

# *Vautour IIN*

Société Nationale de Construction Aéronautique du Sud-Ouest

## **SO 4050 Vautour II N** for Flight Simulator 2004



Virtual Pilot's manual

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## Installation

- 1/ Unzip the zip file in a temporary folder
- 2/ Move the « so4050\_vautour\_fs9 » folder into :  
C:\Program Files\Microsoft Games\Flight Simulator 9\Aircraft
- 3/ Move the files on the « gauges » folder into :  
C:\Program Files\Microsoft Games\Flight Simulator 9\Gauges
- 4/ Leave the file « gauges.cab » in the « panel » folder of the plane
- 5/ Move the files from folder « Effects » in the FS9 folder :  
C:\Program Files\Microsoft Games\Flight Simulator 9\Effects

## Special Animations

<i><b>Animations</b></i>	<i><b>Keyboard commands (*)</b></i>
Cockpit opening and access ladders	<Shift>+<E>
Out /drop Brake parachute	<Shift>+<F> (wing fold/unfold) Automatically dropped when cutting-off engines
Ejection seats	<Shift>+<T> (Lower/Raise tail hook)
Front wheel chokes	Engine cut-off
Pilot and navigator	Engines fully stopped
Radome opening	<Shift>+<W> (Lower/Raise Water Rudder)

- (\*) The keyboard commands may differ according to the choices of the virtual pilot  
the keyboard commands can be changer by using Options / Control/Assignments

## Simicons



1 2 3 4 5 6 7 8 9 10

<i><b>Simicons</b></i>			
1	Switch to VFR panel	6	GPS show / hide
2	Fuel panel show / hide	7	Compass show / hide
3	Engine control panel show / hide	8	Kneeboard show / hide
4	Electrical panel show / hide	9	ATC window show / hide

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## Simicons

5	Radio panel show / hide	10	Map display
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Using icons to select panels and window is mandatory. Otherwise, several panels and windows will cover each other.

## IFR Panel



## IFR Panel

1	Gunsight	14	Engine exhaust temperature
2	Click here to hide/display gunsight	15	Parking brakes
3	Compass	16	Left and right engines tachometers
4	« Gear not down » light	17	Altimeter
5	Chronometer	18	Bezu Gyromagnetic Compass
6	Zoom memo fuel	19	NAV / GPS Switch
7	G meter	20	Turn coordinator
8	Machmeter	21	VOR1 / ILS
9	Air speed	22	Flap position light
10	Chombard artificial horizon and synthesiser	23	Airbrakes extended light
11	Variometer	24	Left engine fire alarm
12	RMI	25	Right engine fire alarm
13	Stab position		



## VFR Panel



VFR Panel			
1	« Gear not down » light	4	Left engine fire alarm
2	I / M / O beacons	5	Right engine fire alarm
3	Flaps and airbrakes extended light repeater	6	Click here to show / hide gunsight

On the VFR panel, some gauges, as the altimeter and the gyromagnetic compass, are hidden. Their digital readings are display at the top of the visible part of gauges at the bottom of the VFR panel. In this way you can read the altitude value at the top of the altimeter, and the gyromagnetic heading at the top of turn coordinator gauge.

If you click on the RMI gauge, the gauge will be replaced by a VOR / ILS gauge, wich is not otherwise visible on the VFR panel.

If you click on the machmeter gauge, the gauge will will be replaced by the radar altimeter gauge on both IFR and VFR panels.

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## « Gear not down » light

This light (n° 4 IFR panel – n° 1 VFR panel), located at the top of the panel and on the left of the clock, lights on if the pilot forgets to lower the gear (height < 200 feet, speed < 180 knots and régime < 90%). A sound alarm is triggered also.

## Flaps down light

This light appears on the IFR panel (22) and on the VFR panel (3). The light on the VFR panel is located differently from the one on the IFR panel. But both operate the same way. When off, flaps are up (0°). The lighting intensity increases with the flap position : low light for 1st position (10°), medium light for 2<sup>nd</sup> position (20°) and bright for the 3<sup>rd</sup> position (30°).

