

Pilot Operating Handbook

N7944A



RV12

Jabiru 3300 Powered

Serial Number 120400

**Caution this Handbook is only used in the
40-hour Phase one test flights.**

Note: This book will be modified after all test flight are completed.

05/08/2022

Brookville – KBKV ☆ CT -118.55 © 76 *L 70 123.0	ASOS - 134.75 9---27 3---21 Class D - S-15
Inverness – KINF ☆ AWOS-3 - 119.75 65 *L 50 122.725 ©	1---19 RP 1
Crystal River – KCGC☆ AWOS-3 – 118.325 09 *L 45 122.75 ©	9---27
Williston - KX60 ☆ AWOS-3T - 118.425 76 *L 66 122.975 ©	5---23 14---32
Clearwater – KCLW ☆ AWOS-3P -119.335 71 *L 41 121.0 ©	ATIS – 134.5 16---34
Zephyrhills – KZPH ☆ AWOS-PT 118.975 90 *L 50 123.075 ©	1---19 5---23 RP 19, 23
Albert Whitted KSPG ☆ CT – 127.4 © 07 *L 37 122.95	ASOS 118.875 7---25 18---36 Class D
Leesburg KLEE ☆ CT – 119.35 © 76 *L 63 122.95	ATIS 134.325 13---31 4---22 Class D
Tampa - KTPA☆ CT – 119.5 ATIS 126.45 26 L 110 122.95	CTC Tampa APP - 20NM 119.65 Class B
Emergency Squawk 7600 No Radio 7700 Emergency	Mayday / Emergency 121.5

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Pre-Flight Inspection

Cabin

1. Mags Off
2. Master Switch On
3. Avionics As required
4. Fuel Level Check all 3 Tanks
5. Lights As required
6. Stall Warning Check
7. Controls Remove control locks
8. Master Switch Off
9. Documents ARROW

Wings & Fuselage (left & Right)

1. Surface Condition & attachment
2. Stall Tab Check movement (left wing)
3. Static Ports Check - (clean & clear)
4. Flaperon Condition, attachment & movement
5. Lights Condition
6. Pitot & Fuel Vents Remove covers (left & right wing)
7. Fuel Level Left & Right Wing (note)
8. Fuel Samples (4) Wings, Header & Engine
9. Gear & Tires Condition & tire pressure
10. Antennas Condition & attachment

Rudder, Stabilator & Trim Tab

1. Rudder & Ver Stab Condition, attachment & movement
2. Stabilator & Trim Condition, attachment & movement

Engine, Cowling, Propeller & Spinner

1. Engine Cowling Condition & attachment
2. Propeller & Spinner Condition & attachment
3. Engine oil Quantity & color
4. Nose Gear & Tire Condition & tire pressure
5. Air Intakes Clean & clear
6. Windows Clean & clear
7. Pre-flight Items Stored in rear baggage compartment
8. Baggage Door Closed & locked

Passenger Briefing

Briefing

- | | |
|-----------------------|--------------------------------|
| 1. Flight Information | Route, Altitude, Weather |
| 2. Entry & Exit | Canopy Release |
| 3. Seat Belts | Quiet Cockpit |
| 4. Controls | Proper Movement (stop to stop) |
| 5. Headphones | Emergency |
| 6. Passenger | Questions |

Startup Procedures

Pre-Start

- | | |
|-----------------------|-------------------------|
| 1. Passenger Briefing | Completed |
| 2. Fuel | Gallons on board (note) |
| 3. Throttle | Adjust friction |
| 4. Safety Belts | Secure & adjusted |
| 5. Loose Items | Stored & secure |

Engine Start

- | | |
|------------------|---------------------------------------|
| 1. Master Switch | On |
| 2. Fuel Valve | Header tank |
| 3. Throttle | Closed for cold start (pull out) |
| 4. Choke | Pulled out – push in slow after start |
| 5. Brakes | Applied |
| 6. Fuel Pump | Header Tank on (Blue Switch) |
| 7. Propeller | Clear prop |
| 8. Mags | On |
| 9. Starter | Engage |
| 10. Throttle | 1200 RPM until warmup |
| 11. Avionics | On (ADSB check) |

Engine Warmup

- | | |
|--------------------|----------|
| 1. Oil Pressure | In green |
| 2. Oil Temperature | In green |
| 3. CHT | In green |

