECTION

WHEN SPIN STOPS

- RUDDER.…......……………......…………......…….....…………….NEUTRAL
- ATTITUDE...............…......…………………………………...RECOVER

3.3.8 SUSPECTED CARBON MONOXIDE

LAND ASAP

- CABIN HEA ……………………………………………CLOSE
- AIR VENTS..………..................…………………………………….OPEN

WHEN SAFELY ON GROUND

- CANOPY...........……….....………………..............………………..OPEN

4.0 NORMAL PROCEDURES

4.1 INTRODUCTION

THIS SECTION CONTAINS THE DESCRIPTIONS, CHECKLISTS AND PROCEDURES FOR NORMAL OPERATION OF THIS AIRCRAFT. PROCEDURES CAN BE PERFORMED BY MEMORY FOLLOWING THE SEQUENCING SCHEME. WHENEVER A CHECK LIST IS REQUIRED HAS TO BE CONSIDERED AS "CHALLENGE/RESPONSE" TYPE.

4.2 PROCEDURES

4.2.1 AIRSPEEDS FOR NORMAL OPERATING PROCEDURES

Phase / Reference	Speed (IAS)
V_R Rotate	55 kts
Normal Takeoff (at 50ft)	85 kts
Short Field Takeoff (at 50ft)	70 kts
V_X Best Angle of Climb	70 kts
V_Y Best Rate of Climb	85 kts
V_{BG} Best Glide Angle	85 kts
V_{S0} Stall Speed Full Flaps	50 kts
V_{S1} Stall Speed Clean Config	55 kts
$V_{FE\ 1+2}$ Max speed with flap setting 1 + 2	95 kts
$V_{FE\ FULL}$ Max speed with flap setting FULL	87 kts
V_{REF} Final Approach Speed	65 kts
V_A Maneuvering Speed	123 kts
V_{NO} Max Structural Cruising Speed	167 kts
V_{NE} Never Exceed Speed	200 kts (TAS)

4.2.2 CABIN CHECK / WALK AROUND

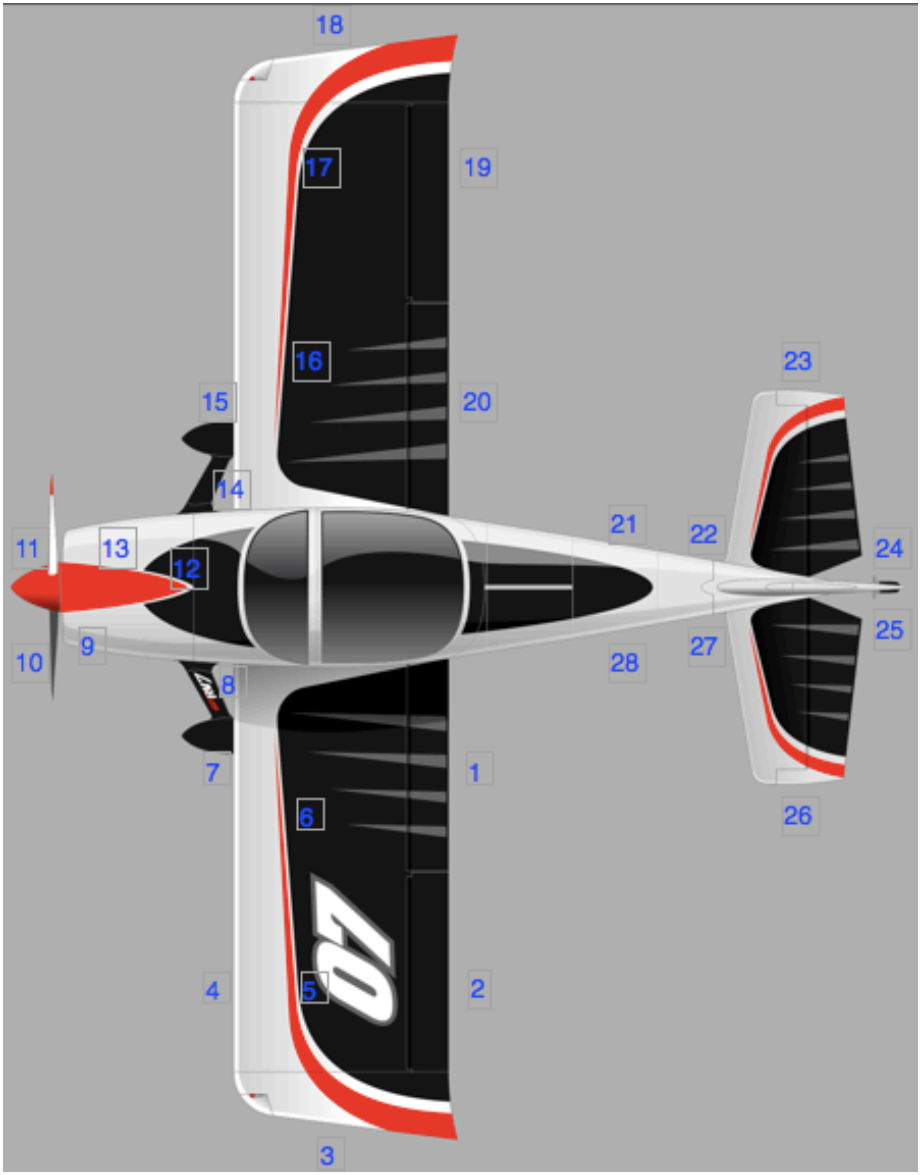
THE WALK AROUND MUST BE PERFORMED PRIOR EACH FLIGHT PROVIDING DAILY CHECK HAS BEEN PERFORMED BEFORE THE FIRST FLIGHT OF THE DAY, REF TO MAINTENANCE MANUAL.A CABIN CHECK IS REQUIRED BEFORE STARTING WALKING AROUND.

CABIN CHECK	
All aircraft covers / Pitot tube cover	REMOVE
Canopy locker	REMOVE
ALL Switches	OFF
Battery 1	ON/CHECK VOLTAGE
Flaps	FULL DOWN
Fuel gauges	CHECK FUEL QUANTITY
Battery 1	OFF
Battery 2	ON/CHECK VOLTAGE/OFF

NORMAL PROCEDURES

	WALK AROUND	
1	Left Flap	CHECK SECURITY/ACTUATOR ROD
2	Left Aileron	CHECK FREEDOM OF MOVEMENT
3	Left Nav/Strobe lights	CHECK CONDITION
4	Pitot Tube	CHECK CONDITION
5	Left Wing/Leading Edge	CHECK CONDITION
6	Left Fuel Quantity/ Cap	CHECK/SECURE
7	Left Gear/Tire	CHECK CONDITION/INFLATION
8	Left Fuel Vent Port	CHECK CLEAR
9	Air intake Filter	CHECK CLEAR
10	Propeller	CHECK FOR DAMAGE/CRACKS
11	Spinner	CHECK FOR DAMAGE/CRACKS
12	Oil Quantity	CHECK (6 QTS MINIMUM)
13	Upper Cowl/Oil Access Door	SECURE
14	Right Fuel Vent Port	CHECK CLEAR
15	Right Gear/Tire	CHECK CONDITION/INFLATION
16	Right Fuel Quantity/ Cap	CHECK/SECURE
17	Right Wing/Leading Edge	CHECK CONDITION/INFLATION
18	Right Nav/Strobe lights	CHECK/SECURE
19	Right Aileron	CHECK FREEDOM OF MOVEMENT

20	Right Flap	CHECK SECURITY/ACTUATOR ROD
21	Right Static Port	CHECK CLEAR
22	Right Rudder/Cable/ Spring	CHECK CONDITION
23	Left Stabilizer/ Elevator	CHECK CONDITION/FREEDOM OF MOVEMENT
24	Tailwheel	CHECK CONDITION/FREEDOM OF MOVEMENT
25	Tail Nav/Strobe Light	CHECK CONDITION
26	Left Stabilizer/ Elevator	CHECK CONDITION/FREEDOM OF MOVEMENT
27	Left Rudder/Cable/ Spring	CHECK CONDITION
28	Left Static Port	CHECK CLEAR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4.2.3 Before Start

1. Walk Around _____ Completed
2. Chocks _____ Removed
3. Baggage _____ Secured
4. Passenger _____ Instructed
5. Canopy _____ As required
6. Fuel selector _____ L or R tank
7. Alternate Air _____ Closed
8. Mix Controller _____ Neutral Position
9. Prop Control _____ Full Forward
10. Throttle _____ 2 Cm Fwd
11. Strobe light _____ ON
12. PFD _____ ON
13. Alt 2 _____ OFF
14. Alt 1 _____ OFF
15. Batt 1 _____ ON
16. Pump 2 _____ OFF
17. Pump 1 _____ ON
18. ECU 2 _____ ON
19. ECU 1 _____ ON
20. Injection _____ ECU 1
21. Batt 2 _____ Auto
22. Ess Bus Power _____ Normal
23. Annunciator Panel _____ Test
24. Flaps _____ As Rqrd/ UP in case of unpaved apron
25. Announce _____ "Propeller"
26. Brakes _____ Apply
27. Starter _____ Engage

4.2.3.1 Before Start check list

BEFORE START CHECK LIST

Cabin check-walk around _____ Completed
Emergency equipment _____ On board
Passenger _____ Briefed
Seats,Seat belts&harnesses _____ Adjust and secure

4.2.4 After Start

1. Oil pressure _____ Check
2. Throttle _____ 1000 RPM
3. Alt 1 _____ ON/Check Ammeter
4. Pump 2 _____ Auto
5. Batt 2 _____ Auto
6. Ess Bus Power _____ Normal
7. Avionics _____ ON
8. EFIS/Com/Nav/Atc _____ Set
9. Flaps _____ UP
10. Fuel Selector _____ Switch Tank

4.2.5 Taxi

1. Nav Lights _____ As Required
2. Area _____ Clear
3. Brakes _____ Check
4. Flight Instruments _____ Check

When taxiing the aircraft ensure that the taxi path and propeller back blast areas are clear. In the first few feet of taxi apply the brakes to check for effectiveness. Do not operate the engine at high RPM, taxi with care - the RV-7 can take off at throttle settings no higher than those needed for engine run up and magneto checks.

4.2.6 Before Take Off

1. Canopy _____ Closed
2. Fuel Selector _____ Fullest Tank
3. Throttle _____ 1800 RPM
4. Propeller _____ Cycle
5. Alt 1 _____ OFF
6. Ess Bus Power _____ Emer
7. Ess Bus voltage _____ Check
8. Batt 2 _____ On Main Bus
9. Main Bus voltage _____ Check
10. Batt 2 _____ AUTO
11. Ess Bus Power _____ NORMAL
12. Alt 1 _____ ON
13. Fuel Pump 1 _____ OFF
14. Fuel Pump 2 _____ Check Activation/Verify fuel pressure
15. Fuel Pump 1 _____ ON
16. Fuel Pump 2 _____ OFF then AUTO
17. ECU 1 _____ OFF/Verify RPM Drop/ON
18. ECU 2 _____ OFF/Verify RPM Drop/ON
19. Injection _____ ECU 2/Verify Operation
20. Injection _____ ECU 1 or ECU 2
21. Throttle _____ Idle
22. Flaps _____ As required
23. Trim _____ T.O. Position
24. Flight Controls _____ Check Full Travel
25. Com/Nav/Atc _____ Set
26. Landing Light _____ ON
27. Departure Briefing _____ Completed

1. Surface Wind
2. Speeds (55 Rotate, 70 Initial, 85+ Climb)
3. Routing, Altitude, Restrictions
4. Emergency Procedures, Best Glide 85

4.2.6.1 BEFORE TAKEOFF CHECK LIST

BEFORE TAKEOFF CHECK LIST

CANOPY _____ CLOSED
PROPELLER _____ FULL FORWARD
FUEL SELECTOR _____ FULLEST TANK
TRIM _____ T.O. POSITION
FLAPS _____ AS REQUIRED

4.2.7 AFTER TAKEOFF/CLIMB

AT **MIN 500** FT AGL:

1. ACCELERATE _____ VX OR VY
2. FLAPS _____ UP IF APPLICABLE

AT **MIN 1000** FT AGL:

1. CLIMB POWER _____ SET 25"/2500 RPM
2. LANDING LIGHT _____ OFF
3. ENGINE INSTRUMENT _____ CHECK

4.2.8 CRUISE

1. CRUISE POWER _____ SET
2. FUEL QUANTITY _____ CHECK
3. FUEL SELECTOR _____ L /R TANK
4. ALTIMETERS _____ QNH OR 1013

4.2.9 Approach & Landing

1. Landing Data _____ Received
2. Altimeters _____ Set QNH
3. EFIS/COM/NAV _____ Set
4. Seat Belts _____ Fastened
5. Autopilot _____ OFF
6. Fuel selector _____ Fullest Tank
7. Approach Briefing _____ Completed

1. Surface Wind, RWY in use
2. Speeds (VFE1+2 95KIAS, VFEF 87KIAS, VREF 65KIAS)
3. Routing, Altitude, Restrictions
4. Missed Approach, Alternate, Best Glide 85

Final

1. Propeller _____ Full Forward
2. Flaps _____ 2 or Full
3. Landing Light _____ ON

4.2.10 Go-Around

1. Prop Control _____ Forward
2. Throttle _____ Full
3. Flaps _____ UP

4.2.11 After Landing

1. ATC _____ GND
2. LANDING LIGHT _____ OFF
3. FLAPS _____ UP

4.2.11.1 After Landing Check List

AFTER LANDING CHECK LIST

ATC _____ GND
LANDING LIGHT _____ OFF
FLAPS _____ UP

4.2.12 Shut Down & Securing

1. BRAKES _____ APPLY
2. FLAPS _____ DOWN
3. PFD #2 _____ OFF
4. AVIONIC MASTER _____ OFF
5. THROTTLE _____ IDLE
6. PUMP 2 _____ OFF
7. PUMP 1 _____ OFF
8. ECU 1/ 2 _____ OFF
9. ESS BUS PWR _____ OFF
10. BATT 2 _____ OFF
11. ALT 1 _____ OFF
12. BATT 1 _____ OFF
13. PFD #1 _____ OFF

IF SECURING REQUIRED

1. FUEL SELECTOR _____ OFF
2. CANOPY LOCKER _____ INSTALL
3. CANOPY COVER _____ INSTALL
4. COWL INLET PLUGS _____ INSTALL
5. PITOT COVER _____ INSTALL
6. WHEEL CHOCKS _____ AS REQUIRED

4.12.1 SHUT DOWN & SECURING CHECK LIST

SHUT DOWN & SECURING CHECK LIST

ALL SWITCHES _____ OFF
PFD _____ OFF

SECURING

FUEL SEL _____ OFF
CANOPY LOCK _____ ON
COVERS _____ ON
COWL PLUGS _____ AS RQRD
CHOCKS _____ AS RQRD

4.13 REFUELING

-THE AIRCRAFT SHOULD BE GROUNDED AT EITHER THE EXHAUST OR THE DRAIN VALVES ON EACH TANK.

-BECAUSE OF THE CONSTRUCTION OF THE INTEGRAL TANKS, IT TAKES A WHILE FOR THE FUEL TO DISTRIBUTE IN ALL TANK COMPARTMENTS. TO "TOP IT OFF" IT IS THEREFORE IMPORTANT TO DO IT IN SEVERAL STEPS WITH A SHORT PAUSE IN BETWEEN.

-EACH TANK MUST BE FILLED INDIVIDUALLY AS THERE IS NO CROSSFEED.

4.14 OPERATIONAL REMARKS

-SINCE THE AIRCRAFT REQUIRES DIFFERENTIAL BRAKING FOR GROUND MANEUVERING, BE CAREFUL NOT TO "RIDE THE BRAKES".