## Fuel subpanel



Fuel subpanel			
1	Left & right Engine exhaust temperature	5	Flaps position indicator
2	Airbrake extended light	6	Brake chute control handle
3	Fuel tanks #3 and #6 empty light	7	Remaining fuel in #1 and #2 tanks
4	Fuel tanks #3 and #6 empty light		

## Electrical subpanel



<i>Electrical subpanel</i>			
1	Panel lighting switch	6	Landing lights switch
2	Identification lights switch	7	Left & right Turbine exhaust temperature gauge
3	Formation lights switch	8	Fuel pressure
4	Navigation lights switch	9	Oil pressure
5	Taxi lights switch		

## Engine control panel



<i>Engines throttles</i>			
1	Landing gear indicator	3	Landing gear lever
2	Left & right Throttles		

## Radios subpanel



Radios	
1	On/Off switch
2	ADF frequency
3	ADF Band selector
4	Frequency adjustment button
5	On / Off IFF/XPDR switch

To use radios, switches (1) must be on position MARCHE (ON). A led, on the far right of each receive, lights on to indicate the receiver is operating.

For receivers NAV1 and NAV2, the left button increases or decreases the value on the left of the decimal separator. The right button increases or decreases the part on the right of the decimal separator.

ADF receiver : After switching on with button 1 use button 3 to select the appropriate frequency range.

With button 4, fine tune the NDB beacon frequency. A mouse left click increases or decreases the frequency by 5 units. A mouse right click increases or decreases the frequency by 0.5 units. Increase occurs when the mouse cursor is on the right of button 4, and a decrease occurs when the mouse cursor is on the left of button 4.



## Chombard Synthesiser



<b>Chombard Flight Director</b>			
1	Altitude conservation switch	7	Bezu Gyromagnetic compass
2	Selected heading	8	Heading selection button
3	Chombard synthesizer and artificial horizon	9	Bezu gyro compass CM / D / R selector
4	Functions selector	10	Nav / GPS selector
5	Heading selection button	11	Autopilot On / Off
6	Model adjustment		

### Chombard Synthesiser

The GTA61 Chombard synthesiser includes the gyro horizon, which model can be manually adjusted by turning button 6 at the bottom left of the gauge.

The function of Chombard synthesizer (button 4) from right to left :

- Rest position : The gauge is used as a gyro horizon, the only movement of the model being the manual pitch adjustment.
- Heading : The model displays the indications of a heading error detection system, and provides by its roll movements command for the pilot to keep a constant heading.
- Inverted track : The model displays heading difference and ILS track heading differences, when the when the aircraft is going toward the station.
- Normal track : The model displays heading difference and ILS track heading differences, when the plane goes toward the emitting station.



- Approach : The model is controlled in roll as for the normal track position, but in addition pitch indications are given according to the differences to the heading provided by an ILS. Its rest position is offset so as to produce the normal approach slope of  $2^{\circ}5$ , or any other required angle.

To summarise, when one of the function is active, the horizon bar acts as the tendency bar of a flight director. The model must be put on this bar to pilot according to the selected function.

Nota : The simulated operation of this Chombard synthesizer is a compromise between the real instrument and the capacities of Flight Simulator.

## Bézu gyro compass

This magnetic compass can be operated in three different ways thanks to the selection button on the lower right part of the instrument :

- Cm or R Distant magnetic compass function (gyroscope disabled) or fast synchronization of gyro and compass
- D Directional Gyro (magnetic function disabled), displaying heading and allowing manual adjustment on the emergency compass.
- GM Gyromagnetic Compass : the directional gyro is linked to the magnetic compass (gyro and magnetic functions enabled)

In magnetic compass mode, the heading indicator is unstable as on a magnetic compass, and the gyro function is inactive.

In directional gyro mode, the magnetic compass function is inactive.

In gyro compass mode, the directional gyro is controlled by the magnetic compass and provides a stable indication of the magnetic heading of the plane.

## Autopilot

The autopilot is switched on with switch n°11 and reacts according to the setting of buttons 1 and 4 of the Chombard synthesiser.

To use the « Altitude conservation » function

- 1/ Bring the plane to the desired altitude;
- 2/ Switch n°11 to "Marche" position;
- 3/ Set switch n°1 « Altitude conservation »

For the other functions, set switch n°11 when the function is activated through switch n°4.