Taxi & Takeoff Procedures

Pre-Taxi

- | | |
|------------------|----------------------------------|
| 1. Engine Gauges | Check |
| 2. Radio Set | As required |
| 3. Brakes | Released |
| 4. Taxi RPM | 1000 to 1400 until oil is 104° F |

Before Takeoff (Run-up)

- | | |
|------------------|--------------------------------------|
| 1. Altimeter | Set |
| 2. Trim | Set for takeoff |
| 3. Controls | Proper movement stop to stop |
| 4. Fuel Valve | Set to header Tank |
| 5. Mag Check | 1800 RPM (left & right) max drop 90 |
| 6. Carb Heat | Check RPM slight drop, then off |
| 7. Throttle | Idle |
| 8. Strobe Lights | On |
| 9. Flaps | 10° normal Takeoff – 15° short field |
| 10. Canopy | Closed & Latched |

Take Off

- | | |
|-----------------|------------------------------|
| 1. Fuel Pump | Header Tank on (Blue Switch) |
| 2. Runway | Check runway heading |
| 3. Throttle | Full forward (slow) |
| 4. Airspeed | Check for Indications |
| 5. Engine Gages | Check |
| 6. Rotate | 55 Knots 10°flaps |
| 7. Best Angle | 60 Knots 15° flaps |
| 8. Best Rate | 75 Knots no flaps |
| 9. Cruise Clime | 85 Knots |

Trim - as required to hold desired airspeed

Flight Procedures

Cruise

- | | |
|--------------------|-------------------------------|
| 1. Throttle | As desired |
| 2. Fuel Pump | Header Tank off (Blue Switch) |
| 3. RPM | 2800 - 3000 |
| 4. Trim | As required |
| 5. Oil Pressure | 31 – 76psi |
| 6. Oil Temperature | 176° - 212°F |
| 7. CHT Max | 360° F - 390° F 10 minutes |
| 8. EGT in Cruise | 1112° - 1320°F |

Descent

- | | |
|----------------|--------------------|
| 1. Instruments | Set |
| 2. Throttle | Reduce |
| 3. Airspeed | As desired |
| 4. Landing | Lights as required |

Landing

- | | |
|-------------------|------------------------------|
| 1. Seat Belts | Fastened |
| 2. Brakes | Check |
| 3. Fuel Valve | Header Tank |
| 4. Fuel Pump | Header Tank on (Blue Switch) |
| 5. Carb Heat | Pull On (on downwind) |
| 6. Throttle | As required |
| 7. Trim | As required |
| 8. Flaps | < 82 kts as required |
| 9. Approach Speed | 55 – 60 kts |
| 10. Touch Down | Main Wheels First |
| 11. Brakes | As required |

Post Flight Procedures

Post landing

- | | |
|--------------|-------------------------|
| 1. Throttle | As required for taxiing |
| 2. Flaps | Retract |
| 3. Carb Heat | Off |
| 4. Fuel Pump | Off |
| 5. Lights | As Required |
| 6. Trim | Set for Takeoff |

Engine Shutdown

- | | |
|------------------------|--------------------|
| 1. Throttle | Closed (pull out) |
| 2. ELT | Check |
| 3. Mags | Off (left & right) |
| 4. Avionics | Off |
| 5. Lights | Off |
| 6. Master | Off |
| 7. Brakes | As Required |
| 8. Control Lock | Installed |
| 9. Alarm | As required |
| 10. Canopy | Closed & Locked |
| 11. Pitot & Fuel vents | Install Covers |
| 12. Tie Down | As needed |

Airspeeds

V _{SO}	Stall full flaps at gross weight	42 Kts
V _S	Stall at gross weight	45 Kts
V _X	Best angle - Flaps 0°	60 Kts
V _Y	Best rate – Flaps 10°	75 Kts
V _{FE}	Never exceed flaps extended	82 Kts
V _A	Maneuvering speed at gross	90 Kts
V _A	Maneuvering speed at 950 lbs.	75 Kts
V _{SG}	Best Glide	63 Kts
V _{NO}	Maximum Structural speed	108 Kts
V _{NE}	Never Exceed speed – red line	136 Kts

Cruise & Fuel Information

Speed at Gross weight

2800 rpm at 4,500ft	xx gph	xxx kts
3000 rpm at 4,500 ft	xx gph	xxx kts
3200 rpm at 4,500 ft	xx gph	xxx kts