-BECAUSE OF THE PERFORMANCE CHARACTERISTICS AND STALL SPEEDS, WHEN RAISING THE FLAPS, MUCH LESS CARE ABOUT AIRSPEED IS REQUIRED THAN WITH OTHER TYPES. AS SOONAS CLEAR OF OBSTACLES OR IN A GO AROUND SCENARIO, THE FLAPS MAY BE RAISED AND DRAG REDUCED WITHOUT FEAR OF SINKING OR STALLING.

-THROTTLE/PROP IS A MORE IMPORTANT FLIGHT CONTROL WITH THIS TYPE THAN MOST PILOTS WILL HAVE EXPERIENCED BEFORE.

-"FEEL" AND BEHAVIOUR OF THE AIRCRAFT CHANGES MUCH MORE WITH WEIGHT & BALANCE THAN ON OTHER AIRCRAFT, BE READY!

4.2.15 GROUND HANDLING OF THE AIRCRAFT

4.2.15.1 GROUND HANDLING WITH A TOWBAR

A TOWBAR CAN BE TEMPORARILY ATTACHED ON THE TAIL WHEEL.MAKE SURE THE UCUS SWITCHES ARE TURNED OFF.BE CAREFUL ABOUT INADVERTENT DAMAGING THE RUDDER BY HITTING THE TOWBAR.

4.2.15.2 GROUND HANDLING WITHOUT A TOWBAR

THE AIRCRAFT CAN BE PUSHED BACK ON THE WING LEADING EDGE, HORIZONTAL STABILIZER OR THE PROPELLER. PULLING ON THE PROPELLER AND/OR PUSHING ON THE FOOTSTEPS FROM BEHIND WORKS BEST FOR FORWARD MOTION.

5.0 PERFORMANCE

5.1 INTRODUCTION

THIS SECTION CONTAINS THE DESCRIPTIONS, TABLES AND DIAGRAMS ABOUT AIRPLANE PERFORMANCE. USE AND READINGS OF TABLES ARE SELF EXPLANATORY.

5.2 PERFORMANCE TABLES AND DIAGRAMS

5.2.1 AIRSPEED CALIBRATION

5.2.2 STALLING SPEEDS

ALL SPEEDS AT MTOW AND IAS.

FLAPS UP	POWER OFF	59 KIAS
FLAPS DOWN	POWER OFF	53 KIAS
FLAPS UP	POWER ON	54 KIAS
FLAPS DOWN	POWER ON	49 KIAS

5.2.3 TAKEOFF DISTANCE

TAKEOFF RUN / DISTANCE										
ROTATION SPEED IAS 64 KTS CLIMB SPEED IAS 76 KTS HARD RWY SURFACE					WEIGHT 817 KG APPLY FULL POWER THEN RELEASE BRAKES					
Pa Feet	0 ˚C		10 ˚C		20 ˚C		30 ˚C		40 ˚C	
	Ground Run m	Distance over 15 m obstacle m	Ground Run m	Distance over 15 m obstacle m	Ground Run m	Distance over 15 m obstacle m	Ground Run m	Distance over 15 m obstacle m	Ground Run m	Distance over 15 m obstacle m
0	204	317	222	341	239	363	255	384	269	403
2000	245	387	269	423	292	457	313	491	334	523
4000	295	471	326	521	355	570	384	618	411	665
6000	354	571	393	638	431	704	468	770	503	836
8000	428	697	478	784	526	872	573	960	619	1049

For every knot of headwind, reduce distances by 1%
For every 2 knots of tailwind, increase distance by 10%
For dry grass surface, add 15% to ground run
For soft / wet grass surface, add 50% to ground run

5.2.4 LANDING DISTANCE

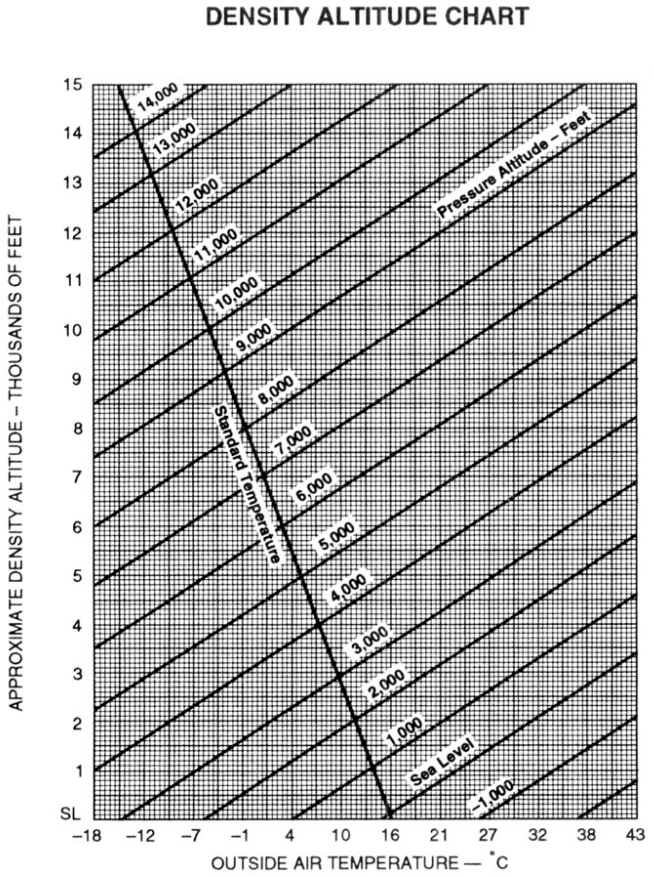
LANDING RUN / DISTANCE										
TOUCHDOWN SPEED 58 KTS APPROACH SPEED 68 KTS HARD RWY SURFACE							WEIGHT 817 KG			
Pa Feet	0 ˚C		10 ˚C		20 ˚C		30 ˚C		40 ˚C	
	Ground Run m	Distance over 15 m obstacle m	Ground Run m	Distance over 15 m obstacle m	Ground Run m	Distance over 15 m obstacle m	Ground Run m	Distance over 15 m obstacle m	Ground Run m	Distance over 15 m obstacle m
0	206	406	224	435	241	461	256	485	271	507
2000	247	497	272	539	294	580	316	619	336	657
4000	297	604	328	664	258	722	386	780	414	837
6000	357	733	396	813	434	893	471	972	507	1051
8000	432	894	481	1000	530	1106	577	1212	623	1319

For every knot of headwind, reduce distance by 1%
For every 2 knots of tailwind, increase distance by 10%

5.2.5 POWER SETTING TABLE

SETTING	MAP	RPM	FUEL FLOW	SPECIFIC RANGE
MAX CRUISE				
ECO CRUISE				
BEST ENDURANCE				
BEST ECONOMY				

5.2.6 PRESSURE ALTITUDE / DENSITY ALTITUDE



Altimeter Setting (" Hg)	Pressure Altitude Conversion Factor
28.0	1,824
28.1	1,727
28.2	1,630
28.3	1,533
28.4	1,436
28.5	1,340
28.6	1,244
28.7	1,148
28.8	1,053
28.9	957
29.0	863
29.1	768
29.2	673
29.3	579
29.4	485
29.5	392
29.6	298
29.7	205
29.8	112
29.9	20
29.92	0
30.0	–73
30.1	–165
30.2	–257
30.3	–348
30.4	–440
30.5	–531
30.6	–622
30.7	–712
30.8	–803
30.9	–893
31.0	–983

5.2.6 ENDURANCE

6.0 MASS AND BALANCE

6.1 INTRODUCTION

IN ORDER TO ACHIEVE THE PERFORMANCE AND FLIGHT CHARACTERISTICS DESCRIBED IN THIS AIRPLANE FLIGHT MANUAL AND FOR SAFE FLIGHT OPERATION, THE AIRPLANE MUST BE OPERATED WITHIN THE PERMISSIBLE MASS AND BALANCE ENVELOPE.

THE PILOT IS RESPONSIBLE FOR ADHERING TO THE PERMISSIBLE VALUES FOR LOADING AND CENTER OF GRAVITY (CG). IN THIS, HE SHOULD NOTE THE MOVEMENT OF THE CG DUE TO FUEL CONSUMPTION.

THE PROCEDURE FOR DETERMINING THE FLIGHT MASS CG POSITION IS DESCRIBED IN THIS CHAPTER. OVER AND ABOVE THIS, THERE IS A COMPREHENSIVE LIST OF THE EQUIPMENT APPROVED FOR THIS AIRPLANE (EQUIPMENT LIST), AS IS ALSO A LIST OF EQUIPMENT INSTALLED WHEN THE AIRPLANE WAS WEIGHED (EQUIPMENT INVENTORY).

6.2 DATUM

THE REFERENCE DATUM IS AN IMAGINARY VERTICAL PLANE 70" (177,8 CM) AHEAD OF THE WING LEADING EDGE.

6.3 MASS AND BALANCE REPORT

Aircraft: RV-7 I-MKLK				Serial Number: 74141					
DATE	ITEM		DESCRIPTION of part or modification	MASS CHANGE ADDED (+) REMOVED (-)			RUNNING BASIC EMPTY MASS		Sig.
	In	Out		Mass (kg)	Arm (In)	Mom.	Mass (kg)	Moment	
28.06.2014			Basic M&B	522,5	80,21	41910,29	522,5	41910,29	M.G.

GIVEN FROM

Description:	Weight(Kg)	Tare (Kg)	Net Weight	Arm (in)	Moment	Station
Empty Aircraft				Actual Measurments		
Left Wheel	245	0	245	68,45	16770,25	
Right Wheel	243,5	0	243,5	68,45	16667,58	
Tail Wheel	34		34	249,19	8472,46	
Total Empty	522,5		522,5		41910,29	**80,21**

6.4 FLIGHT MASS AND CENTER OF GRAVITY

6.4.1 MOMENT ARMS

THE MOST IMPORTANT LEVER ARMS AFT OF THE DATUM PLANE:

PILOT/PASSENGER	97.48 IN / 247.6 CM
BAGGAGE	126.78 IN / 322 CM
FUEL TANKS	80.0 IN / 203.2
WING LEADING EDGE:	70 IN / 177.8 CM
DESIGN C.G. RANGE:	15% - 29% MAC
	78.7 IN FWD – 86.82 IN AFT
	199.8 CM FWD–220.5 CM AFT
AFT AEROBATIC CG LIMIT	84.5 IN / 214.6 CM

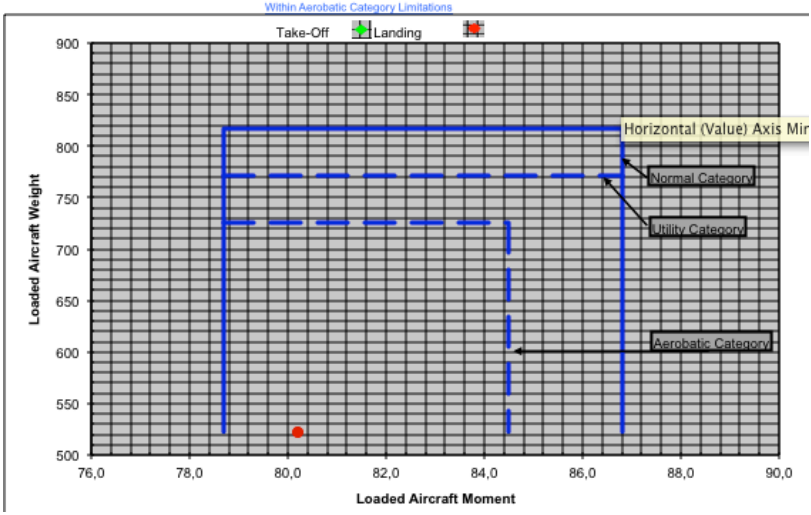
6.4.2 BASIC EMPTY MASS AND CG

Vans RV-7 Weight and Balance Calculator	Fill in Yellow Boxes Only!		
Description	**Weight (kg)**	**Moment (Kg-ins.)**	**Arm**
Max Gross Weight	817		
Tail Wheel Weight	34	8472,46	249,19
Left Main Weight	245	16770,25	68,45
Right Main Weight	243,5	16667,58	68,45
Empty Weight	**522,5**	**41910,29**	**80,21**
Useful Load	**294,5**		
Full Fuel Payload (no baggage, 42 gals fuel)	**180,02**		
Full Fuel Payload (45kg baggage, 42 gals fuel)	**135,02**		
Take Off Fuel amount **in Liters**	0	0,00	80,00
Pilot	0	0,00	97,48
Passenger	0	0,00	97,48
*Baggage Area	0		126,78
Take-Off Weight and Moment	**522,5**	**41910,29**	**80,21**
Liters of Fuel Used during Flight	0		80,00
Landing Weight and Moment	**522,5**	**41910,29**	**80,21**

Take-Off Weight is OK

Within Utility Category Limits

Within Aerobatic Category Limitations



6.4.3 LOADING FORM

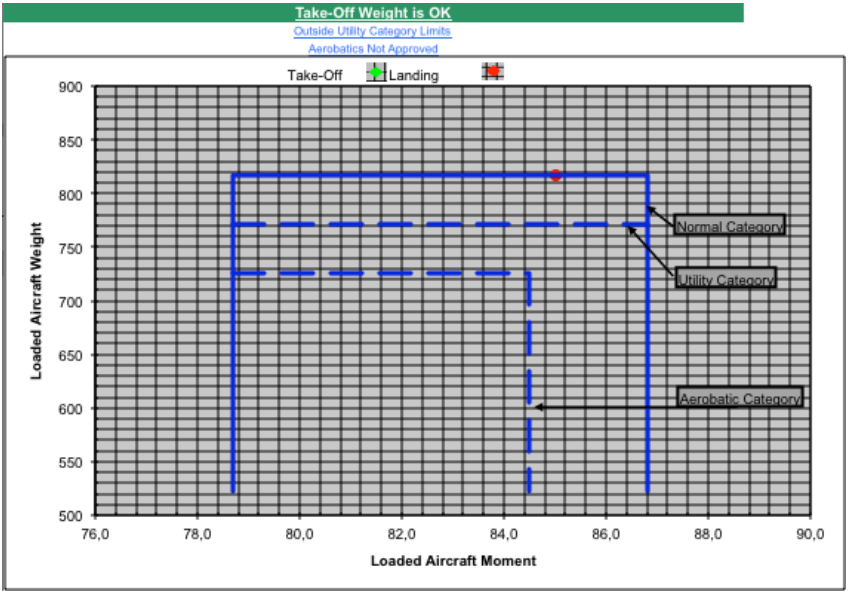
Vans RV-7 Weight and Balance Calculator	Fill in Yellow Boxes Only!		
Description	**Weight (kg)**	**Moment (Kg-ins.)**	**Arm**
Max Gross Weight	817		
Tail Wheel Weight	34	8472,46	249,19
Left Main Weight	245	16770,25	68,45
Right Main Weight	243,5	16667,58	68,45
Empty Weight	**522,5**	**41910,29**	**80,21**
Useful Load	**294,5**		
Full Fuel Payload (no baggage, 42 gals fuel)	**180,02**		
Full Fuel Payload (45kg baggage, 42 gals fuel)	**135,02**		
Take Off Fuel amount **in Liters**	0	0,00	80,00
Pilot	0	0,00	97,48
Passenger	0	0,00	97,48
*Baggage Area	0		126,78
Take-Off Weight and Moment	**522,5**	**41910,29**	**80,21**
Liters of Fuel Used during Flight	0		80,00
Landing Weight and Moment	**522,5**	**41910,29**	**80,21**

6.4.4 LOADING SCENARIOS

THE FOLLOWING LOADING SCENARIOS ARE CALCULATED WITH THE ACTUAL OWNER WEIGHT OF 70 KG AT THE PILOT STATION, STANDARD WEIGHT OF 80 KG HAS BEEN CONSIDERED FOR PASSENGER.

FUEL DENSITY EQUALS TO 0,72 KG/LT.

