



Sadler Vampire

Light Sports Aircraft

FSX pilot's manual

Version 1.0 ~ Storm ~ 2014-09-30

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Installation

Ensure FSX is not running prior to starting installing. The installation is in three parts, one for each supplied folder.

1. **Airplane.** Drag the *Sadler Vampire light sport* folder in the supplied *Airplanes\SimObjects* folder into your normal FSX *SimObjects\Airplanes* folder.
2. **Effects.** Drag the contents (1 fx file and 1 bmp file in a *texture* sub-folder) of the supplied *Effects* folder to your top level FSX *Effects* folder and its *texture* sub-folder.
3. **Font.** This is required for the Fuel computer. If you install it in Windows like a normal TrueType Font, then it will be available for all applications, not just FSX. To do this, open the supplied folder named *Font - double click TTF file and install* and double-click on the single TTF file there. You should get a preview of the font and option buttons to Print or Install. Click Install.

After installing these, restart FSX.

Credits, usage and copyright

- Byron Warwick – original aircraft
- Rick Federmann – updates for FSX an extra livery
- Storm – 2014 further revision

Byron Warwick's original readme required uploads only to sites listed on his webpage. Like Rick Federmann, after due diligence I have found no surviving webpage for Byron, nor other reference or contact information.

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Changes in Storm's version

- Remove unduly pixelated original liveries but renovate default livery.
- Adjust rudder effectiveness for better coordinated turns
- Reduce idle friction to ensure engine does not cut.
- Adjust smoke positioning.
- Make fuel consumption realistic.
- Install altitude hold and fuel computer.
- Repair ICOM transceiver.
- Tidy up gauge files and VC labels.

Using the Fuel Computer



The fuel computer is available on the central post of the dash, both in the Virtual Cockpit and on the Shift+1 pop-up. **It is an important instrument as the Vampire, although fuel efficient, only has small fuel tanks (2 x 5 = 10 gallons total maximum capacity).**

Switching on the Fuel Computer

To switch on the computer, activate your main Pitot Heat switch. This is the red switch, third forward on the pilot's right side, and labelled "PT|FC". The green light at the top right should illuminate. *NOTE: Switching on the computer also switches on Pitot Heat. There are no other separate controls for either Pitot Heat or the Fuel Computer.*

Fuel-air mixture readout

At the right of the LCD area is a large number. This indicates the current fuel-air mixture ratio as a percentage of optimum. The range you will see can vary between 0 and 144 (when flying between sea level and 10,000ft).

- The ideal is 100%. *Example in the image: fully optimized at 100%.*
- If less than 100, you are running too lean. Enrich your fuel-air mixture.
- If more than 100, you are running too rich. Lean your fuel-air mixture.

Range and endurance readout

To the left of the LCD area are two numbers.

- The upper number shows the estimated range in nautical miles for the current speed, altitude, mixture setting and remaining fuel. *Example in the image: 183 nautical miles estimated range.*
- The lower number shows the estimated endurance in minutes for the current speed, altitude, mixture setting and remaining fuel. *Example in the image: 132 minutes estimated endurance.*

When stationary, these will read 0 and 999. (999 is the default maximum and should be interpreted as *at least* 999.) This is normal.

When accelerating or decelerating, these numbers may change rapidly. While cruising at a steady speed, altitude, mixture and throttle setting, these numbers will be steady and decrease only slowly.

It is possible, if you close the throttle at high speed, for both these numbers to read 999. Naturally this is a temporary readout until you have settled at your new speed.

If you find that your range or endurance is less than you had planned, your options are to reduce speed or to land early and take on more fuel. Range increases as indicated airspeed drops and seems independent of altitude (see graph in performance section of this document).

Tail number

Your chosen tail number (or the default for this aircraft if you have not chosen one) appears below the LCD area. This is for use during radio calls. *Example in the image: tail number is EC-YCH.*

Altitude hold

A full autopilot is not fitted on the Vampire. However, a simple altitude-hold is available. To operate:

1. Ensure that the fuel computer is on, that the green light is illuminated and LCD readouts visible.
2. Maneuver your Vampire in flight to your desired altitude, in approximate trim, and to a near-zero reading on your VSI.
3. Switch on altitude hold, either by clicking on the lamp or switch at the top-left of the Fuel Computer, or by typing Z on your keyboard (or activating your assigned switch on throttle quadrant or other control).
4. The yellow lamp should illuminate and the aircraft should maintain approximate altitude while still allowing changes of heading by gentle banking. The altitude held will be approximately on a hundred feet boundary. *Example in the image: the altitude hold light is on.*
5. To cancel altitude hold, repeat the same click or keyboard (or switch) operation as in step 3.

Notes on other facilities

Com1 radio

This is the ICOM transceiver on the left of your Virtual Cockpit (and Shift+2 pop-up). Note:

- The transceiver keypad buttons do not work. Click on or scroll over the LCD display instead.
- **Warning:** The on-off switch on the right of the display also controls the GPS and Fuel Computer.

Shift popups

1. 2D panel
2. Com1 radio
3. GPS

Animations

There are two Shift+E animations supplied. Note that neither is clickable nor visible from VC view:

- **Open/close rear part of canopy.** Shift+E
- **Open/close engine cover.** Shift+E then 2.

How to fly the Sadler Vampire

Taxiing

Taxiing is straightforward. However, note:

- **No ABS fitted.** ABS is largely unnecessary.
- **No differential brakes.** Steering is satisfactory without.
- **No VC indication of whether parking brake is set or not.** FSX does, however, remind you.

Takeoff

- **Fuel Computer on (+ Pitot Heat on) and mixture set.**
- **Altitude hold OFF.**
- **Flaps zero.** Positive flap only useful for short field; if used, ensure zero by 68 knots.
- **Full throttle.** Ease forward gently rather than abruptly.
- **Rotate gently at 45 knots. Abrupt rotation will cause a tail-strike.**

Climb out

Watch your Fuel Computer readouts:

- **Reduce airspeed** to conserve fuel if desired. Long climbs at high power are costly on fuel.
- **Adjust mixture** regularly as necessary for optimum performance.

Cruise

- **Engage altitude hold** at cruising altitude if required. See Fuel Computer section for directions on how to operate the altitude hold. (Note: there is no NAV or HDG hold or GPS route follow.)
- **Optimize mixture.**
- **Set indicated airspeed** for range/endurance as required
- **Negative flap optional (1 notch available).** Gives a tiny airspeed and fuel economy advantage.

Approach

- **Reduce speed to below 68 knots before activating positive flap (1-3 notches available).**

Landing

1. **Final approach at 40 knots, full flap. NB: much higher than 30% over the 25 knot stall speed.**
2. **Touchdown at about 30 knots. Don't try to touchdown below 30 knots; you risk a tail-strike.**

Performance

- Maximum speed: 102 knots
- Stall speed (full flaps): 25 knots
- Consumption: 6.25 gal/h (take-off), 4.0-4.5 gal/h (cruise)
- Service ceiling: 18,000 ft (theoretical for 100ft/min), 10,000 ft (practical)