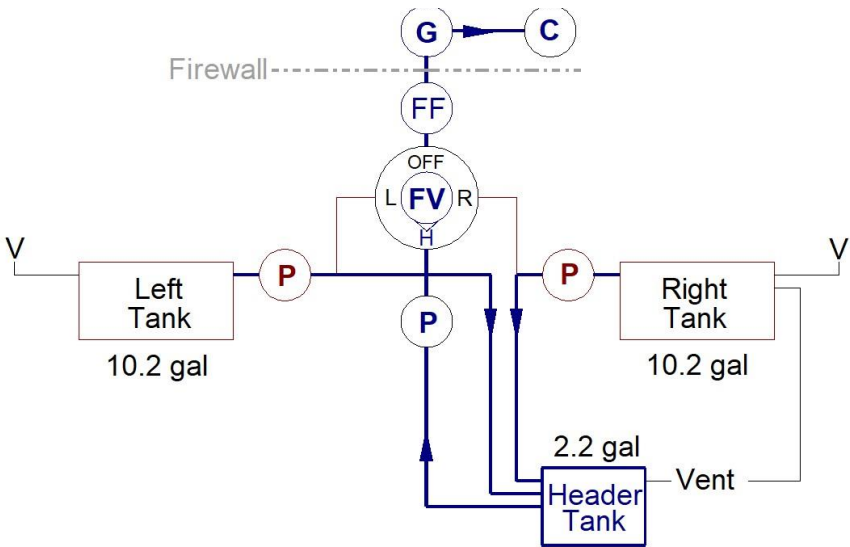
Climb / Ceiling / Range

Rate of climb	xxx ft/min
Ceiling	xxx ft
Range 2800 rpm at 4,500 ft	xxx nm
Range 3000 rpm at 4,500 ft	xxx nm
Range 3200 rpm at 4,500 ft	xxx nm
Range is using 16 of 22.6 gallons	

Ground Performance

Takeoff distance	xxx ft
Landing distance	xxx ft

Fuel System



C	Carburetor	G	Gascolator	FF	Fuel Flow Sensor
FV	Fuel Valve	P	Pump	V	Vent

The fuel valve has four positions:

The pointer selects where the fuel comes from (not the handle)

Back Header tank (primary position)

Left Left-wing tank to the engine

Right Right-wing tank to the engine

Forward Fuel off

Note the left and right selection on the fuel valve should only be used at altitude to balance the fuel in the left and right tank.

Never to be used on landing, take off or climb.

Note this page will be modified after all test flight are completed.

Fuel Management

This aircraft has two 10.2-gallon wing tanks and one 2.2-gallon header tank for a total of 22.6 gallons of fuel.

The fuel system has three fuel pumps, one from the Header tank through the fuel valve and the fuel flow sensor then to gascolator in the engine compartment and two one from each wing tank to the Header tank.

The fuel pumps switches are labeled header tank, left wing-tank and right-wing tank.

The fuel will gravity flow from the wing tanks to the header, there should not be a need to use the left- or right-wing pumps.

The wing tanks are vented to the front outward end of each wing and the header tank is vented to the top outward end of the right-wing tank.

The wing pumps move fuel to the header tank when there is low fuel in a wing tank to help move it to the header tank.

All three fuel tanks have an independent resistive float sender that provides information to the fuel gauges in the Garmin G3X.

All low fuel tanks alerts are set at 2 gallons.

Note: the wing fuel pumps should only be used when the fuel is low in the wing tank to aid in moving fuel to the header tank.

This will allow you to execute a go around with 2.2 gallons of fuel in the header tank with-out fuel starvation in the climb.

WARNING When the fuel level is less than 3 US Gallons, extreme caution should be used during climbs to ensure that the tank outlets remain submerged. Prolonged high pitch angles (greater than 8 deg nose up), may result in fuel starvation and engine stoppage