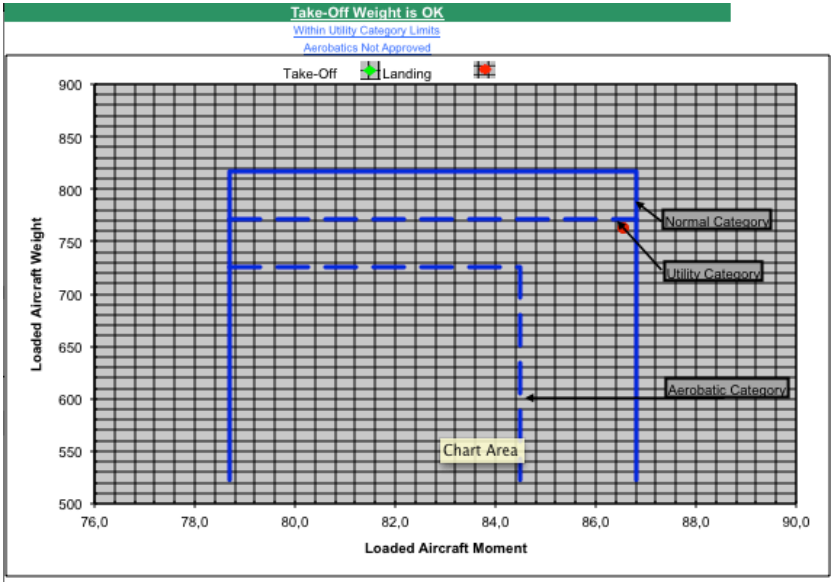
6.4.4.1 GROSS WEIGHT CG



Vans RV-7 Weight and Balance Calculator	Fill in Yellow Boxes Only!		
Description	**Weight (kg)**	**Moment (Kg-ins.)**	**Arm**
Max Gross Weight	817		
Tail Wheel Weight	34	8472,46	249,19
Left Main Weight	245	16770,25	68,45
Right Main Weight	243,5	16667,58	68,45
Empty Weight	**522,5**	**41910,29**	**80,21**
Useful Load	**294,5**		
Full Fuel Payload (no baggage, 42 gals fuel)	**180,02**		
Full Fuel Payload (45kg baggage, 42 gals fuel)	**135,02**		
Take Off Fuel amount **in Liters**	160	9216,00	80,00
Pilot	70	6823,60	97,48
Passenger	80	7798,40	97,48
*Baggage Area	29	3676,62	126,78
Take-Off Weight and Moment	**816,7**	**69424,91**	**85,01**
Liters of Fuel Used during Flight	0		80,00
Landing Weight and Moment	**816,7**	**69424,91**	**85,01**

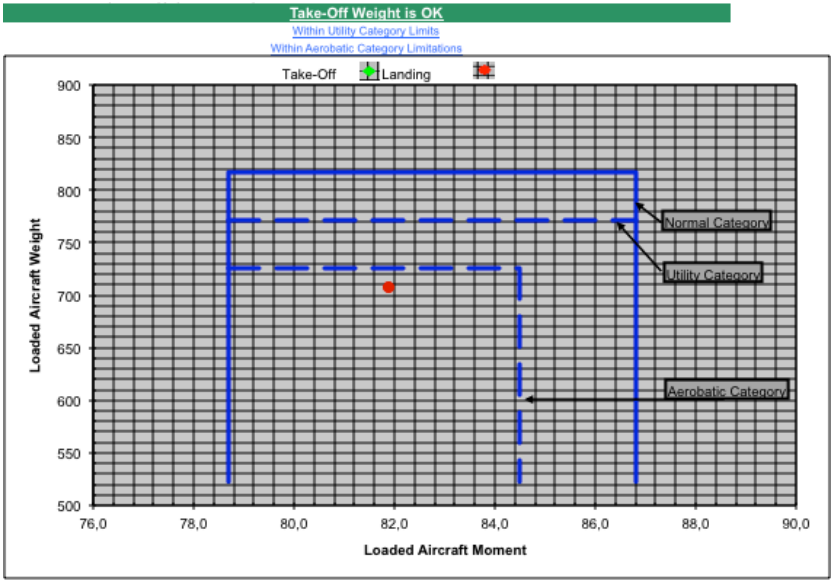
6.4.4.2 MOST AFT CG (GROSS WEIGHT MINIMUM FUEL)

Vans RV-7 Weight and Balance Calculator	Fill in Yellow Boxes Only!		
Description	**Weight (kg)**	**Moment (Kg-ins.)**	**Arm**
Max Gross Weight	817		
Tail Wheel Weight	34	8472,46	249,19
Left Main Weight	245	16770,25	68,45
Right Main Weight	243,5	16667,58	68,45
Empty Weight	**522,5**	**41910,29**	**80,21**
Useful Load	**294,5**		
Full Fuel Payload (no baggage, 42 gals fuel)	**180,02**		
Full Fuel Payload (45kg baggage, 42 gals fuel)	**135,02**		
Take Off Fuel amount **in Liters**	50	2880,00	80,00
Pilot	70	6823,60	97,48
Passenger	90	8773,20	97,48
*Baggage Area	45	5705,10	126,78
Take-Off Weight and Moment	**763,5**	**66092,19**	**86,56**
Liters of Fuel Used during Flight	0		80,00
Landing Weight and Moment	**763,5**	**66092,19**	**86,56**



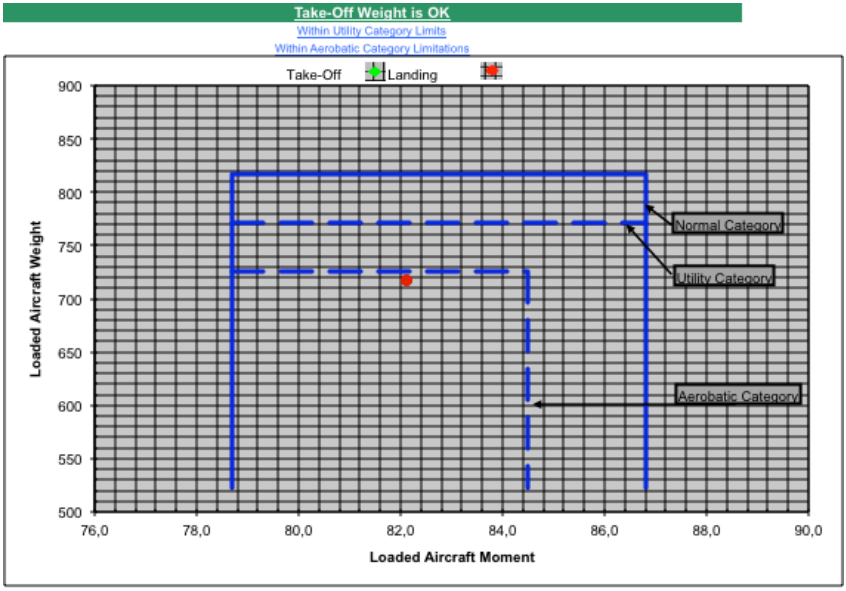
6.4.4.3 MOST FORWARD CG (OWNER'S PILOT WEIGHT)

Vans RV-7 Weight and Balance Calculator	Fill in Yellow Boxes Only!		
Description	**Weight (kg)**	**Moment (Kg-ins.)**	**Arm**
Max Gross Weight	817		
Tail Wheel Weight	34	8472,46	249,19
Left Main Weight	245	16770,25	68,45
Right Main Weight	243,5	16667,58	68,45
Empty Weight	**522,5**	**41910,29**	**80,21**
Useful Load	**294,5**		
Full Fuel Payload (no baggage, 42 gals fuel)	**180,02**		
Full Fuel Payload (45kg baggage, 42 gals fuel)	**135,02**		
Take Off Fuel amount **in Liters**	160	9216,00	80,00
Pilot	70	6823,60	97,48
Passenger	0	0,00	97,48
*Baggage Area	0		126,78
Take-Off Weight and Moment	**707,7**	**57949,89**	**81,88**
Liters of Fuel Used during Flight	0		80,00
Landing Weight and Moment	**707,7**	**57949,89**	**81,88**



6.4.4.4 MOST FORWARD CG (STD PILOT WEIGHT)

Vans RV-7 Weight and Balance Calculator	Fill in Yellow Boxes Only!		
Description	**Weight (kg)**	**Moment (Kg-ins.)**	**Arm**
Max Gross Weight	817		
Tail Wheel Weight	34	8472,46	249,19
Left Main Weight	245	16770,25	68,45
Right Main Weight	243,5	16667,58	68,45
Empty Weight	**522,5**	**41910,29**	**80,21**
Useful Load	**294,5**		
Full Fuel Payload (no baggage, 42 gals fuel)	**180,02**		
Full Fuel Payload (45kg baggage, 42 gals fuel)	**135,02**		
Take Off Fuel amount **in Liters**	160	9216,00	80,00
Pilot	80	7798,40	97,48
Passenger	0	0,00	97,48
*Baggage Area	0		126,78
Take-Off Weight and Moment	**717,7**	**58924,69**	**82,10**
Liters of Fuel Used during Flight	0		80,00
Landing Weight and Moment	**717,7**	**58924,69**	**82,10**



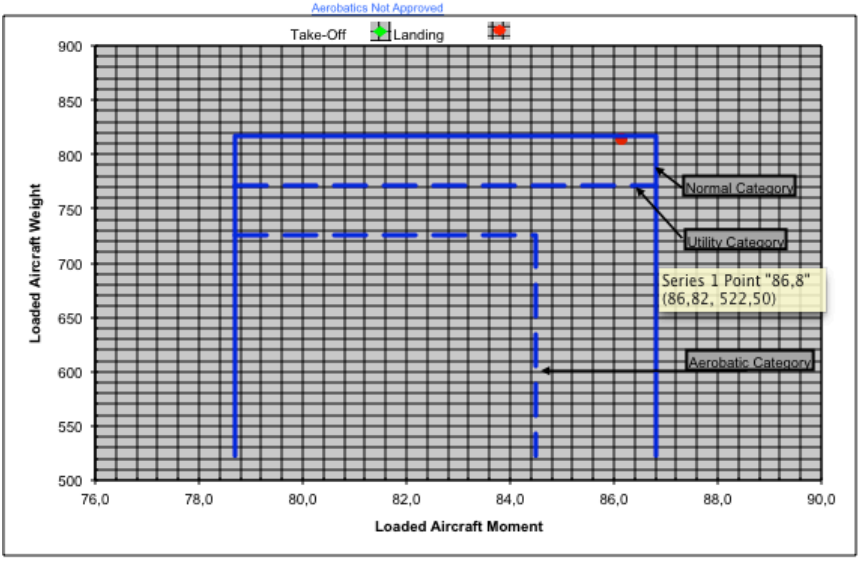
6.4.4.5 GROSS WEIGHT (HEAVY PAX & BAGGAGE, REDUCED FUEL)

Vans RV-7 Weight and Balance Calculator	Fill in Yellow Boxes Only!		
Description	**Weight (kg)**	**Moment (Kg-ins.)**	**Arm**
Max Gross Weight	817		
Tail Wheel Weight	34	8472,46	249,19
Left Main Weight	245	16770,25	68,45
Right Main Weight	243,5	16667,58	68,45
Empty Weight	**522,5**	**41910,29**	**80,21**
Useful Load	**294,5**		
Full Fuel Payload (no baggage, 42 gals fuel)	**180,02**		
Full Fuel Payload (45kg baggage, 42 gals fuel)	**135,02**		
Take Off Fuel amount **in Liters**	120	6912,00	80,00
Pilot	70	6823,60	97,48
Passenger	90	8773,20	97,48
*Baggage Area	45	5705,10	126,78
Take-Off Weight and Moment	**813,9**	**70124,19**	**86,16**
Liters of Fuel Used during Flight	0		80,00
Landing Weight and Moment	**813,9**	**70124,19**	**86,16**

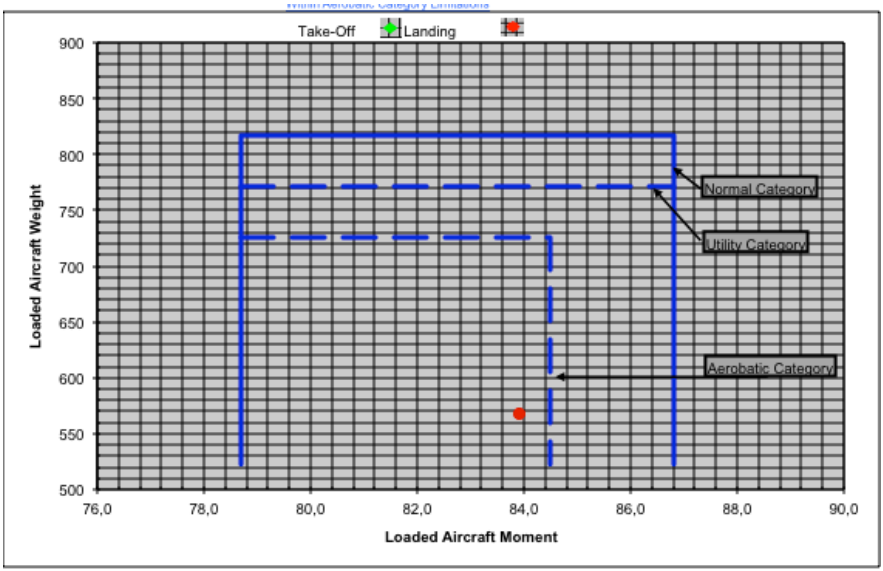
Take-Off Weight is OK

Outside Utility Category Limits

Aerobatics Not Approved



6.4.5 CENTER OF GRAVITY ENVELOPE



6.4.6 EQUIPMENT LIST AND INVENTORY

Description	Manufacturer	Type
Powerplant & accessories		
Engine, 8 parallel valves	Aero Sport Power	IO-375-M1B
Plenum	RV Bits	Carbon fiber
Baffling	Van's Aircraft	New Style baffling kit
Air filter	K&N	33-2060
Starter	Hartzell	SRZ-9021
Primary alternator	Plane Power	AL12-EI70
Alternator belt	Dayco	Top Cog 15355 11A0900
S/by Alternator	Plane Power	FS1-14
Propeller C/S 72" diameter	Whirlwind	RV200
Governor	Jihostroj	P920-028
Exhaust stainless steel	Aeropower AWI	4 into 1
Heat exchanger	Aeropower AWI	Rv 7
Oil cooler	Stewart Warner	SW 9022 R
Ignition system	Flyefii	Electronic Ignition
Air induction/oil sump	ECI Superior	Cold air induction
Fuel Injection system	Flyefii	Electronic Fuel Injection
Fuel flow meter	AFS	Red cube
Fuel Hoses	Aeroquip	Rubber/steel AE-701
Fuel /Air ratio	PLX/Bosch	DM6 Combo

Description	Manufacturer	Type
Landing gear & accessories		
Main gear	Van's Aircraft	
Main wheel	Beringer	5 x 5.00
Main wheel fairings	Van's Aircraft	Finishing kit
Brake disks	Beringer	Rv7 kit
Electrical system		
System management	Vertical Power	VP-X Pro
Battery 1	SuperB	SB12V15P-DC
Battery 2	SuperB	SB12V10P-DC
Battery relay 1	White Rodger	60 A
Battery relay 2	White Rodger	60 A
Starter relay		
Flap electric servo	Van's Aircraft	
Aileron trim servo	Ray Allen	T2-10A
Elevator trim servo	Ray allen	T2-10A
Nav/Strobe/landing light	Aeroled	Rv7 Kit#3
Map light		
Dimmer kit		