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## Capture radar

### Mode A / Example 1



*For improving the clarity of the presentation, one have moved the scope to the center of the panel, but the default position is on the right side.*

This mode is used for approaching the target. The zoom scale can be changed from 120 nm to 1,9 nm. This can be done by using the up and down arrows on the right side of the scope.

On the above picture, the zoom scale is 7.5 nm. The target is on the 7.5 arc. So the target is 7.5 nm away from Vautour at eleven hour position.

The **-0,5** value near the spot, means that the target is approximately **500 ft below** the Vautour.

By placing the mouse's pointer over the spot, an information line appears. The informations displayed are : identification (ID), altitude (ALT), distance (DST), track (TRK) ground speed (GS)

**ID:N75008 ALT:14000ft DST:24.4nm TRK:323° GS: 241kt**



# Vautour IIN

## Mode A / Example 2



On the above picture the zoom scale is 3.8 nm, the spot is located below the circle arc. Sp the target is approximately 3 nm away.

The **-0,1** value near the spot, mean that the target is approximately **100 ft below** the Vautour.

## Selection of Pursuit Mode B

The Pursuit Mode B is automatically activated when the distance is less than 3 nm.

The pilot can select the Pursuit Mode B by using the switch on the left side under the scope. The pilot can also use the **SHIFT + W** keyboard command. Finally one can assign a button of the joystick to the **SHIFT + W** function.



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## Pursuit Mode B / Example 3



This Pursuit Mode B is used for the **final intercept phase** of the target.

The horizontal line on the scope represent the artificial horizon and move to follow the roll and pitch of the Vautour

The circle give two informations :

**Distance** Vautour / Target given by the radius of the circle that can is variable from 3 nm to 0,5 nm by step if 0.5 nm

the **closing speed** Vautour / Target (radial closing speed) by using the radial mark where the circle is nrookem.

On the above picture, the corcle cross the 2.5 nm arc. So the distance to the target is around 2.5 nm. The brooken part of the circle is near the +100 radial mark, so the closing speed is greater than 100 kt.

The target is slightly below the Vautour.

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## Final Intercept Phase / Example 4



The target is less than 1 nautical mile away. The closing radial speed is under 50 kt. The radar unlock the cannons when the target distance is  $\leq 0.6$  nm.

The target is near the same flight level of the Vautour. If it is a military target, the pilot can activate the firing of rocket or cannons with the « ; » keyboard command or with the brake button of the joystick.

During training, if the central switch have been put ON, the firing is simulated by the activation of the light on the upper left corner of the scope.

For real weapon firing, the upper left light is activated with the sound of the corresponding weapon selected by the pilot using the right switch

If the Vautour is too close (less than 0.05 nm) and there is possibility of collision, a vertical line appears and the target disappears. It is time for evading action.



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## Main 3D Panel – Top – **Advised zoom 0,80**



**Virtual cockpit 3D – Main panel - Up**

1	Compass	12	RMI
2	Gunsight – Click there to hide / show the gunsight	13	Engine exhaust temperature
3	Increase size of fuel display	14	Altimeter
4	OMI Markers	15	Gyro Compass
5	Chronometer	16	NAV / GPS switch
6	Radio / GPS / Map Simicon	17	Turn coordinator
7	G-meter	18	VOR1 / ILS
8	Machmeter	19	Cockpit open / close
9	Air speed	20	Parking brake control
10	Chombar artificial horizon and synthesiser		
11	Variometer		

