



SimWorks Studios RV-14 Aircraft Manual





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1. About the aircraft

The RV-14/14A is the latest aircraft design from Van's Aircraft, Inc. continuing and improving upon the legacy of the previous models. The upright seating position and large bubble canopy provide superb visibility in all directions. The plane's aerobatics performance is excellent, as is its fuel economy, being able to fly for more than 1,000 miles. The large cabin, wide as many four-seat airplanes, is truly roomy. Lots of headroom, lots of legroom, lots of room between the seats. Larger people, who often can't find an airplane that will fit, simply love the RV-14!

RV-14 Specifications		RV-14 Performance	
Wing span	27ft	Never exceed speed (kts)	200
Length	21ft 1in.	Normal operating speed (kts)	147
Height	8ft 2in.	Flaps up speed (kts)	100
Engine (hp)	210	Climb speed (kts)	95
Gross weight	2050;bs	Best glide speed (kts)	84
Empty weight	1240lbs	Approach speed (kts)	66
Propeller	Hartzell constant speed	Rotation speed (kts)	58
Fuel capacity (US gallons)	50	Clean stall speed (kts)	62
Baggage (lbs)	100	Full flaps stall speed (kts)	51



2. Credits

The SWS RV-14 was created under license from Van's Aircraft, Inc. and made possible because of the hard work of the SWS development team. The plane underwent many iterations and rebuilds to ensure that it holds up to the highest standards.

- Kevin Miller: 3D Modelling, textures, animation
- Don Spence: Flight Dynamics
- Evripides Efthymiou: ESI500
- SimAcoustics: Aircraft & cockpit audio
- Alex Vletsas: Programming, animations, project coordination

Finally, we would like to thank our testing team for their patience and help during the long testing period, without which a lot of major issues would go unnoticed.

3. Installation and Settings

During installation, you will be prompted to select between three versions:

- Embedded: this will make the aircraft work with an embedded version of the PMS50 GTN750. If you are unfamiliar with installing such mods yourself, this is the recommended option. The disadvantage is that you will depend on SWS for updating the aircraft with newer versions of the GTN750.
- PMS50 stand-alone: If you have the PMS GTN750 mod installed already (free or premium), this is the recommended version. This will allow you to update your PMS GTN750 installation manually and transfer seamlessly into the RV-14.
- TDS GTNXi: this will make the RV-14 use the GTN750NXi by TDS simulations (payware). It will integrate seamlessly with the RV-14.
- If you plan on switching between different variants, you should either uninstall and re-install the RV-14, or remove the folder containing the compatibility mod for the RV-14:
 - sws-aircraft-rv14-tdsgtnxi: contains the compatibility mod for the RV-14 and TDS GTN750NXi
 - Sws-aircraft-rv14-pms50: contains the compatibility mod for the RV-14 and standalone PMS50 GTN750

In-game, we recommend that the Flight Model is set to Maximum Realism, Modern Flight Model. Control axes should use linear profiles to ensure accurate and responsive control.



4. Product features

The SWS RV-14 is a highly detailed rendition of the real aircraft, coming with the following features:

- Accurate 3D model & animations
- Three generic and three custom liveries
- Taildragger and tricycle variants
- Realistic flight model tested by RV-14 pilots
- Free-castering nose wheel (RV-14A)
- Full GTN750 integration (PMS50 and TDS)
- Flutter animations from propwash
- Weight-based visibility of copilot in the cockpit
- Weight-based visibility of baggage behind the seats
- Opening canopy
- Functional canopy ejection switch
- Animated air conditioning vents
- Realistic backlighting and floodlighting
- Realistic exterior lighting
- MSFS rain & icing effects included



RV-14



VAN'S AIRCRAFT
TOTAL PERFORMANCE

5. Cockpit

5.1 Cockpit overview

For the SWS RV-14 we went with a glass cockpit featuring:

1. Garmin G3X screen (2x)
2. GTN750 GPS
3. GMA347 audio panel
4. GMC305 autopilot
5. ESI500 backup instrument
6. Switch panel
7. Engine control levers
8. Circuit breaker panel
9. Fuel tank selector
10. Parking brake clickspot (invisible)
11. Warning lights
12. Canopy jettison lever
13. Canopy latching lever
14. Canopy handle





5.2 Switch panel

The switch panel is located under the left G3X unit and contains the following switches, in a left to right order:



- **Engine starter switch (top left) - unlit**
- **Windshield defog lever (bottom left) - unlit**
- **Master Battery switch -unlit:** the SWS RV-14 comes equipped with two batteries, which can be selected using this three-position switch labeled MASTER. The position labeled OFF will disconnect the batteries from the electrical system. The position labeled BATT will connect the primary battery to the electrical system. The position labeled AUX BATT will connect the backup battery to the electrical system.
- **Alternator switch - unlit:** moving the switch to the ON position will connect the alternator to the electrical system.
- **P-MAG TEST switch:** INOP
- **AVI BATT:** Moving this switch to the ON position will connect the left G3X and GPS unit to the currently selected battery circuit. This will ensure minimum power draw while providing the minimum necessary avionics to start the aircraft or during an emergency.
- **AVI MSTR:** Moving this switch to the ON position will provide power to all the avionics.