MASS AND BALANCE

Description	Manufacturer	Type
Instruments, Avionics, Autopilot		
Compass	Sirs	NV2c-2400-12v
Primary Flight Display	Dynon Avionic	Skyview 10'
Engine Monitor Display	Dynon Avionic	Skyview 10'
EFIS control panel	Dynon Avionic	SV-AP-PANEL
Autopilot knob panel	Dynon Avionic	SV-KNOB-PANEL
S/by instrument system	Dynon Avionic	D6
Heated Angle of attack	Dynon Avionic	100667-000
PFD b/up battery	Dynon Avionic	SV-BAT-320
GPS Unit	Dynon Avionic	SV-GPS-250
Transponder Mode S	Dynon Avionic	SV-XPNDR-26X
GPS portable unit	Garmin	Aera 795
Audio Panel	PS Engineering	PMA 8000 BT
ELT 406 MHz	ACK	E04
Nav/Com 1	Garmin	GNC225
Com 2	Dynon Avionic	SV-COM-C25
Autopilot pitch servo	Dynon Avionic	SV32
Autopilot roll servo	Dynon Avionic	SV32
Com 1 Antenna	RAMI	AV-10
Com 2 Antenna	RAMI	AV-74
Transponder Antenna	RAMI	AV-74
VOR receiver Antenna	Comant	CI-259E

MASS AND BALANCE

Description	Manufacturer	Type
Fuel System		
Main tank left	Van's Aircraft	Aluminum / QB
Main tank right	Van's Aircraft	Aluminum / QB
Fuel selector	Andair	FS-2020D2-M
Fuel filter	Flyefii	100 micron
Fuel filter	Flyefii	10 micron
Fuel pumps	Flyefii	Hi Pressure
Fuel level sender	Van's Aircraft	
Fuel Hoses	Aeroquip	Rubber/steel AE-701
Cabin Accommodation		
Pilot seats	Classic Aero design	Aviator Rv-03011-701
Seat belts/Harness	Hooker Harness	5 points
Cabin heat assembly	Van's Aircraft	Heat exchanger
Air Vents	Stenair	Eyeball AV-1.625C
Throttle Bracket	ExperimentalAir	EA-0003
Auxiliary Equipment		
CO Detector	Quantum Eye	AS#09-35601
Portable PLB	Kannad	XS4 / AS#11-09324
Sunshade	Koger	Super Rv AS#11-09324

Pilot headset	Lightspeed	Zulu 2
Co-Pilot headset	Lightspeed	Zulu1

7.0 DESCRIPTION OF THE AIRPLANE AND ITS SYSTEM

7.1 INTRODUCTION

THIS EXPERIMENTAL AIRCRAFT IS ONE OF A KIND. VAN'S AIRCRAFT AS THE KIT SUPPLIER ONLY PROVIDES BASELINE SYSTEMS, ON TOP OF WHICH IT IS T H E TASK OF EACH INDIVIDUAL BUILDER TO DECIDE WHAT TO INSTALL AND HOW TO EQUIP THE AIRPLANE. THIS AIRCRAFT HAS BEEN ASSEMBLED STARTING FROM THE QUICK BUILD KIT OPTION.

7.2 AIRFRAME

THE RV-7 IS AN ALUMINUM, SEMI-MONOCOQUE DESIGN USING MOSTLY FLUSH SOLID RIVETS. POP-RIVETS ARE ONLY SPARSELY USED AND FOR NON-STRUCTURAL AREAS.THE MANUFACTURING TOOLS, METHODS AND MATERIALS EMPLOYED ARE CLASSIC AND THEREFORE WELL UNDERSTOOD, TESTED AND TRIED. THE WING IS OF A SIMPLE CONSTANT CHORD DESIGN WITH A NACA 23013.5 PROFILE. THIS PROFILE IS WIDELY USED. AMONG OTHERS ON THE DC-3, CESSNA CITATION, ALL TAPERED WING BEECHCRAFT AND MANY CESSNA TWINS. THE RESPECTABLE EMPENNAGE GIVES GOOD CONTROL AND STABILITY. THE AIRCRAFT IS EQUIPPED WITH 2 INTEGRAL FUEL TANKS, ONE ON EACH WING COMPRISING THE INBOARD FRONT SECTION OF THE WING. EACH TANK IS EQUIPPED WITH A RESISTIVE FLOATING TYPE FUEL LEVEL SENSOR.

FURTHER EQUIPMENT INCLUDES:

SLIDING CANOPY.
ELECTRICALLY ACTUATED FLAPS
ELECTRICALLY ACTUATED AILERON AND ELEVATOR TRIM
LED NAV LIGHTS
LED STROBE LIGHTS
HID LANDING LIGHTS
HYDRAULIC DIFFERENTIAL BRAKES
DOUBLE CONTROL STICKS

7.3 FLIGHT CONTROL

7.3.1 PRIMARY FLIGHT CONTROL

DUAL CONTROLS ARE FITTED WITH BOTH CONTROL STICKS PERMANENTLY ATTACHED. ELEVATOR AND AILERONS ARE OPERATED THROUGH A SYSTEM OF ADJUSTABLE PUSH RODS. THE RUDDER IS OPERATED BY A CABLE SYSTEM TO THE RUDDER PEDALS. AN AUTOPILOT ROLL SERVO IS ATTACHED TO THE AILERON BELCRANK BY A FIRM PUSHROD IN THE RIGHT WING NEAR THE MAIN SPAR. AN AUTOPILOT PITCH SERVO IS ATTACHED TO THE ELEVATOR BELLCRANK BY A FIRM PUSHROD ON THE BOTTOM OF THE REAR FUSELAGE. BOTH SERVOS CAN BE OVERPOWERED AND CONTAIN A SHEAR SCREW DESIGN, GUARANTEEING CONTROL CONTINUITY.

Control Travel Limits	Maximum Up/Down	Minimum Up/Down
Elevator	30°/25°	25°/20°
Aileron	32°/17°	25°/15°
Rudder	35°/35°	30°/30°
Flaps	Down 40°	

7.3.2 FLAP SYSTEM

ONE INBOARD FLAP ON EACH WING IS ATTACHED TO A SINGLE FLAP ACTUATION MECHANISM, RENDERING AN ASYMMETRIC FLAP CONDITION IMPOSSIBLE. THE MECHANISM IS OPERATED BY AN ELECTRIC MOTOR ATTACHED TO A DRIVE TRAIN BY THE MEANS OF A CLUTCH.

THE ELECTRIC MOTOR IS WIRED TO THE VP-X CONTROL UNIT, REVERSING DIRECTION BY SWITCHING POLARITY. A MOMENTARY UP/DOWN SWITCH ON THE BOTTOM OF THE INSTRUMENT PANEL, ALSO WIRED TO THE VP-X CONTROL UNIT, COMMANDS EITHER EXTENSION OR RETRACTION OF THE FLAPS.

A LINEAR POSITION SENSOR WIRED TO THE VP-X CONTROL UNIT, ENABLES A GRAPHICAL REPRESENTATION OF ACTUAL FLAP POSITION ON THE VP-X PAGE ON PFD AS WELL AS THE PROVISION OF A "STEP" POSITIONING LOGIC. THE LOGIC HAS 4 POSITIONS, UP, 1, 2, FULL POSITION 1 APPROXIMATELY MIRRORS 10°, POSITION 2 20° AND FULL 40° OF FLAPS.

VP-X LOGIC DISABLES THE FLAP MOTOR ABOVE A SPECIFIED SPEED TO PREVENT FLAP EXTENSIONE ABOVE VFE.

THERE IS NO BACKUP TO THE ELECTRICAL FLAPS. HOWEVER, IN CASE OF ELECTRICAL/FLAP SYSTEM FAILURE, THE AIRCRAFT CAN BE EASILY LANDED ON ANY FLAP SETTING. REFER TO CHAPTER 4.3 FOR ABNORMAL OPERATING PROCEDURES.

7.3.3 TRIM SYSTEM

THE AIRCRAFT HAS BOTH PITCH AND AILERON TRIM, HOWEVER NO RUDDER TRIM IS AVAILABLE. ALSO, THERE IS NO WAY FOR THE AUTOPILOT TO AFFECT TRIM.

THE AILERON TRIM CONSISTS OF AN ELECTRICAL SERVO OPERATING A SPRING-BIAS SYSTEM CONNECTED TO THE BASE OF THE CONTROL STICKS. PRIMARY PURPOSE OF THE AILERON TRIM IS TO COUNTER FUEL IMBALANCE AND AN EMPTY OR OCCUPIED PASSENGER SEAT.

THE PITCH TRIM CONSISTS OF AN ELECTRICAL SERVO OPERATING A TRIM TAB ON THE LEFT ELEVATOR.

TRIMS CAN BE ACTUATED BY PUSHING THE LEFT/RIGHT OR UP/DOWN BUTTONS ON TOP OF EACH CONTROL STICK.
BOTH SERVOS AND THE BUTTONS ARE CONNECTED TO THE VP-X CONTROL UNIT.

A GRAPHICAL REPRESENTATION OF THE TRIMS IS AVAILABLE ON THE VP-X PAGE ON PFD. ALSO, THE VP-X PROVIDES A GROUNDSPEED-DERIVED SENSITIVE TRIM SPEED CONTROL.

THERE IS NO BACKUP FOR EACH TRIM. HOWEVER, IN CASE OF ELECTRICAL/ TRIM SYSTEM FAILURE, THE AIRCRAFT CAN BE EASILY LANDED ON ANY TRIM SETTING, EVEN IN A RUNAWAY TRIM SCENARIO. REFER TO CHAPTER 4.3 FOR ABNORMAL OPERATING PROCEDURES.

7.4 INSTRUMENT PANEL

7.4.1 GENERAL

THE INSTRUMENT PANEL IS BUILT AROUND A MODERN EXPERIMENTAL "GLASS COCKPIT". IT PROVIDES MAXIMAL SITUATIONAL AWARENESS DURING ANY PHASE OF FLIGHT.

7.4.2 SKYVIEW SYSTEM

DYNON AVIONICS

THE CONTENT IN THIS SECTION IS ONY INTENDED AS A BRIEF GUIDE OF THE SYSTEM. A FURTHER READING OF THE SKYVIEW SYTEM INSTALLATION AND PILOT GUIDE IS STRONGLY SUGGESTED. IT CAN BE FOUND ON THE DOCUMENTS SECTION OF THE AIRPLANE WEBSITE www.rv7.eu

Internet sites:

www.dynonavionics.com – Dynon Avionics primary web site; including:

docs.dynonavionics.com – Current and archival documentation.

downloads.dynonavionics.com – Software downloads.

support.dynonavionics.com – Support resources.

store.dynonavionics.com – Dynon's *secure* online store for purchasing all Dynon products 24 hours a day.

wiki.dynonavionics.com – Dynon's Documentation Wiki provides enhanced, extended, and frequently updated online documentation contributed by Dynon employees and customers.

forum.dynonavionics.com Dynon's Internet forum where Dynon customers can interact with each other and Dynon Avionics. A key feature of the forum is that it allows the exchange of diagrams, photos, and other types of files.

preflight.dynonavionics.com – A collection of educational articles, tips, news, and "behind the panel" information about Dynon and its products.

register.dynonavionics.com – Register your Dynon Avionics product.

license.dynonavionics.com – Redeem certificates for Navigation Mapping Software, Synthetic Vision, and other features for license codes that add new functionality to your SkyView system.

DESCRIPTION OF THE AIRPLANE

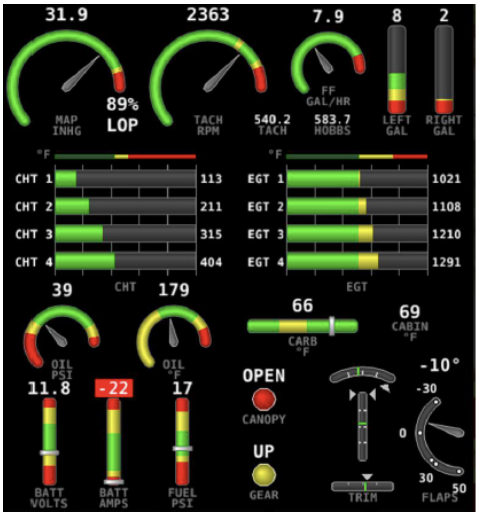
DYNON SKYVIEW SYSTEM CONSISTS OF:

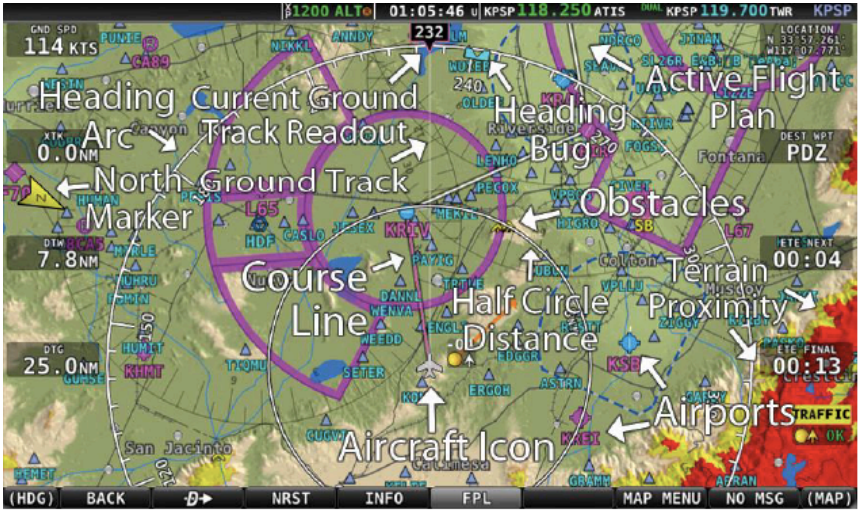
1 SV-D1000 DISPLAY IS A 10.2-INCH, 1024 BY 600 PIXEL, 1350+ NIT TFT ACTIVE MATRIX LCD SCREEN

1 SV-D1000T DISPLAY IS A 10.2-INCH, 1024 BY 600 PIXEL, 1350+ NIT TFT ACTIVE MATRIX CAPACITIVE MULTI-TOUCH LCD SCREEN

SKYVIEW CAN DISPLAY MANY COMBINATIONS OF PFD, ENGINE, AND MOVING MAP DATA IN FULL-SCREEN AND PARTIAL-SCREEN CONFIGURATIONS AS WELL AS DISTRIBUTE THIS DATA ACROSS MULTIPLE DISPLAYS. EACH DISPLAY IN THE SYSTEM CAN ALSO HAVE ITS OWN LAYOUT.

DESCRIPTION OF THE AIRPLANE





DESCRIPTION OF THE AIRPLANE

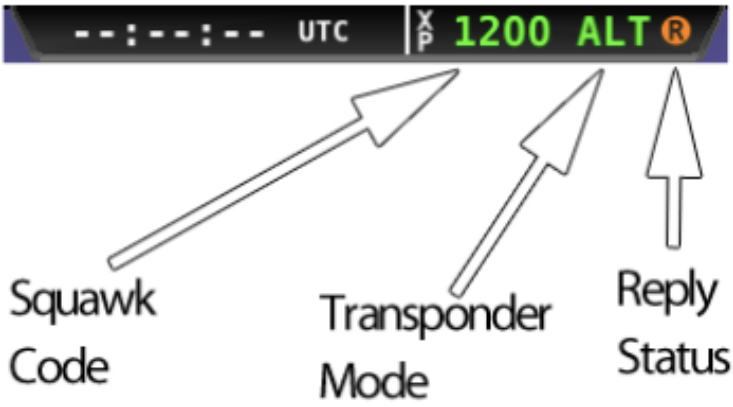
1SV-KNOB-PANEL SKYVIEW KNOB CONTROL PANEL

IT ADDS THREE ADDITIONAL DEDICATED KNOBS TO THE SKYVIEW SYSTEM FOR THE MOST FREQUENTLY ADJUSTED BUGS. ONE KNOB IS DEDICATED TO EACH OF THE ALTITUDE BUG (ALT), ALTIMETER SETTING (BARO) AND HEADING/TRACK BUG (HDG/TRK) ON THE PRIMARY FLIGHT DISPLAY.