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## Main 3D panel – Bottom



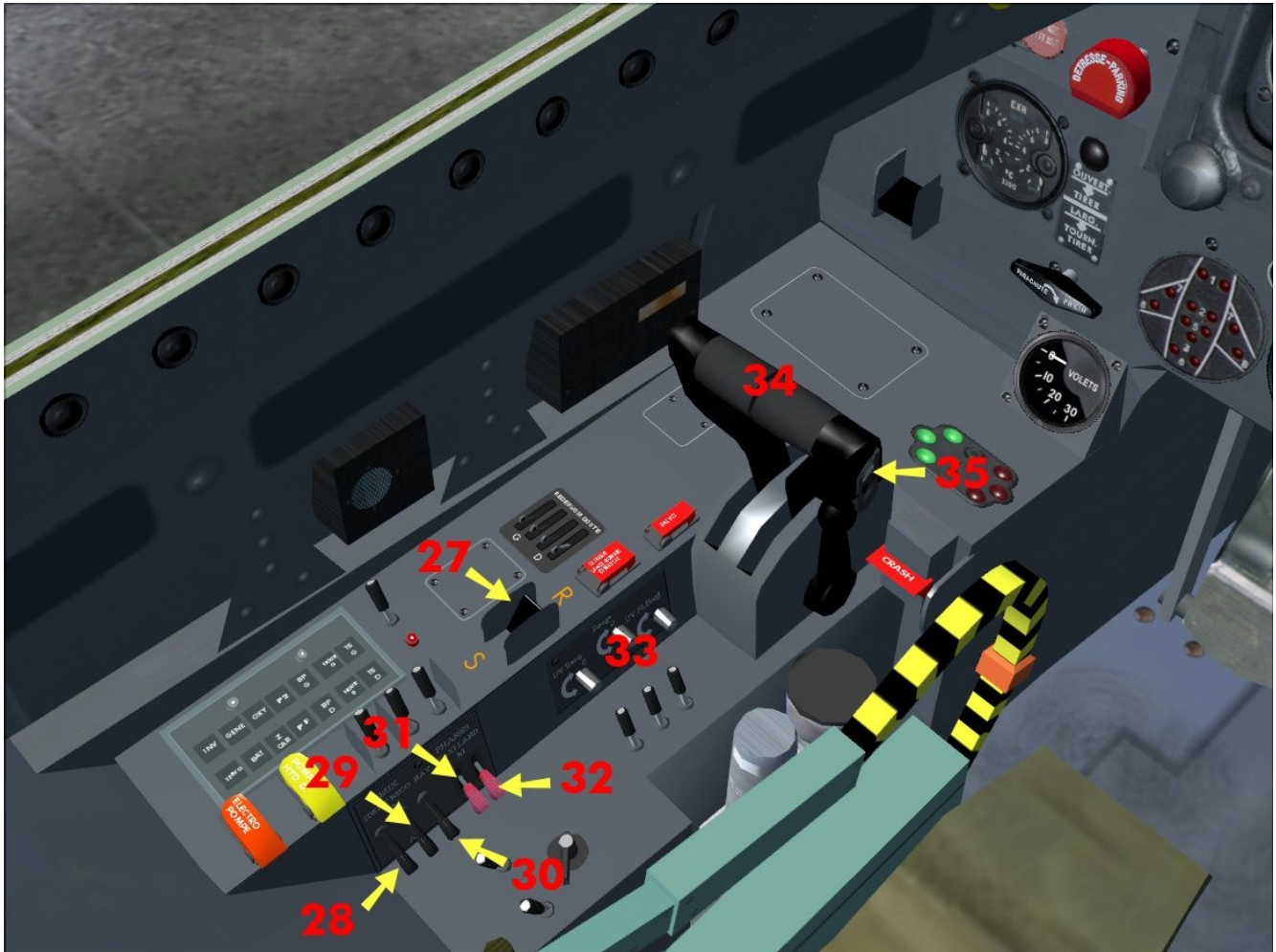
**Virtual cockpit 3D – Main panel - Down**

21	Gear control	25	Radar scope controls
22	Brake chute control	26	Radome open / close
23	Flap position light	27	Gear position
24	Fuel quantity light – tanks 1 and 2		