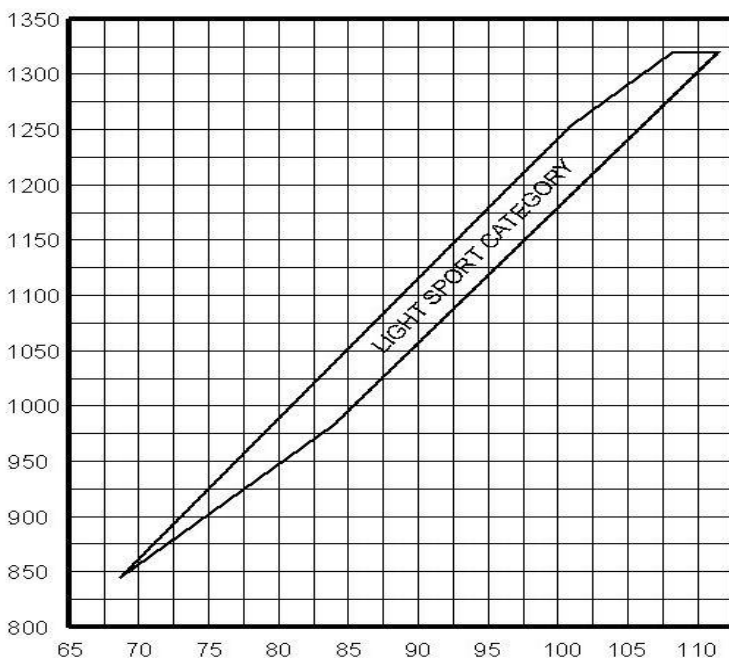
Note this page will be modified after all test flight are completed.

Weight & Balance Work Sheet

Empty Weight includes Engine oil.

Item	Weight	Arm	Moment
Empty	892.00	80.46	71767.38
Left seat	190.00	78.85	14981.50
Right Seat	0.00	78.85	0.00