- **FUEL PUMP:** Moving this switch to the ON position will energise the electrical fuel pump. Moving back to OFF will turn the pump off.
- **AUTOPILOT:** This switch controls power to the GMC305 autopilot. Moving the switch to the OFF position will cut all power from the autopilot. Moving the switch to ON will energise the autopilot circuit.
- **NAV LTS:** Navigation lights switch
- **STRB LTS:** Strobe lights switch
- **LAND LTS:** Landing light switch. Setting this switch to ON will set the landing lights to 100% intensity, overriding the TAXI LTS switch.
- **TAXI LTS:** Taxi lights switch. Setting this switch to ON while the LAND LIGHTS switch is OFF will set the landing lights to 50% intensity, to be used during taxi.
- **WIG WAG:** When ON, this will alternate the landing light brightness from 50% to 100%, enabling them to be used as forward-facing strobes
- **FLAPS:** This spring-loaded switch is used to set the aircraft's flaps in the desired position. Clicking the UP or DOWN position once will allow you to move the flaps one notch in the desired direction. The available settings are -3°, 0°, 15°, 30° of flaps.

5.3 Engine controls

From left to right, the engine controls are the following:

- Throttle lever
- Cowl flap lever
- Propeller lever
- Alternate air lever
- Mixture lever



5.4 Lighting knobs

The lighting knobs control the intensity of cockpit lighting.



- **AVIONICS:** Controls the backlighting intensity of the G3X, ES1500, GTN750, GMA347 audio panel, GMC305 autopilot
- **SWITCHES:** Controls the backlighting intensity of the flip-flop switches on the switch panel
- **CABIN:** Controls the intensity of the LED strip that is under the glareshield. It provides flood lighting to the main panel.

5.5 G3X

The SWS RV-14 uses the default G3X displays contained in Microsoft Flight Simulator. The Engine Display has been customised to provide you with the necessary information to operate your RV-14.







5.6 GTN750

The SWS RV-14 provides the option of using three versions of the GTN750. It comes with the free version of the PMS50 GTN750 embedded, but you can also use the payware TDS GTNXi or PMS50 variants.



5.7 ESI500

The ESI500 is an Electronic Standby Instrument with full navigational capabilities in the event of a complete failure of the other navigational systems. It is tied into Navigation Radio #2 and the GPS circuit. It is fully capable of VOR and GPS navigation.



The ESI500 is equipped with a colour-coded airspeed tape:

Colour	KIAS	Significance
Red	20 to 51	Low airspeed warning. This section is white when on the ground.
White	51 to 100	Flap Operating range. The lower speed represents the stall speed with flaps fully extended. The upper limit represents the maximum permissible speed with flaps extended.
Green	100 to 200	Normal Operating Range. The lower speed represents the stall speed with flaps retracted. The upper limit is the never exceed speed.
Red	≥ 200	The red line indicates the never exceed speed.



The pilot can interact with the ESI500 using the Menu button and the knob on the instrument's bezel. The Menu button is used to open the instruments menu, through which a number of functions can be accessed. When the menu system is already open, the Menu button can be used to move back to the previous menu level.

When the menu is turned off, the knob can be used to adjust the instrument's barometric pressure; this is done by using the scroll wheel or clicking left/right of the knob. Clicking on the centre of the knob will toggle between current barometric pressure and STD. With the menu open, rotating the knob will allow you to browse through the different options. Clicking the knob will select that option.

The menu of the ESI500 contains the following options:

- **Set BRT Trim:** Allows the setting of the instrument's brightness
- **BARO Units:** Changes the display of barometric pressure between inHg, hPa or Millibars
- **Metric ALT:** Toggles the display of an overlay window that indicates the altitude in Metres
- **Align Attitude:** Not simulated
- **BATT Calibration:** Not simulated
- **System Status:** Allows viewing of system information
- **BATT Shutdown:** Not simulated
- **NAV Mode:** Allows selection between different navigation sources. Available options are GPS, VOR/LOC and Off.



6. Flying tips

In this section we will provide some flying tips for the taildragger variant, as many users aren't accustomed to the handling characteristics of taildraggers. Once you are lined up at the runway threshold and after doing your final engine checks:

1. Release the brakes.
2. Throttle up.
3. Apply forward stick as you apply throttle.
4. The tail will come up. Don't let the tail drop and keep the nose level.
5. Use rudder pedals to keep the aircraft straight on the runway.
6. At 60kts rotate.



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