1 SV-AP-PANEL SKYVIEW AUTOPILOT CONTROL PANEL

THE SKYVIEW AUTOPILOT CONTROL PANEL PROVIDES DEDICATED CONTROLS FOR ALL AUTOPILOT MODES. THIS ALLOWS THE PILOT TO NAVIGATE OTHER MENUS ON THE SKYVIEW DISPLAY WHILE RETAINING DIRECT ACCESS TO THE AUTOPILOT. AUTOPILOT STATUS APPEARS ON THE SKYVIEW TOP BAR AS NORMAL TO SHOW ACTIVE AND ARMED MODES AS WELL AS CURRENT BUG VALUES. THE BUTTONS ON THE CONTROL PANEL PERFORM EXACTLY THE SAME FUNCTIONS AS THE MENUS UNDER MAIN MENU > AUTOPILOT (WHICH REMAIN AVAILABLE AND USABLE). AS THE AUTOPILOT CONTROL PANEL PROVIDES CONTROLS FOR ALL AUTOPILOT MODES, INCLUDING VNAV, IAS HOLD, FLIGHT DIRECTOR, ETC., IT CAN ONLY BE USED WHEN THE SYSTEM IS CONFIGURED TO USE THE EXPERT AUTOPILOT CONTROL SCHEME.

1 SV-XPNDR-262 CLASS 2 MODE S TRANSPONDER



Transponder Menu

THE SV-XPNDR-26X TRANSPONDER IS CONTROLLED USING THE SKYVIEW'S ON-SCREEN MENU SYSTEM. THIS ALLOWS THE TRANSPONDER TO BE MOUNTED SEPARATELY FROM THE INSTRUMENT PANEL, AND REDUCES THE AMOUNT OF PANEL SPACE TAKEN BY THE TRANSPONDER. SKYVIEW ALSO PROVIDES PRESSURE ALTITUDE DIRECTLY TO THE TRANSPONDER, ELIMINATING THE NEED FOR A SEPARATE ALTITUDE ENCODER.

DESCRIPTION OF THE AIRPLANE

1 SV-COM-25 SKYVIEW RADIO

A: Volume Knob / Power Button
B: Active Frequency
C: Station Type
D: Standby Frequency
E: Associated Airport
F: Loaded Airport
G: Dual Watch Mode Indicator
H: RX/TX Status Indicator
I: Airport Button
J: Dual Concentric Multifunction Knob (Tune, Selection, Flip/Flop)

THE SV-COM-C25 INTEGRATES WITH YOUR SKYVIEW SYSTEM IN A NOVEL WAY, ALLOWING YOU TO "LOAD" AIRPORTS TO IT TO ENABLE QUICK, SINGLE BUTTON-PUSH FREQUENCY TUNING VIA THE DEDICATED TWR, ATIS, GND, AND ATC BUTTONS. YOU CAN ALSO SEND INDIVIDUAL FREQUENCIES TO THE SV-COM-C25 FROM SKYVIEW'S AIRPORT INFO PAGES. AND OF COURSE, YOU CAN ALSO SPIN FREQUENCIES IN THE "OLD FASHIONED WAY" .

DESCRIPTION OF THE AIRPLANE

1 SV ADHARS-20 X

IT PROVIDES ATTITUDE, AIR DATA (AIRSPEED, ALTITUDE, VSI), STABILIZED MAGNETIC HEADING, SLIP/SKID BALL (INCLINOMETER), AND TURN RATE

1 SV-EMS-220

THE SV-EMS-22X MODULE PROVIDES THE INTERFACE BETWEEN A SKYVIEW DISPLAY AND THE ENGINE AND AIRCRAFT SENSORS. IT ALLOWS THE SKYVIEW SYSTEM TO CONTINUOUSLY MONITOR ALL POWER PLANT AND AIRCRAFT SYSTEMS IN A HIGHLY AUTOMATED MANNER. THE EMS MODULE INTEGRATES UP TO 16 DIFFERENT TYPES OF GAUGES ALL IN ONE HIGHLY COMPACT DESIGN. ANY PARAMETER FALLING OUTSIDE ITS PREDEFINED LIMITS ARE AUTOMATICALLY BROUGHT TO THE ATTENTION OF THE PILOT FOR IMMEDIATE REMEDIATION. SAFETY IS ENHANCED TWO FOLD; FIRST, BY REDUCING THE PILOT'S WORKLOAD AND SECONDLY BY EARLY DETECTION AND NOTIFICATION OF FORESEEN TROUBLE.

THE SKYVIEW EMS INCLUDE:

- TACH
- MANIFOLD PRESSURE
- OIL PRESSURE
- OIL TEMPERATURE
- FUEL FLOW WITH FUEL COMPUTER
- FUEL PRESSURE
- CHT
- VOLTAGE
- CURRENT
- FUEL COMPUTER
- ENGINE AND FLIGHT TIMERS
- TRIM POSITION
- FLAP POSITION
- AND OTHER AIRCRAFT PARAMETERS

DESCRIPTION OF THE AIRPLANE

1 SKYVIEW SV-GPS-250 GPS RECEIVER AND ANTEN

NA

SKYVIEW GPS RECEIVER: THE SV-GPS-250 IS A SENSITIVE, WAAS ENABLED GPS RECEIVER AND ANTENNA. THE ADVANTAGE OF HAVING THE RECEIVER PACKAGED IN ONE UNIT WITH THE ANTENNA, IS THAT THE OUTPUT IS A STANDARD NMEA SERIAL CONNECTION. A SHIELDED ANTENNA CABLE, WITH ITS INHERENT ATTENUATION OF SIGNAL AND GREATER DIFFICULTY OF ROUTING, IS NOT REQUIRED TO CONNECT TO THE SKYVIEW DISPLAY.

GPS DATA: GPS LATITUDE/LONGITUDE DATA IS NECESSARY FOR THE SKYVIEW TO LOCATE ITS POSITION TO DISPLAY SYNTHETIC VISION AND THE MOVING MAP. IT IS ALSO NECESSARY DURING CALIBRATION OF THE REMOTE COMPASS/MAGNETOMETER, IN ORDER FOR SKYVIEW TO DETERMINE CURRENT LOCATION AND THE CORRECT MAGNETIC INCLINATION.

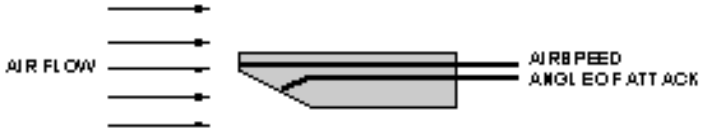
2 SKYVIEW SV-BAT-320 BACKUP BATTERY

SYSTEM BATTERY BACKUP: A SYSTEM BACKUP BATTERY WILL PROVIDE OVER AN HOUR OF BACKUP POWER TO A DISPLAY AND MODULES. EACH DISPLAY REQUIRES ITS OWN BACKUP BATTERY FOR REDUNDANCY.

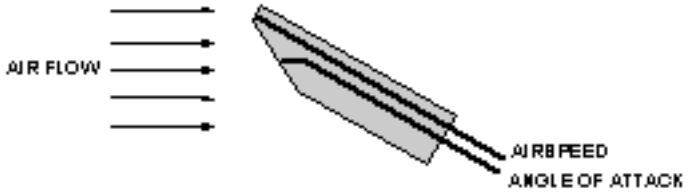
1 PITOT PROBES - ANGLE OF ATTACK

THE HEATED PITOT INCLUDES A NICHROME HEATING ELEMENT THAT IS REGULATED BY A SEPARATE PITOT HEATER CONTROLLER UNIT SUPPLIED WITH THE PITOT. THE CONTROLLER ACTIVELY MONITORS A TEMPERATURE SENSOR EMBEDDED WITHIN THE PITOT HEAD AND REGULATES THE POWER TO MAINTAIN A CONSTANT TEMPERATURE. THIS NOT ONLY CONSERVES ENERGY BUT ADDITIONALLY PROLONGS THE LIFE OF THE HEATER. THE CONTROLLER ALSO OUTPUTS A SIGNAL THAT CAN BE WIRED TO A WARNING LIGHT IN THE COCKPIT TO WARN THE PILOT ANYTIME THERE IS A MALFUNCTION OR THAT THE PITOT IS TURNED OFF.

PRINCIPLE OF OPERATION



Normal Flight



Critical Angle of Attack

THE CONCEPT BEHIND DYNON'S DESIGN IS ILLUSTRATED IN THE DIAGRAMS AT RIGHT. THE DYNON AVIONICS AOA/PITOT PROBE PERFORMS TWO FUNCTIONS: AIRSPEED SENSING AND ANGLE OF ATTACK SENSING. THESE FUNCTIONS REQUIRE HAVING TWO PRESSURE PORTS ON THE TIP OF THE PROBE. THE NORMAL PITOT PRESSURE PORT IS ON THE FRONT FACE OF THE PROBE AND IS DESIGNED TO BE INSENSITIVE TO ANGLE OF ATTACK. THE SECOND PRESSURE PORT IS LOCATED ON AN ANGLED SURFACE JUST UNDER THE PITOT PORT AND IS DESIGNED TO BE VERY SENSITIVE TO AOA. THE PRESSURE FROM EACH PORT IS DELIVERED VIA SEPARATE AIR LINES TO THE INSTRUMENT WHERE THEY ARE COMPARED TO PREVIOUSLY CALIBRATED SCENARIOS SPECIFIC TO THAT AIRCRAFT.

PRESENTATION

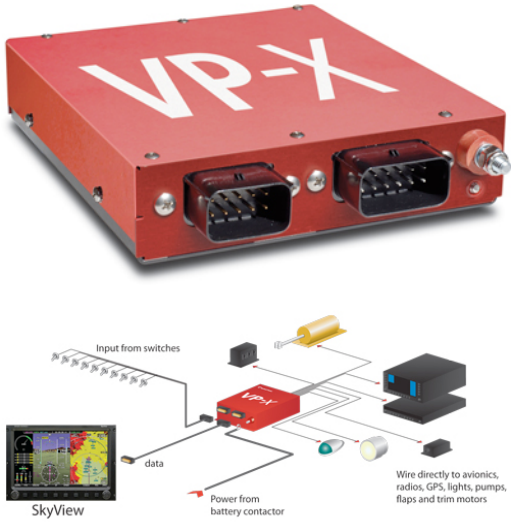
ANGLE OF ATTACK IS INDICATED ON THE EFIS DISPLAY AS A VERTICAL COLOR-CODED TAPE WITH GREEN, YELLOW AND RED AREAS. ONCE CALIBRATED, CRITICAL ANGLE OF ATTACK WILL BE INDICATED WITH THE POINTER POSITIONED IN THE RED AREA OF THE TAPE. AN AUDIO ALARM CAN ALSO BE GENERATED AS AOA BECOMES CRITICAL. IT CAN BE SET AS EITHER A STEADY TONE THAT SOUNDS VERY NEAR THE CRITICAL AOA, OR ALTERNATIVELY AS A BEEPING TONE THAT STARTS AS AOA GETS HIGH AND INCREASES IN FREQUENCY UNTIL IT IS A SOLID TONE VERY NEAR THE CRITICAL AOA.

2 AUTOPILOT SERVO

FEATURES: DUAL AXIS AUTOPILOT CAN FLY MAGNETIC HEADING, GPS GROUND TRACK, AND HORIZONTAL NAV FROM ANY CONNECTED COMPATIBLE RADIO OR GPS. WITH IFR CAPABILITIES, THE AUTOPILTOT ALSO INCLUDES FULLY-COUPLED APPROACHES, COUPLED VNAV, IAS HOLD, MODE SEQUENCING, AND FLIGHT DIRECTOR GUIDANCE. ADDITIONAL STANDARD FEATURES INCLUDE EMERGENCY 180-DEGREE TURN CAPABILITY AND A NEW LEVEL BUTTON TO IMMEDIATELY RETURN THE AIRCRAFT TO STRAIGHT AND LEVEL FLIGHT.

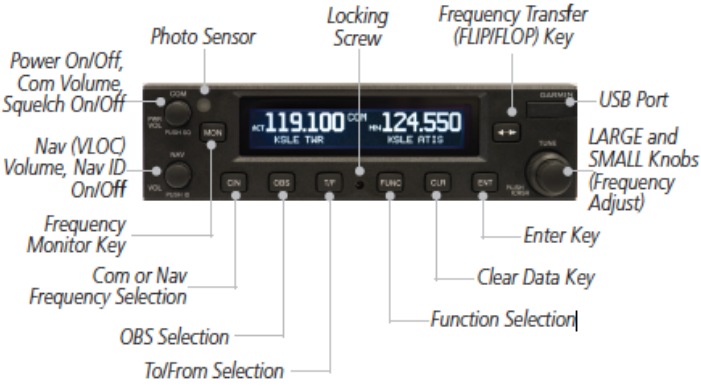
1 SkyView VP-X Integration

Vertical Power



The SkyView system integrates support for the Vertical Power VP-X Pro electronic circuit breaker systems. The VP-X system enables pilots to monitor and control their electrical system using a SkyView display. The VP-X information appears as a window along with the SkyView Engine Monitor, Primary Flight Display and GPS Moving Map. Pilots can monitor the health of their electrical system, view and control the status of individual circuits, and respond to circuit faults using the SkyView display. A further reading of the Vertical Power system installation and pilot guide is strongly suggested, It can be found at WWW.VERTICALPOWER.COM.

7.4.3 COM/NAV GARMIN GNC 225



COMBINING A VHF COMMUNICATIONS TRANSCEIVER WITH 200 CHANNEL VOR, LOCALIZER AND GLIDESLOPE RECEIVERS, THE GNC 255 PROVIDES A FULL-FUNCTIONED NAVIGATION AND COMMUNICATIONS SOLUTION. BESIDES TRADITIONAL NAV/COM FEATURES, THE GNC 255 ALSO INCORPORATES WORKLOAD-REDUCING FUNCTIONS SUCH AS AUTOMATIC DECODING OF THE MORSE CODE STATION IDENTIFIER FOR VOR/LOC, MOST-USED FREQUENCY STORAGE IN MEMORY, BUILT-IN COURSE DEVIATION INDICATOR, AND MORE. THE GNC 255 HAS THE ABILITY TO MONITOR THE STANDBY COM FREQUENCIES. THE GNC 255'S COM RADIO OPERATES IN THE AVIATION VOICE BAND, FROM 118.000 TO 136.975 MHZ, IN 8.33 KHZ STEPS (DEFAULT). THE GNC 255 VHF NAV RECEIVER OPERATES FROM 108 MHZ TO 117.95 MHZ DECODING BOTH THE VHF OMNI RANGE AND LOCALIZER NAVIGATION SIGNALS. THE BUILT-IN GLIDESLOPE RECEIVER WILL AUTOMATICALLY TUNE THE CORRESPONDING GLIDESLOPE PAIRED

FREQUENCIES (328 MHZ TO 335 MHZ) WHEN THE LOCALIZER IS TUNED.

A FURTHER READING OF THE GARMIN GNC 225 INSTALLATION AND PILOT GUIDE IS STRONGLY SUGGESTED, IT CAN BE FOUND ON THE DOCUMENTS SECTION OF THE AIRPLANE WEBSITE www.rv7.eu

7.4.4 AUDIO PANEL PS ENGINEERING PMA 8000 BT

THE PMA8000BT IS A STATE-OF-THE-ART AUDIO ISOLATION AMPLIFIER AND AUDIO SELECTOR THAT CONTAINS AN AUTOMATIC VOICE ACTIVATED (VOX) INTERCOM SYSTEM AND INTEGRAL MARKER BEACON RECEIVER. IT CAN SWITCH TWO TRANSCEIVERS (COM 1, COM 2) AND SIX RECEIVERS (NAV 1, NAV 2, ADF, DME, MKR AND AUX). A FULL DUPLEX TEL MODE ALLOWS THE PMA8000BT TO ACT AS AN AUDIO INTERFACE BETWEEN AIRCRAFT HEADPHONE AND MICROPHONES AND SPECIFIC AIRCRAFT CELLULAR TELEPHONE EQUIPMENT, THROUGH THE FRONT MOUNTED OR BLUETOOTH JACK. THERE ARE FIVE UNSWITCHED INPUTS, AVAILABLE FOR TRAFFIC OR EGPWS, AUTOPILOT DISCONNECT, AND/OR RADAR ALTIMETER. PUSHBUTTONS SELECT THE RECEIVER AUDIO SOURCE PROVIDED TO THE HEADPHONES. A SPR BUTTON ALLOWS THE USER TO LISTEN TO THE RECEIVER(S) SELECTED ON THE CABIN SPEAKER. EXCEPT FOR THE UNSWITCHED INPUTS, ALL SPEAKER AUDIO IS MUTED DURING TRANSMIT. UNSWITCHED INPUTS 1,3, AND 4 ARE ALWAYS PRESENTED TO THE AIRCRAFT SPEAKER.