Fuel Wings	120.00	105.00	12600.00
Fuel Header	12.00	107.25	1287.00
Baggage 1	0.00	110.00	0.00
Baggage 2	0.00	122.00	0.00
Baggage 3	5.00	140.00	700.00
Totals	1207.00		100048.88

Moment Range Take Off – 82.89 Landing – 80.74

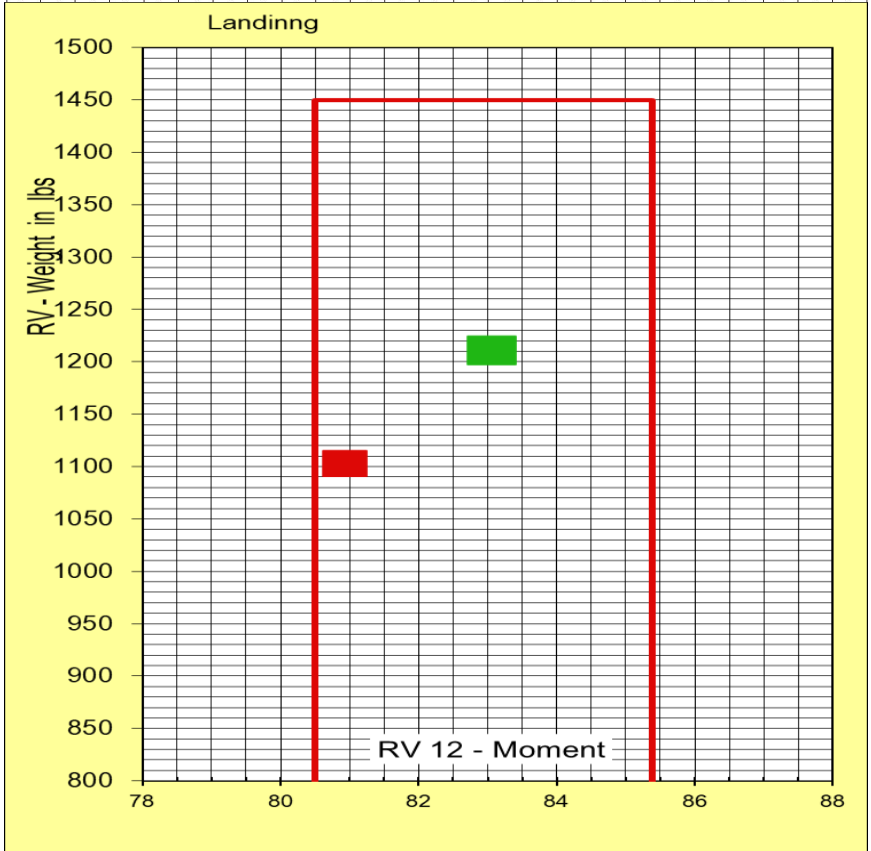
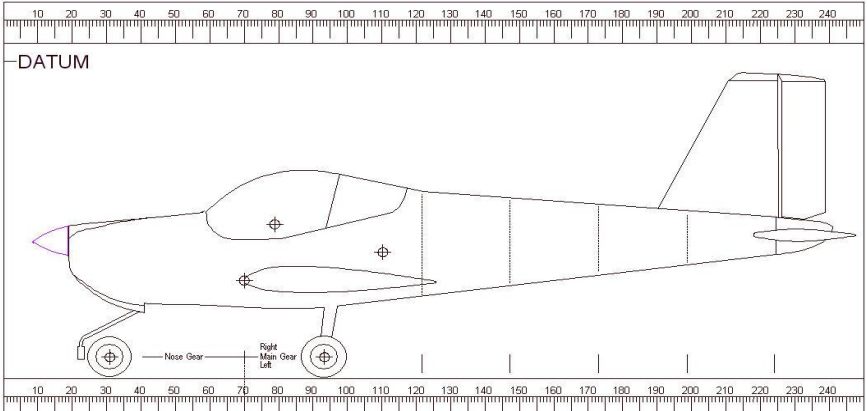