# Vaultour IIN

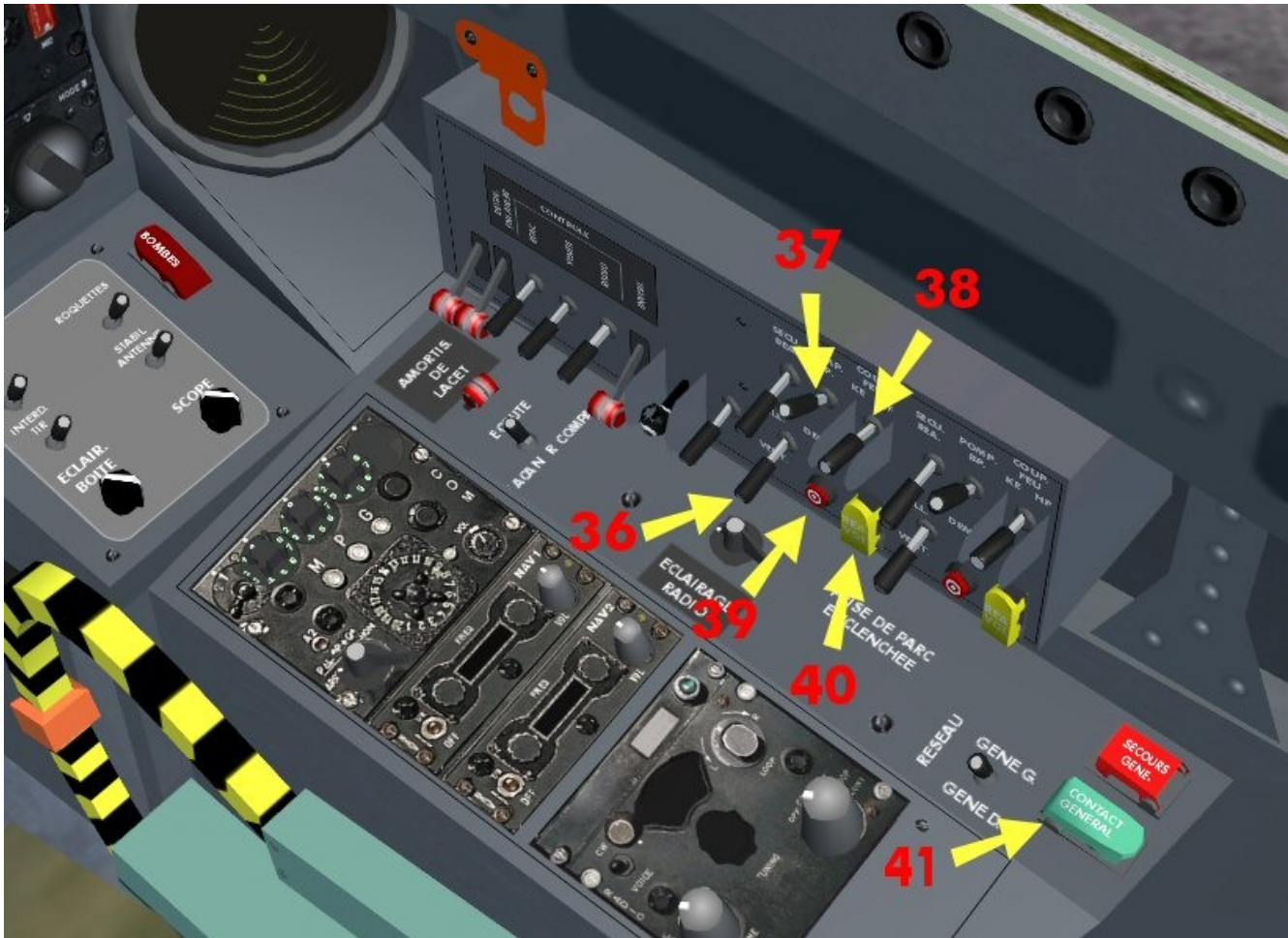
## 3D panel – Left console



**Virtual cockpit 3D – Left console**

27	Flaps control	32	Landing lights control
28	Identification light control	33	Cockpit lighting control
29	Formation lights control	34	Left and right engine throttles
30	Navigation lights control	35	Airbrakes control
31	Taxi lights control		

## 3D panel – Right console



<b>Virtual cockpit 3D – Right console - – Right engine start sequence</b>		
36	Ventilation control	Set on OFF (bottom)
37	Fuel pump on/off	Set on ON (top)
38	Fire breaker on/off	Set on ON (top)
39	Starter	Press until the safety goes up
40	Engine safety light	Goes up when engine is started (automatic)
41	Battery Cache and control	

*The right part is related to the right engine.*



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