DESCRIPTION OF THE AIRPLANE

PUSHBUTTON SWITCHES SELECT ONE OF THE COMMUNICATION TRANSCEIVERS FOR THE PILOT AND COPILOT POSITION, AND ALLOWS RADIO TRANSMISSION. IN "SPLIT MODE" THE PMA8000BT HAS THE ABILITY TO ALLOW THE PILOT TO TRANSMIT ON COM 1 WHILE THE COPILOT CAN TRANSMIT ON COM 2. A FAIL-SAFE MODE CONNECTS THE PILOT HEADPHONE AND MICROPHONE TO COM 1 IF POWER IS REMOVED FOR ANY REASON, OR IF THE POWER SWITCH IS PLACED IN THE OFF(FAIL-SAFE) POSITION. A SIX-STATION VOICE ACTIVATED (VOX) INTERCOM IS INCLUDED IN THE PMA8000BT. THIS SYSTEM HAS PS ENGINEERING'S PATENTED INTELLIVOX® CIRCUITRY THAT ELIMINATES MANUAL ADJUSTMENTS. THE INTERCOM SYSTEM INCORPORATES PILOT ISOLATE, ALL AND CREW MODES, TWO INDEPENDENT STEREO MUSIC INPUTS WITH "SOFTMUTE™". INTERCOMVOLUME CONTROL IS THROUGH TWO CONCENTRIC FRONT PANEL KNOBS AND A PUSHBUTTON INTERCOM MODE SWITCH.

THE SMALL VOLUME KNOB CONTROLS THE INTERCOM LEVEL FOR THE PILOT AND COPILOT, WHILE THE LARGE KNOB CONTROLS THE PASSENGER INTERCOM VOLUME. INTERCOM SQUELCH IS AUTOMATIC. A 3-LIGHT, 75 MHZ MARKER BEACON RECEIVER IS INTEGRATED IN THE PMA8000BT. THIS PROVIDES THE NECESSARY MARKER BEACON LIGHTS AND AUDIO INDICATIONS NECESSARY FOR THAT PORTION OF AN INSTRUMENT LANDING SYSTEM (ILS) APPROACH. A PUSHBUTTON LABELED MKR ALLOWS THE PILOT SELECT HIGH OR LOW SENSITIVITY AS WELL AS TEST AND MUTE MODES. IN THE PMA8000BT, A BLUETOOTH® WIRELESS INTERFACE IS AVAILABLE FOR WIRELESS TELEPHONE AND MUSIC CONNECTION

A FURTHER READING OF THE PMA 8000 BT INSTALLATION AND PILOT GUIDE IS STRONGLY SUGGESTED, IT CAN BE FOUND ON THE DOCUMENTS SECTION OF THE AIRPLANE WEBSITE www.rv7.eu

7.4.5 GLOBAL POSITIONING SYSTEM GARMIN AERA 795

WITH ITS 3D VISION PERSPECTIVE VIEW IMAGERY OF DATABASE GENERATED FLIGHT TERRAIN, THE AERA® 796 IS A CARRY-ON GPS NAVIGATION. A DEDICATED AVIATION DEVICE FEATURING A 7-INCH CAPACITIVE TOUCHSCREEN DISPLAY, VIEWABLE IN PORTRAIT OR LANDSCAPE ORIENTATION, THE AERA'S "VIRTUAL REALITY" FLIGHT GRAPHICS CAN BE FRAMED WITH GPS-DERIVED INDICATIONS OF GROUND TRACK, ALTITUDE, GROUNDSPEED, VERTICAL SPEED AND TURN INDICATION. GEO-REFERENCED FLITECHARTS®1 , AERONAV IFR ENROUTE AND VFR SECTIONAL CHARTS1 , SAFETAXI®1 DIAGRAMS, LOW AND HIGH ALTITUDE AIRWAYS, AND AOPA AIRPORT DIRECTORY DATA ALL COME PRE-LOADED. PLUS, A BUILT-IN DIGITAL DOCUMENT VIEWER EXPANDS THE UNIT'S UTILITY AS AN ELECTRONIC FLIGHT BAG (EFB) – ENABLING TO LOAD AND VIEW PDF DOCUMENTS, JPEG PHOTOS, AND OTHER ELECTRONICALLY FORMATTED MATERIALS OF ALL KINDS: EVERYTHING FROM CHECKLISTS AND RASTER CHARTS TO DETAILED PERFORMANCE/PROCEDURAL DATA FROM THE AIRCRAFT FLIGHT MANUAL. THERE'S ALSO A SCRATCH PAD FOR WRITING DOWN CLEARANCES OR OTHER IMPORTANT NOTES. THERE ARE FOUR TOUCHKEYS ON THE BEZEL

OF THE UNIT REPRESENTING "BACK", "MENU", "DIRECT-TO" AND "NEAREST" SELECTIONS FOR QUICK NAVIGATION TO FREQUENTLY USED FUNCTIONS. THE AERA 796 MENU IS CUSTOMIZABLE, YOU CAN EASILY PICK FAVORITE FEATURES OR PAGES TO ANCHOR AS ICONS ALONG THE BOTTOM OF THE SCREEN FOR FASTER ACCESS. THE TOUCHSCREEN INTERFACE ALLOWS YOU TO QUICKLY PAN ACROSS THE MAP AND "PINCH ZOOM" TO MAGNIFY OR DOWNSCALE MAP DETAIL. PLUS, WITH THE FLICK OF A FINGER, YOU CAN ALSO ROTATE THE 3D VISION VANTAGE POINT COMPLETELY AROUND THE AIRCRAFT FOR EASY SCANNING OF THE SURROUNDINGS. WHEN FLYING IN AREAS OR AT ALTITUDES WHERE RISING TOPOGRAPHY MAY POSE A HAZARD, THE AERA 796 USES ITS TERRAIN-ALERTING DATABASE TO COLORIZE THE LANDSCAPE – CLEARLY SHOWING WITH AMBER OR RED OVERLAYS THOSE AREAS WHERE POTENTIAL FLIGHT-INTO-TERRAIN RISKS MAY EXIST. LIKEWISE, ANY TOWERS OR OBSTACLES THAT MAY ENCROACH UPON YOUR FLIGHT PATH ARE COLOR-HIGHLIGHTED AND CLEARLY DISPLAYED WITH HEIGHT-APPROPRIATE SYMBOLOGY.

A FURTHER READING OF THE GARMIN AERA 795 INSTALLATION AND PILOT GUIDE IS STRONGLY SUGGESTED, IT CAN BE FOUND ON THE DOCUMENTS SECTION OF THE AIRPLANE WEBSITE www.rv7.eu

7.4.6 WIDEBAND PLX AIR/FUEL RATIO SYSTEM

Overview:

THE PLX WIDEBAND AFR MULTI GAUGE COMBO COMBINES AN ACCURATE, FAST RESPONSE WIDEBAND AFR (AIR FUEL RATIO) CONTROLLER WITH A 2 1/16" GAUGE (52MM). THE PLX AIR FUEL RATIO SENSOR MODULE ACCURATELY MEASURES THE WIDEBAND AIR FUEL RATIO (AFR) OF ANY INTERNAL COMBUSTION ENGINE. IT INCLUDES A BOSCH LSU4.2 WIDEBAND OXYGEN SENSOR. THE WIDEBAND CONTROLLER (SM-AFR) WORKS WITH GASOLINE, BIO DIESEL, ETHANOL, METHANOL, E85, LPG, AND CNG. IT INCLUDES TWO ANALOG OUTPUTS (WIDEBAND 0-5V, AND NARROWBAND 0-1V) FOR INTERFACING WITH 3RD PARTY DEVICES AND ONE DIGITAL SERIAL OUTPUT FOR INTERFACING WITH THE DM-6 GAUGE AND OTHER MULTI GAUGES. THE WIDEBAND ANALOG OUTPUT IS IDEAL FOR INTERFACING WITH ECU'S AND DATA LOGGERS. ADDITIONAL FEATURES INCLUDE ADVANCED SOFT START TECHNOLOGY WHICH PROLONGS THE OXYGEN SENSOR'S LIFE AND AN ALUMINUM ENCLOSURE.

7.4.7 STANDBY INSTRUMENTS

1 DYNON D6

DYNON D6 IS AN ELECTRONIC EFIS ISTRUMENT POWERED BY THE ESSENYIAL BUS PROVIDING ATTITUDE, ALTITUDE, VERTICAL SPEED, HEADING, SIDE SLIP, TURN RATE AND SPEED INDICATION IN CASE OF TOTAL FAILURE OF THE SKYVIEW DISPLAYS

A FURTHER READING OF THE DYNON D6 INSTALLATION AND PILOT GUIDE IS STRONGLY SUGGESTED, IT CAN BE FOUND ON THE DOCUMENTS SECTION OF THE AIRPLANE WEBSITE www.rv7.eu

1 MAGNETIC COMPASS

AN ILLUMINATED MAGNETIC COMPASS IS INSTALLED IN ORDER TO GIVE BACKUP MAGNETIC HEADING INDICATION.

7.4.8 MAIN PANEL SWITCHES

ESS BUS PWR:

NORMAL: ESS BUS powered by Batt1\Alt1\VPX
OFF: ESS BUS not powered
EMER:ESS BUS powered by Batt2,Alt2 ON,Starter on ESS BUS,ECU1, PUMP 1 on ESS BUS,AVIONIC ESS BUSS ON

BATT 2:

AUTO: Batt 2 charging is automatic and in case of low voltage of MAIN BUS Batt 2 is isolated
ON MAIN BUSS: Batt 2 powerng MAIN BUS
OFF MAIN Batt 2 not powering MAIN BUS

ECU 1 / ECU 2

OFF: ECU1/2 powered
ON: ECU 1/2 unpowered

PUMP 1

OFF: PUMP 1 powered
ON: PUMP 1 unpowered

BATT 1

OFF: Batt 1 not powering MAIN BUS
ON: Batt 1 powering MAIN BUS

ALT 1

OFF: ALT 1 off line
ON: ALT 1 on line

ALT 2

OFF: ALT 2 off line
ON: ALT 2 on line

PUMP 2

OFF: PUMP 2 powered
AUTO: PUMP 2 automatically powers on if low fuel pressure

INJECTION

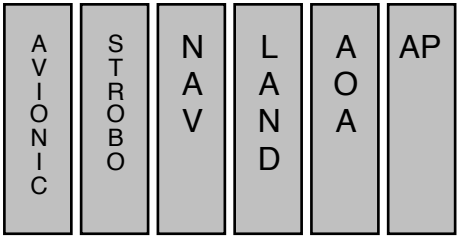
ECU1: Fuel injection controlled by ECU1
ECU2: Fuel injection controlled by ECU2

STARTER BUTTON

7.4.9 FLAP SWITCH

THE FLAP SWITCH IS A MOMENTARY UP/DOWN SWITCH AND CONTROLS THE ELECTRICAL FLAPS. ITS FUNCTION IS DESCRIBED IN 7.3.2 "FLAP SYSTEM".

7.4.10 LOWER PANEL SWITCHES



SIX ROCKER WHITE, ILLUMINATED AND DIMMABLE SWITCHES ARE LOCATED ON THE LOWER PANEL JUST BELOW PFD.

STARTING FROM LEFT TO RIGHT : AVIONIC MASTER, STROBO LIGHTS, NAVIGATION LIGHTS, LANDING LIGHTS, AOA HEATING, AUTOPILOT MASTER.

7.4.11 Starter Button

Most important to know is, that this momentary pushbutton has no physical connection to the starter contactor.
It's deactivated by the VP-X when engine is running

7.4.12 Infinity Grip Switches

1. Autopilot Disconnect — Red. The power to the elevator and aileron trim servos is removed when this momentary switch is depressed. The power will be restored when the switch is released. A press and release within 5 seconds will disconnect the autopilot. Holding the switch depressed for longer than 5 seconds will activate the autopilot Pilot Command Steering mode.

2. Elevator and Aileron Trim Controls elevator and roll trim.

3. Wing Level Autopilot function

4. Push to Talk

5. Spare

6. Spare

7.4.13 Baggage Area, Dimmer, Map Lights

A BAGGAGE AREA LIGHT AND A DIM POWER LEVEL SWITCHES ARE LOCATED ON THE UPPER PANEL JUST ABOVE THE PFD. TWO ROTARY SWITCHES CONTROL RESPECTIVELY LED LIGHTS ILLUMINATING THE INSTRUMENT PANEL AND TWO RED MAP LIGHTS.

7.4.14 ELT Remote Control Panel

THE ELT CONTROL PANEL ALLOWS FOR TESTING AND ACTIVATION OF THE ACK 406MHZ COMPACT EMERGENCY LOCATOR TRANSMITTER

7.5 Landing Gear/Brakes

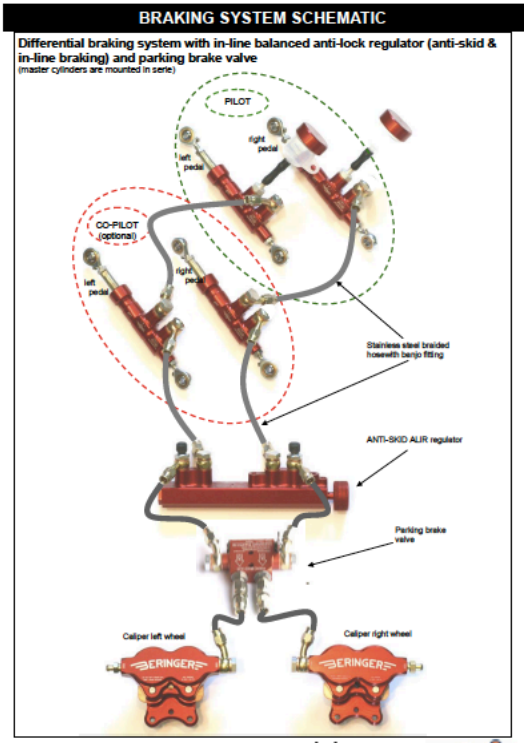
7.5.1 Main Landing Gear

The landing gear is of conventional configuration with steel landing gear legs. The tail wheel is a light weight full castering, it is normally locked and follows the rudder position, but unlocks to a castering condition if full rudder is applied.

The main gear wheels are fitted with Beringer wheels fitted with classic Aero 5,00-5",10 ply tyres and disk brakes. The tail wheel is solid rubber and connected to the rudder through a JDair yoke and steering system.

7.5.2 BRAKES

THE BRAKING SYSTEM CONSISTS OF TOE BRAKES ATTACHED TO THE RUDDER PEDALS OPERATING FOUR BERINGER BRAKE MASTER CYLINDERS. THE LEFT AND RIGHT BRAKE MASTERHAVE THEIR OWN DEDICATED FLUID RESERVOIR INSTALLED ON THE TOP OF THE PILOT PEDALS. A REGULATING PRESSURE DEVICE IS INSTALLED TO AVOID WHEELS BLOCKING. PARKING BRAKE VALVE IS **NOT** INSTALLED. CARE MUST BE TAKEN TO AVOID APPLYING BRAKE PRESSURE WHEN USING RUDDER ON THE GROUND.