Weight lbs.

Moment inch pounds / 1000 moment

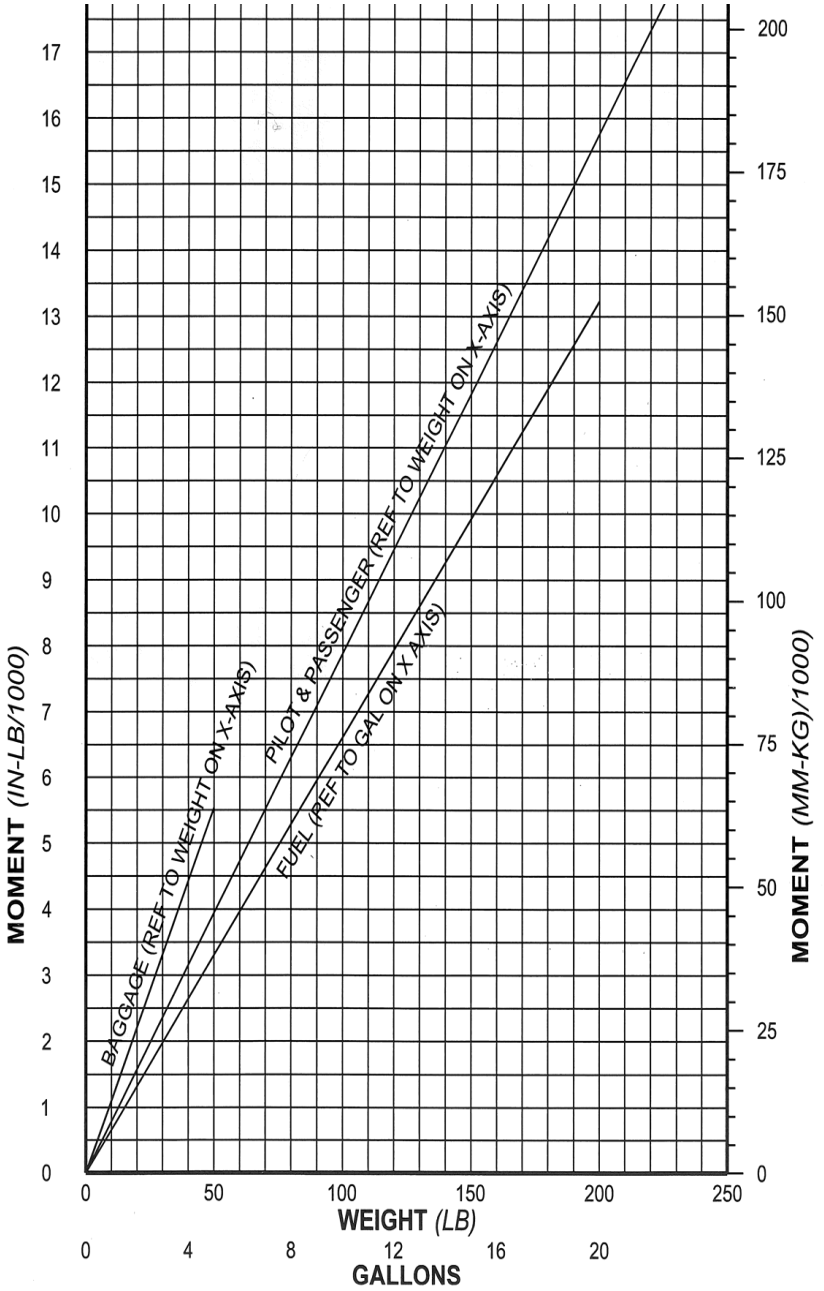
Minimum - 80.49 - Maximum - 85.39

Weight & Balance Datum



Green Box..... Takeoff weight & moment

Red Box..... Landing weight & moment



Unusual flight conditions

Severe Turbulence

- Do not exceed 108 kts
- Maintain level flight attitude
- Do not chase flight instruments

Recover from Stalls

- Stabilator relax back pressure on control stick.
- Full throttle, open slow
- Ailerons Neutral (not recommend for lateral control).
- Use rudder to maintain lateral control (Its verry effective)
- Pull stick back slow at a safe flying speed

Recover from Spins

- Close Throttle
- Full Rudder opposite of spin
- Move Stabilator slightly forward of neutral
- Ailerons Neutral
- Wait for rotation to stop
- Release rudder to Neutral
- Smoothly raise nose to level flight
- Throttle as required

Runaway Trim

- Pull Trim Circuit Breaker
- Hold Stabilator against out of trim condition
- Adjust airspeed as required to minimize trim forces
- Land as soon as possible

Operating Limitations

Ceiling

- Service Ceiling 14,500 ft

Flight Load Factors

- Maximum + 4.0g / -2.0g
- Aerobatics Prohibited
- Intentional Spins Prohibited

Maximum Wind mph

- Crosswind Component 11
- Wind 30

This aircraft has all required lights for VFR night flight.

Flight into known icing conditions is prohibited.

**THIS AIRCRAFT IS AN EXPERIMENTAL AIRCRAFT AND
DOES NOT COMPLY WITH FEDERAL SAFETY
REGULATIONS FOR STANDARD AIRCRAFT**

Emergency Procedures

Engine Fire during start

- Continue cranking engine with starter
- Push in Choke
- Close the Throttle (Pull Out)
- Fuel Valve to Off
- Fuel Pump Off
- Turn off mags and master switch
- Exit aircraft and inspect for cause prior to restart
- Use Fire Extinguisher if available

Fire in Flight

- Fuel Valve off
- Push in Throttle to full open
- Cabin Heat off
- Mags off
- Establish best glide (xxx)
- Choose landing aera
- Add flaps as required
- Master switch off
- Land and exit aircraft
- Use Fire Extinguisher if available

Fire in Cabin

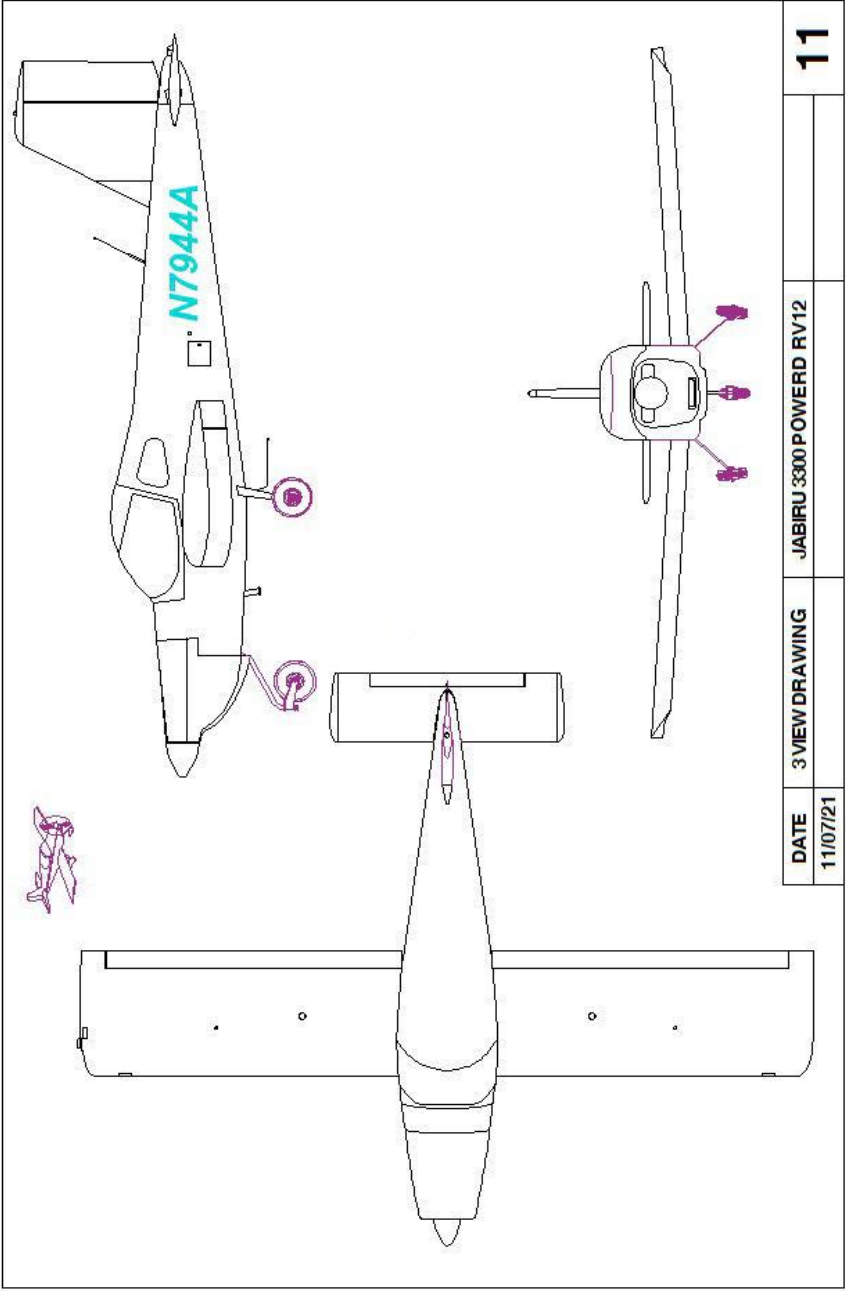
- Master switch off
- Cabin Heat off
- Use Fire Extinguisher if available
- Land as required

Do not re-start after engine fire

Technical Data

Wingspan	26'9"
Wing Area	127 sq. ft
Wing Loading	10.4 lbs./sq. ft.
Length	20'5"
Cabin Width	43"
Height	9'
Turn radius.....	32'
Baggage Weight	Max 75 lbs.
Gross Weight	1320 lbs.
Glide Ratio	12:1
Fuel Capacity	22.4 US Gallons
Useable Fuel.....	20.4 US Gallons
Rate of Climb	1000 fpm
Ceiling.....	14500
Engine.....	Jabiru 3300
Propeller.....	WhrilWind
Glide Ratio	12:1 at 63 Kts
Fuel Range with 30-minute reserve	420

Three View Drawings



DATE	3 VIEW DRAWING	JABIRU 3300 POWER RV12	11
11/07/21			

Avionics

Garman G3X Touch Flight Display

G3X Touch is a large touchscreen, glass flight display system Using a GDU 46X Display, GMU 22 Magnetometer, GSU 25 AHRS, GEA 24 Engine Monitor and GTP 59 Temp Probe.

- Access to dual-link ADS-B “In” traffic and subscription-free weather
- Wirelessly stream weather, traffic, GPS position and backup attitude to Garmin Pilot on the iPad

Garmin GTR 200Comm Radio

Comm radio 10W of power, auto-squelch, 3D audio, stereo intercom, stereo music input, & alert inputs.

Garmin GMC 305 Autopilot Control Panel Autopilot Control for G3X touchscreen flight display.

Garmin GTX 345 with WAAS/GPS..... Transponder

The GTX-345 is an All-in-one transponder with ADS-B In & Out.

Garmin Gap 26 Heated Pitot Prob with AOA, Regulated. The heated, regulated version of the GAP 26 also provides an output discrete that G3X uses to provide alerts related to the heated probe.

AOA is available on the G3X display that puts information directly in your line of sight during critical phases of flight.