7.6 Seats and Safety Belt

The seats are standard Classic Aero Design parts, matching the rest of the interior. A booster cushion is optional to adjust height. While the rudder pedals are fixed, the seatbacks can be adjusted aft/fore to 3 fixed positions.
The harnesses are manufactured by Hooker Harness, They consist of two main lap belts, two shoulder straps and fifth point center strap. They can be unlatched by a rotary buckle.

7.7 Baggage Compartment

The baggage compartment is located behind the seats and can be accessed by tilting the seatbacks forward or reaching through the rollbar.

Total capacity is 100 lbs/45.3 kg.

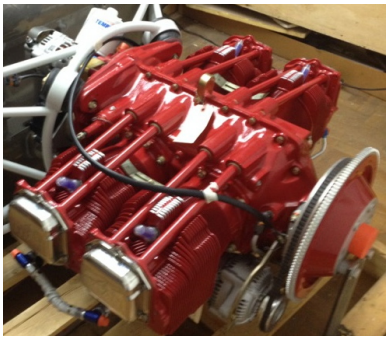
7.8 Canopy

Canopy Latch — The canopy is latched by a red handle and hook at the center front side of the sliding canopy frame. Thehandle may rotate and the hook may release if the handle is hit in flight.

7.9 POWERPLANT

7.9.1 ENGINE GENERAL

THE ENGINE IS A AERO SPORT POWER IO-375-M1S EXPERIMENTAL LYCOMING CLONE. IT'S AN AIR COOLED, FOUR-CYLINDER HORIZONTALLY-OPPOSED (BOXER) DESIGN. FLYEFII EXPERIMENTAL FUEL INJECTION AND ECI COLD AIR INDUCTION (OIL SUMP AND AIR PLENUM ARE PHYSICALLY SEPARATED) GIVE IT EXTRA SMOOTHNESS AND POWER. IGNITION IS DUAL ECU FLYEFII. STARTER IS A HARTZELL LIGHT WEIGHT STARTER. THE ENGINE ALSO DRIVES A PLANE POWER FS1-14 ALTERNATOR AND A SECOND HARTZELL LIGHT WEIGHT ALTERNATOR CONNECTED TO THE VACUUM PORTE. COMPRESSION RATIO IS 8.5:1, RATED HORSEPOWER IS 195 H.P. AT 2700 RPM.



SPECIALTIES OF THE AERO SPORT POWER IO-375-M1S:

ECI NICKEL CARBIDE CYLINDERS WITH TAPERED BARREL FINS PORTED AND FLOW MATCHED, EFII ELECTRONIC FUEL INJECTION AND IGNITION SYSTEM (EFII-1 DUAL ECU), CAMSHAFT AND LIFTERS, SUPERIOR COLD AIR HORIZONTAL INDUCTION SUMP, CONNECTING RODS, BALANCED HOLLOW CRANKSHAFT, DYNAFOCAL TYPE 1 CRANKCASE, RING GEAR, INNER CYLINDER BAFFLES, DIPSTICK AND TUBE, 90 DEGREE SPIN ON OIL FILTER ADAPTER AND VACUUM PUMP ADAPTER HOUSING. ENGINE PAINTED RED.

EXHAUST SYSTEM IS A AERO POWER STAINLESS STEEL FOUR INTO 1 WITH MUFFLER.

7.9.2 Operating Controls

Engine controls consist of throttle, propeller, mixture electronic rotary knob and alternate air door, all located in a quadrant mounted on the center lower instrument

panel. The alternate air door position is controlled by a bowden cable connected to a knob.

An electronic instrument is installed on the middle tunnel. It provides programming and monitoring functions of the Flyefii electronic ignition/ injection sysem.

A further reading of the Flyefii installation and owner's manual is strongly suggested, It can be found at www.rv7.eu.

7.9.3 PROPELLER

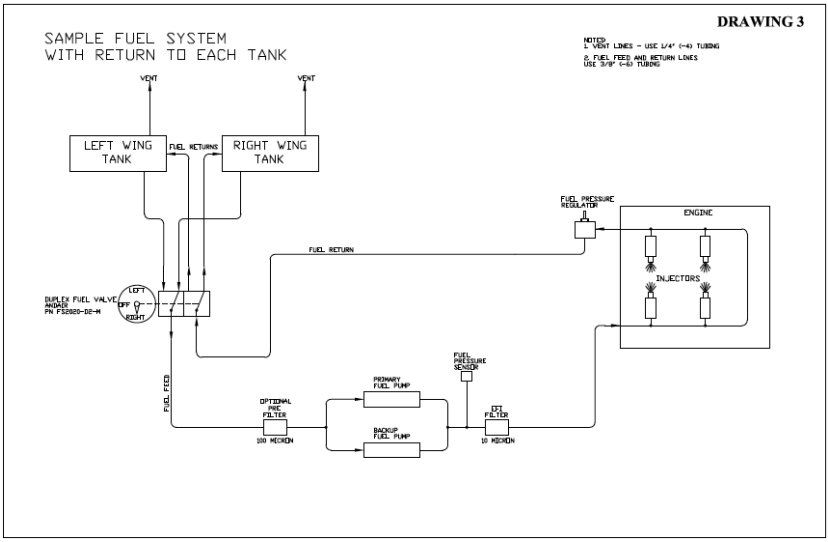
WHIRLWIND 200 RV, 2 BLADES, COMPOSITE, 72" DIAMETER, HYDRAULIC CONSTANT SPEED ACTUATED BY A JIHOSTROJ GOVERNOR MODEL: P920-028/A.
A FURTHER READING OF THE WHIRLWIND 200 RV INSTALLATION AND OWNER'S MANUAL IS STRONGLY SUGGESTED, IT CAN BE FOUND AT WWW.RV7.EU.

7.9.4 ENGINE INSTRUMENTS

FULL ENGINE INSTRUMENTATION IS AVAILABLE THROUGH THE SKYVIEW SYSTEMS EFIS/ENGINE MONITOR. ALL ENGINE DATA OF INTEREST IS AVAILABLE:

RPM
MANIFOLD PRESSURE
CYLINDER HEAD TEMPERATURE FOR EACH CYLINDER
EXHAUST GAS TEMPERATURE FOR EACH CYLINDER
OIL TEMPERATURE
OIL PRESSURE
FUEL PRESSURE
FUEL FLOW

7.10 FUEL SYSTEM

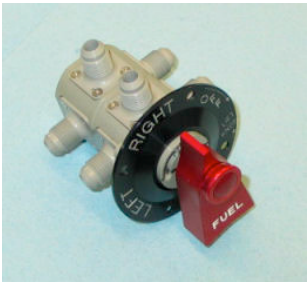


7.10.1 FUEL TANKS

FUEL IS STORED IN TWO 21.5 US GALLON TANKS SECURED TO THE LEADING EDGE STRUCTURE WITH SCREWS AND PLATE NUTS. FUEL DRAINS ARE FITTED TO THE LOWEST POINT OF EACH TANK (AND OF THE FUEL SYSTEM) AND SHOULD BE OPENED PRIOR TO THE FIRST FLIGHT OF THE DAY AND AFTER EACH REFUELLING TO CHECK FOR SEDIMENT AND WATER. THE LEFT TANK IS FITTED WITH AN INVERTED FUEL PICKUP, WHICH IS A WEIGHTED LENGTH OF FLEXIBLE LINE, WITH A FUEL PICKUP AT THE LOOSE END. EACH TANK HAS A MECHANICAL "FLOAT TYPE" FUEL SENDER INSTALLED. ALTHOUGH THEY ARE CAREFULLY CALIBRATED, A VISUAL CHECK OF FUEL QUANTITY / DIPSTICK IS RECOMMENDED BEFORE FLIGHT.

EACH TANK IS VENTED VIA A LINE THAT ENTERS THE FUSELAGE AND TERMINATES NEAR THE FIREWALL ON THE BELLY. THEY SHOULD BE VERIFIED UNOBSTRUCTED DURING THE WALK-AROUND INSPECTION.

7.10.2 FUEL SELECTOR



THE FUEL SELECTOR IS A ANDAIR DUPLEX FUEL SELECTOR. IT SIMULTANEOUSLY SELECTS / SHUTS OFF BOTH THE FEED AND RETURN LINES FROM EACH TANK. THERE ARE 3 POSITIONS, "LEFT", "RIGHT" AND "OFF". TO SELECT OFF, THE SAFETY LATCH HAS TO BE LIFTED WHILE TURNING THE HANDLE SIMULTANEOUSLY.

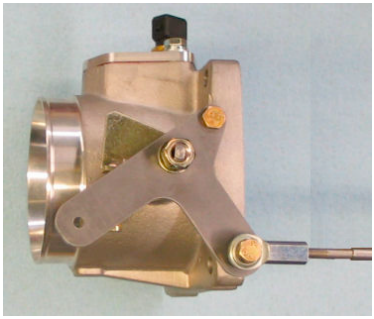
7.10.3 FUEL PUMPS FILTER

FUEL SYSTEM COMPONENTS INCLUDES A FUEL PUMP MODULE WITH 2 WALBRO ELECTRIC FUEL PUMPS. 1 FF-1 POST-FILTER, 10 MICRON, MOUNTS AFTER FUEL PUMPS.1 FF-2 PRE-FILTER, 90 MICRON, MOUNTS BEFORE PUMPS. A FUEL PRESSURE SWITCH MONTED ON THE FIREWALL AUTOMATICALLY TURNS ON THE SECOND FUEL PUMP IN CASE OF FUEL PRESSURE DROP DUE TO THE PUMP N1 FAILURE.

7.10.4 Fuel Flow Sensors

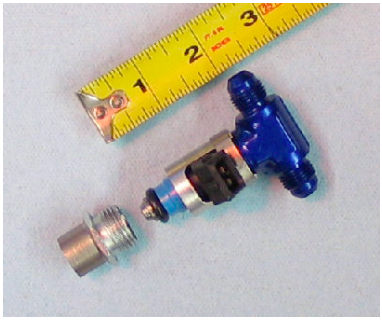
Two red cube type fuel flow sensor are plumbed rispectively on the feed and on return lines. They are located forward of the fuel pump module just behind the firewall. The fuel flow information is fed to the Skyview EMS, which has a detotalizer function that calculates predicted fuel remaining. The fuel quantity information in the Skyview must be updated whenever fuel is added to or drained from the fuel tanks. The displayed fuel remaining value does not take into account any possible fuel leaks, or erroneous input of starting fuel quantity.

7.10.5 Throttle Body



The air throttle body contains the butterfly valve that controls the flow of air to the engine as positioned by the cockpit throttle control lever. It has an Intake air temperature sensor, one throttle position sensor wire to the ECUs. Furthermore It has two MAP port connected to two MAP sensors.

7.10.6 INJECTORS



FOUR ULTRA COMPACT FUEL INJECTORS ARE INSTALLED ON THE INTAKE PIPES.THE FUNCTION OF THE FUEL INJECTION NOZZLE IS TO ATOMIZE AND SUBSEQUENTLY VAPORIZE THE FUEL. THE NOZZLE SPRAYS FUEL INTO THE INTAKE PIPE PORT OF EACH CYLINDER WHERE IT MIXES WITH INDUCTION AIR.

7.10.7 MIXTURE KNOB

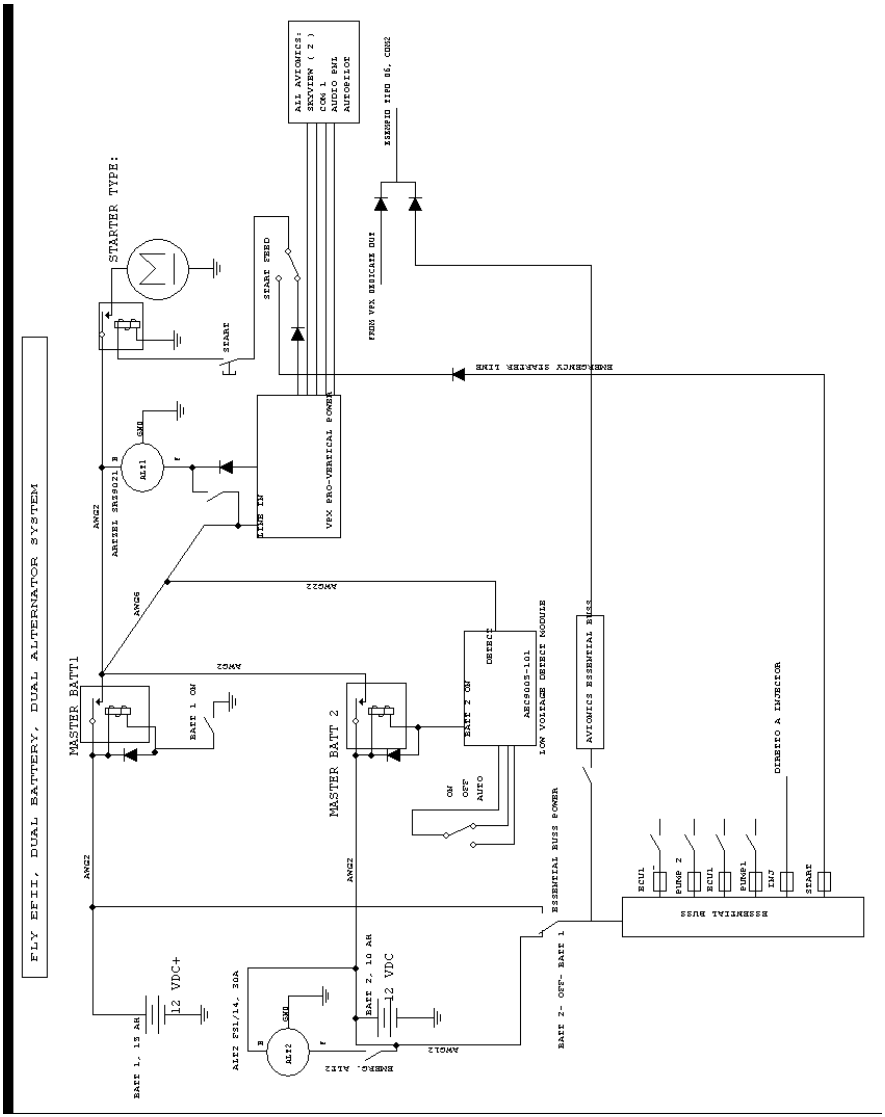
A MIXTURE ADJUST POTENTIOMETER (MIXTURE KNOB) ALLOWS GLOBAL MODIFICATION TO THE FUEL MAP. THIS IS USEFUL FOR TUNING YOUR ENGINE DURING INITIAL RUNNING OF THE SYSTEM. IT IS ALSO A SAFETY FEATURE THAT ALLOWS FOR A FUEL TRIM FROM +50% TO -50% OF THE NORMAL FUEL DELIVERY. THIS WOULD COME IN HANDY IF AN EFI SENSOR WAS NOT WORKING CORRECTLY AND THE FUEL DELIVERY WAS IN ERROR. THE MIXTURE KNOB COULD THEN BE TURNED IN THIS EMERGENCY TO TEMPORARILY CORRECT THE FUEL DELIVERY UNTIL THE PROBLEM CAN BE FIXED.

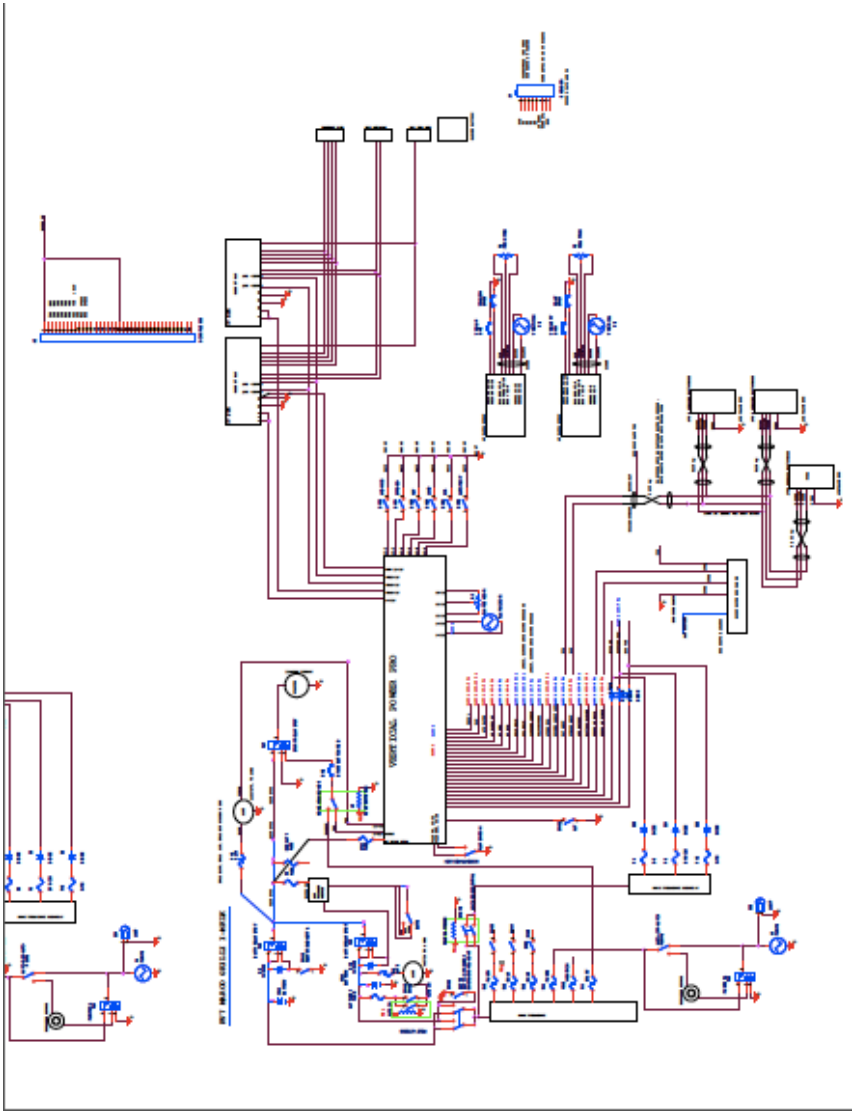
7.11 ELECTRICAL SYSTEM

7.11.1 GENERAL - DIAGRAM

AIRCRAFT ELECTRICAL IS THE MOST COMPLEX AND IMPORTANT SYSTEM OF THE AIRCRAFT, CONSIDERING THAT ENGINE BASICALLY NEEDS ELECTRICAL POWER TO RUN. ACCORDING TO THIS, THE GENERAL PHILOSOPHY TO HAVE REDUNDANCY ON THE MAIN COMPONENTS AFFECTING THE ENGIN HAS BEEN FOLLOWED. TWO LIGHT WEIGHT LIFEPO4 BATTERIES AND TWO ALTERNATORS ARE SUPPLYNG THE NETWORK. ALL OF THE AIRCRAFT ELECTRICAL EQUIPMENTS ARE CONNECTED TO VP-X (SEE 7.11.4) EXCEPT COMPONENTS VITAL FOR THE ENGINE SUCH AS ECUS, FUEL PUMPS, STARTER AND INJECTIONS THAT ARE SEPARETLY CONNECTED TO AN ESSENTIAL BUS WITH TRADITIONAL CIRCUIT BREAKERS. I CASE OF MAJOR ELECTRICAL FAILURE AN "EMERGENCY ELECTRIC CONFIGURATION" HAS BEEN ESTABLISHED IN ORDER TO POWER THE ESSENTIAL ITEMS FOR ENGINE, NAVIGATION AND COMMUNICATION, SHEDDING THE REST OF THE SYSTEM. IN THIS CASE ONLY ALTERNATOR 1 AND BATTERY 2 SUPPLY POWER TO PUMP1, ECU1,PUMP2, ECU2, IGNIT, STARTER, DYNON D6, COM AND GPS.

DESCRIPTION OF THE AIRPLANE





7.11.2 BATTERIES

ONE SB12V15P-EC AND ONE SB12V10P-DC LITHIUM BATTERIES ARE INSTALLED ON THE UPPER FIREWALL. THEIR CHARACTERISTICS ALLOW TO POWER THE ESSENTIAL ELECTRICAL SYSTEM FOR MORE THAN TWO HOURS, EVEN IF LANDING IS REQUIRED WITHIN SIXTY MINUTES. A TEMPERATURE SENSOR IS LOCATED ON THE BATTERIES AREA. ONLY THE SPECIFIC SUPER-B/OPTIMATE TM290 LITHIUM CHARGER MUST BE USED .

7.11.3 ALTERNATORS

TWO ALTERNATORS ARE INSTALLED. THE PRIMARY ALTERNATOR IS A 70 A BELT DRIVEN PLANE POWER AL12-EI70. THE STANDBY ALTERNATOR IS A PANE POWER FS1-14 MECHANICALLY CONNECTED TO THE VACUM PUMP ENGINE PORT. IN NORMAL OPERATION ONLY PRIMARY ALTERNATOR IS SUPPLYING THE SYSTEM. ALTERNATORS MUST NOT BE OPERATED IN PARALLEL.

7.11.4 VERTICAL POWER

THE VP-X BRINGS THE ADVANCES OF MODERN ELECTRONICS TO THE ELECTRICAL SYSTEM. INSTEAD OF USING TRADITIONAL COMPONENTS SUCH AS MECHANICAL SWITCHES, CIRCUIT BREAKERS OR FUSES, THE VP-X INTEGRATES EVERYTHING, YET IS DESIGNED FOR RELIABILITY.

THE ADVANTAGES ARE NUMEROUS. STARTING FROM EASE OF INSTALLATION AND ENDING WITH ADVANCED SWITCHING OF DEVICES AND INTEGRATION INTO THE TYPICAL FLIGHT PHASES. ALSO, THE VP-X ALLOWS REALTIME MONITORING OF THE STATE AND CONDITION THAT THE ELECTRICAL SYSTEM OPERATES IN. (SEE 7.4.2). THE SYSTEM PERMANENTLY MONITORS THE PINS FOR SHORT CIRCUITS AND OVER CURRENT CONDITIONS. IF A DEVICE FAULTS, IT IS AUTOMATICALLY SWITCHED OFF, MARKED RED, AN ALERT TRIGGERED AND THE DEVICE AUTOMATICALLY SELECTED, SHOWING DETAILS. THE FAULT STATUS CAN BE MANUALLY RESET.

A FURTHER READING OF THE VERTICAL POWER SYSTEM INSTALLATION AND PILOT GUIDE IS STRONGLY SUGGESTED, IT CAN BE FOUND AT WWW.VERTICALPOWER.COM.

7.11.5 Load Analysis

EQUIPMENT CURRENT DRAW

EQUIPMENT	PEAK DRAW A	CONTINUOS DRAW A	BUS	NOTES
* MONITOR DX	5	3	VPX BANK A J8-6	INTERNAL B/U BATTERY
* MONITOR SX	5	3	VPX BANK A J8-4	
* GPS 795	3	2	AVIONIC ESS/VPX	INTERNAL B/U BATTERY
* AUTOPILOT	5	5	VPX ?	
* COM/NAV 1	7	2	VPX BANK A J8-4	
* COM 2 DYNON	3	1	AVIONIC ESS/VPX	
* AUDIO PANEL	1	0,5	VPX BANK A J12-10	
* TRANSPONDER	2	1	VPX BANK B J8-8	
* DYNON D6	2	2	AVIONIC ESS/VPX	
* AFR UNIT	1	1	VPX BANK A J1-1	
* ECU 1	1,5	1	ESSENTIAL BUS	
* ECU 2	1,5	1	ESSENTIAL BUS	
* FUEL PUMP 1	5	4,5	ESSENTIAL BUS	
FUEL PUMP 2	5	4,5	ESSENTIAL BUS	
* INJECTORS	3,5	3	ESSENTIAL BUS	
STROBE LIGHT	2	0,5	VPX BANK A J8-5	
LANDING LIGHT	0,5	0,5	VPX BANK B J8-7	
* NAV LIGHT	0,5	0,5	VPX BANK B J10-2	
DIMMER	2	1	VPX BANK B J10-4	
* VERTICAL POWER	2	2	Main Bus	
* ELEV TRIM SERVO	0,40	0,15	VPX BANK A J12-8	
* AILERONS TRIM SERVO	0,40	0,15	VPX BANK B J10-8	
* FLAPS SERVO	4	3,5	VPX BANK B J12-5/6	
PITOT HEATER	7	6,5	VPX BANK B J10-6	
SEAT HEATER	10	7	VPX BANK B J10-3	
TOTAL	79,3	56,3		
*TOTAL WITH EQUIPMENT USUALLY ON	52,8	36,3		

* EQUIPMENT USUALLY ON

-POWER SOURCES INSTALLED: PRIMARY ALTERNATOR 70 A, S/BY ALTERNATOR 30A, BATTERY 1 15 A, BATTERY 2 10A

ALT 1 FAILURE

- IN CASE OF PRIMARY ALT FAILURE THESE EQUIPMENTS CAN BE ON CONTINUOUSLY
- MANUAL SHEDDING VERIFY WITH AMPEROMETER

EQUIPMENT	PEAK DRAW A	CONTINUOS DRAW A	BUS	NOTES
* MONITOR SX	5	3	VPX BANK A J8-4	INTERNAL B/U BATTERY
* COM 2 DYNON	3	1	AVIONIC ESS/VPX	
* AUDIO PANEL	1	0,5	VPX BANK A J12-10	
* TRANSPONDER	2	1	VPX BANK B J8-8	
* DYNON D6	2	2	AVIONIC ESS/VPX	
* AFR UNIT	1	1	VPX BANK A J1-1	
* ECU 1	1,5	1	ESSENTIAL BUS	
* ECU 2	1,5	1	ESSENTIAL BUS	
* FUEL PUMP 1	5	4,5	ESSENTIAL BUS	
GPS 795	3	2	AVIONIC ESS/VPX	
* INJECTORS	3,5	3	ESSENTIAL BUS	
* VERTICAL POWER	2	2	Main Bus	
TOTAL	30,5	22		

ELECTRICAL EMERGENCY CONFIGURATION

- ELECTRICAL EMERGENCY CONFIGURATION MUST BE SET MANUALLY
- ONLY ALT 2 AND BATTERY 2 AVAILABLE
- PROVIDES ELECTRICALPOWER TO ESSENTIAL AND AVIONIC ESS BUS ONLY

EQUIPMENT	PEAK DRAW A	CONTINUOS DRAW A	BUS	NOTES
* MONITOR SX	ON B/UP BATTERY	ON B/UP BATTERY	ON B/UP BATTERY	INTERNAL B/U BATTERY
GPS 795	ON B/UP BATTERY	ON B/UP BATTERY	ON B/UP BATTERY	BATTERY LIFE 5 HRS
* COM 2 DYNON	3	1	AVIONIC ESS	
* DYNON D6	2	2	AVIONIC ESS	
* ECU 1	1,5	1	ESSENTIAL BUS	
* ECU 2	1,5	1	ESSENTIAL BUS	
* FUEL PUMP 1	5	4,5	ESSENTIAL BUS	
* INJECTORS	3,5	3	ESSENTIAL BUS	
TOTAL	16,5	12,5		

FLYING ON BATTERIES ONLY

- PRIMARY AND S/BY ALTERNATORS FAILED
- CONSIDERING BATTERIES CAPACITY LAND WITHIN 60 MINUTES

EQUIPMENT	PEAK DRAW A	CONTINUOS DRAW A	BUS	NOTES
* MONITOR SX	ON B/UP BATTERY	ON B/UP BATTERY	VPX BANK A J8-4	INTERNAL B/U BATTERY
GPS 795	ON B/UP BATTERY	ON B/UP BATTERY	ON B/UP BATTERY	BATTERY LIFE 5 HRS
* DYNON D6	2	2	AVIONIC ESS	
* ECU 1	1,5	1	ESSENTIAL BUS	
* ECU 2	1,5	1	ESSENTIAL BUS	
* FUEL PUMP 1	5	4,5	ESSENTIAL BUS	
* INJECTORS	3,5	3	ESSENTIAL BUS	
TOTAL	13,5	11,5		

7.12 PITOT - STATIC SYSTEM

THE PITOT SYSTEM PROVIDES PITOT PRESSURE TO THE ADHARS (AIRSPEED AND ANGLE OF ATTACK) AND THE STANDBY EFIS. THE HEATED PITOT TUBE IS LOCATED UNDER THE LEFT WING, ABOUT TWO THIRDS OF THE WAY ALONG THE SPAN. THE PITOT HEAT, POWERED FROM THE MAIN BUS, IS CONTROLLED BY THE PITOT HEAT SWITCH ON THE INSTRUMENT PANEL. THE STATIC SYSTEM SUPPLIES STATIC PRESSURE TO THE ADHARS, STAND BY EFIS (AIRSPEED, VERTICAL SPEED, ALTIMETER) AND ENCODER (WHICH PROVIDES ALTITUDE INFORMATION TO THE TRANSPONDER). THE STATIC PRESSURE PORTS ARE ON THE REAR SIDES OF THE FUSELAGE AND ARE POSITIONED TO SELF DRAIN.

7.13 HEATING AND VENTILATION

THE CABIN HEAT IS PROVIDED VIA ONE HEAT MUFFS ATTACHED TO THE EXHAUST SYSTEM AND FED WITH HIGH PRESSURE AIR TAKEN FROM THE BAFFLING BEHIND #3 CYLINDER. THE HEATED AIR IS DUCTED THROUGH THE FIREWALL IN THE MIDDLE OF THE RUDDER PEDALS. THE HEAT IS CONTROLLED BY A PUSH/PULL CABLES ON THE LEFT SIDE OF LOWER INSTRUMENT PANEL. VENTILATION AIR IS SUPPLIED FROM TWO NACA INLETS: ONE ON THE FRONT LEFT SIDE OF THE FUSELAGE FOR THE PILOT, AND ONE ON THE RIGHT SIDE OF THE FUSOLAGE FOR THE PASSENGER. THE VENTILATION AIR IS FED TO TWO EYEBALL ALUMINUM VENT ON THE SIDE OF THE LOWER INSTRUMENT PANEL.

8.0 AIRCRAFT HANDLING AND CARE

REFER TO MAINTENANCE MANUAL

9.0 SUPPLEMENTS

9.1 MINIMUM EQUIPMENT LIST (MEL)

THE AIRPLANE SHALL ONLY START A FLIGHT WITH THE FOLLOWING MINIMUM EQUIPMENT OPERATIONAL:

BOTH BATTERIES FULLY CHARGED

PRIMARY ALTERNATOR

PITOT/STATIC SYSTEM

ONE COM RADIO

BOTH ECUS

BOTH FUEL PUMPS

ONE EFIS DISPLAY

DYNON D6

9.2 CHECKLISTS

BEFORE START	AFTER LANDING
CABIN CHK_____ COMPLETED	ATC_____ GND
W.A._____ COMPLETED	LANDING LIGHT_____ OFF
EMER EQPT _____ ON BOARD	FLAPS_____ UP
PAX_____ BRIEFED	
SEAT BELTS_____ ON	

BEFORE TAKEOFF	SHUT DOWN SECURING
CANOPY _____ CLOSED	ALL SWITCHES_____OFF
PROP _____ FULL FWD	PFD_____ OFF
FUEL SEL_____ FULLEST TANK	SECURING
TRIM_____ T.O.	FUEL SEL _____OFF
FLAPS_____AS RQRD	CANOPY LOCK_____ ON
ANNTR LIGHTS_____ NO RED	COVERS_____ON
	COWL PLUGS_____ AS RQRD
	CHOCKS _____ AS RQRD