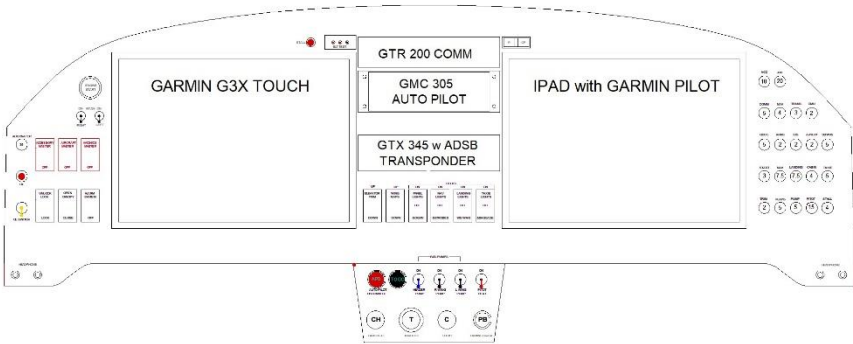
Power Plant

Engine

- Make..... 4th Generation Jabiru 6 cylinder
- Displacement.....3300cc
- Ignition..... Dual transistorized magneto
- CarburetorBing altitude compensating
- Rated Horsepower..... 120 @ 3300RPM
- Spark Plugs NGK D9EA automotive
- Serial number 33A2794
- Oil Capacity 3.69 quarts
- Compression Ratio 8:1
- FuelAvgas 100/300 or MoGas 95 octane
- Total Engine Weight185 lbs.

The 120 HP Jabiru 3300 aircraft engine is a 6-cylinder 4 stroke horizontally opposed, ram air-cooled, naturally aspirated engine with a pressure (altitude) compensating Bing carburetor. It has a displacement of 3300 cubic centimeters or 201 cubic inches. The engine uses one central camshaft for the push rod operated over-head valves. The engine is direct propeller drive with dual transistorized magneto ignition, and integrated AC generator, electric starter, wet sump, and a mechanical fuel pump.

Instrument Panel



Placards

- FAA Experimental label
- FAA Passenger warning
- All switches labeled
- All fuses labeled
- Fuel selector valve
- Throttle
- Choke
- Carburetor heat
- Parking Brake
- Cabin heat
- Starter
- Emergency canopy release
- Maximum baggage weight
- Fuel type and quantity – at filler necks
- Identification plate left side at the stabilator.

SYSTEMS

- Alarm
-
- Canopy Lift
-
- Canopy Lock
-
- Flap System
-
- Brake System
-
- Accessories
-
- Camera Lift
-
- ELT
-

Note this book will be modified after all test flight are completed.

Maintenance

Check oil.....Every Flight

Change oil & Filter 25 Hours

.....

.....

Aviation Fuels Only

Use 100LL AVGAS and proper engine oil.

The oil will need to be changed more frequently, see the Jabiru service manual.

Fueling Procedure

- Plane stopped, engine and master power OFF
- Clamp ground line to exhaust pipe.
- Remove filler cap, located at each wing.
- Insert fuel nozzle, add fuel. Max. 10.0 gallons each wing.
- Remove fuel nozzle. • Replace fuel cap.
- Remove ground clamp. • Wipe away spillage, if any.

Tires & Tubes

All three tires are 5.00 x 5 size and either 4 ply load rating or 6 ply load rating tires are acceptable.

Inflation Pressure: Nose Tire: 22 psi (optimum)/23 psi (maximum)

Main Tires: 25 psi (optimum)/28 psi (maximum)

Handling

TOWING

Towing is done with the collapsible rudder lock/tow bar connected to the nose wheel.

Tie Down

If possible, orient the aircraft such that the nose is facing into the wind. With the flaps retracted, tie down the wings first with ropes/chains pulling outward and slightly forward from the wing tie-down points. With the wings secured, pull the aircraft backward to remove slack from the ropes/chains on the wings then attach the tie-down rope/chain to the tail tie-down point.

The RV-12 has 4 tie down points. The tail of the airplane and each wing, has an eyebolt which can be used to tie-down the airplane.

The nose strut can also provide a tie down using the eyelet above the wheel fairing.

The flaperons and stabilator controls are secured by fastening the pilot side lap belt around the stick. The rudder is secured by installing the collapsible tow bar/rudder lock.

Cleaning & Care

Clean windshield surfaces only with plastic compatible cleaner designed specifically for airplane windshields.

It is also important to rub the surface gently straight up and down. Using circular wiping motion may create a permanent halo in the windshield.

Remove dirt and insects from vinyl surfaces with water alone and if necessary with a mild detergent.

Remove oil stains, exhaust stains and grime on the lower fuselage skin with a cold detergent.