

A321 PANEL Version 1 for default Airbus FSX
by Stefan Liebe
CALLOUT_SOUND.dll VERSION 3.8.2.0 by Doug Dawson

1 INSTALLATION

Installing & using this gauges is at your own risk.
Please follow the instructions step by step

1.1 UNZIP

Unzip the file A321V1.zip to a temporary folder.

1.2 Backup

Please make a copy of the following files. This allows you to restore the previous installation:

1. FSX\SimObjects\Airplanes\Airbus_A321\aircraft.cfg
2. FSX\SimObjects\Airplanes\Airbus_A321\panel\panel.cfg
3. FSX\SimObjects\Airplanes\Airbus_A321\AirbusA321_check.htm
4. FSX\SimObjects\Airplanes\Airbus_A321\AirbusA321_ref.htm

1.3 Checklist and References

Cut and paste the files

AirbusA321_check.htm

AirbusA321_ref.htm

to the folder FSX\SimObjects\Airplanes\Airbus_A321\. Overwrite the existing files (you made a copy for safety reason)

1.4 Sound

1. Cut and paste the folder CALLOUT to the folder FSX\Sound.
2. Cut and paste the file CALLOUT_Sound.dll to the folder FSX\GAUGES Gauge

1.5 Panel

1. Cut and paste the folder A321 to the folder FSX\SimObjects\Airplanes\Airbus_A321\panel\
2. Extract (unzip) the default Airbus_A321.cab to the folder FSX\SimObjects\Airplanes\Airbus_A321\panel\A321
(right mouse click the Airbus_A321.cab file and select unfold and then the target.)
The Airbus_A321.cab file is a kind of .zip file. For this installation it is necessary to unzip(unfold, or extract) the contents of the Airbus_A321.cab file to the folder A321.
Or in other words the 909 files contained in the Airbus_A321.cab file must be at the end in the folder A321, but not the cab file itself.

1.6 Panel.cfg

Go to FSX\SimObjects\Airplanes\Airbus_A321\panel\

First of all and very important make a copy of the default panel.cfg file. This is for safety reason if you don't like the changes you can easily reuse the copy. Cut and paste the new panel.cfg to FSX\SimObjects\Airplanes\Airbus_A321\panel\ (you made a copy for safety reason)

1.7 Aircraft.cfg

Go to FSX\SimObjects\Airplanes\Airbus_A321

First of all and very important make a copy of the aircraft.cfg file. This is for safety reason if you don't like the changes you can easily reuse the copy.

The reason why we have to modify the default cfg is because we need now 5 flaps positions for the SFCC Function.

Open the aircraft.cfg with an editor.

Go to the part defining the flaps and replace this part by the following lines (easiest way is to copy and paste):

```
[flaps.0]
type=1
span-outboard=0.8
extending-time=20
flaps-position.0=0
flaps-position.1=1
flaps-position.2=10
flaps-position.3=15
flaps-position.4=20
flaps-position.5=21
damaging-speed=250
blowout-speed=270
lift_scalar=0.84
drag_scalar=1.25
pitch_scalar=0.9
system_type=1
```

```
[flaps.1]
type=2
span-outboard=0.8
extending-time=10
flaps-position.0=0
flaps-position.1=18
flaps-position.2=18
flaps-position.3=22
flaps-position.4=22
flaps-position.5=25
damaging-speed=250
blowout-speed=270
lift_scalar=0.8
drag_scalar=0.7
pitch_scalar=0.9
system_type=1
```

The above changes are a must, because we need 5 flap positions for the correct function of the SFCC Slats and Flaps Control Computer.

The next changes are my recommendation for better flight dynamics.

Please search the following lines and change accordingly:

[WEIGHT_AND_BALANCE]

max_gross_weight=183865
empty_weight=104719

[flight_tuning]

cruise_lift_scalar = 0.83

[gear_warning_system]

flap_limit_idle=16.0
flap_limit_power=20.5

[autopilot]

gs_integrator_control=0.83

If you don't like my changes please try which values are better for you.

2 INTRODUCTION

These gauges are an addon to the default AIRBUS Panel.

To realize the functions I had to set some variables. Some how the SFCC and the other systems must "know" whether the aircraft is prepared for take-off or for landing.

If the speed is less than 40 knots and increases the computer is presuming a take-off situation.

If the speed is above 250knots and decreases the computer is presuming a landing situation.

For this reason I use some variables. At the start of each session or situation all variables are set to 0. Due to that it is necessary to start each situation either standing on the ground or at a speed above 250 knots and in both cases in clean configuration (Flaps handle = 0).

3 Function of the gauges

3.1 SFCC Slats and Flaps Control Computer

It is not visible but it works in the background to control flaps and slats.

Airbus has 4 Positions of the flap handle but 5 configurations for slats and flaps.

Handle	Slats	Flaps	ECAMS display	Remarks
0	0	0	-	
1	18	0	1	in approach configuration selected by SFCC
1	18	10	1+F	in take-off configuration selected by SFCC; Flaps is retracted automatically if speed is g.t. 210 knots
2	22	20	2	
3	22	30	3	take-off and landing
4	25	35	4	

The SFCC sets automatically the spoiler to “armed position” if flaps are set and speed is greater than 60 knots. The spoilers are automatically retracted when speed is below 55 knots.

3.2 Autoflare

Is not visible.

With this feature the autopilot should be able to touch down the aircraft. If the autopilot is switched on for landing the vertical speed is reduced if radio height is less than 150 feet.

At 20 feet the thrust is set to zero.

If you have a USB throttle the lever should be on idle position during the approach. When autothrottle is switched of, it could happen that the thrust is set according the position of the USB throttle and if the throttle is not in idle position the aircraft accelerates after landing.

For go around press only TOGA button.

Don't forget to set the autobrake and as pilot in command you should start a go around manoeuvre if the autopilot fails.

3.3 Altitude Callout Gauge

Is also not visible, but you can hear it during approach. This gauge gives altitude call outs at 2500, 1000, 500, 400, 300, 200, 100, 50, 40, 30, 20 and 10 Ft.

Unfortunately I have no original sound files. So I created my own sound. If you have better sound files, rename your sound files according to the sound files in the sound folder.

3.4 PFD

3.4.1 Minimum and maximum speed bars

Left side shows minimum and maximum speeds

3.4.2 indicators for V1, VRot , VRef and Flaps and Slats

For take-off configuration only S+F or Flaps3 is approved.

according to the total weight V1 and VRot is set. V1 is shown as 1 right to the speed bar Vrot is a magenta circle right to the speed bar. V2=VRot

In this configuration the minimum flaps and slat speeds are indicated by an F and an S colour white

Total weight kg	S + F Vrotate	Flaps 3 Vrotate
L.T 64000	145	130
L.T 68000	150	135
L.T. 73000	155	140
L.T. 78000	160	145
L.T. 82000	165	150
L.T. 86000	170	150
G.T 86000	175	
L.T. 91000		155
G.T 91000		160

In landing configuration at a speed less than 250 knots the flap maximum speeds are displayed in yellow, right to the speed bar. Only Flaps 3 and Flaps 4 is approved for landing and due to flaps the Vref is indicated as a green circle right of the speed bar.

Total weight kg	Flaps 3 ref	Flaps 4 Vref
L.T 5200	120	120
L.T. 56000	130	125
L.T. 61000	135	130
L.T. 63000	140	135
L.T. 68000	145	140
L.T. 72000	150	145
G.T 72000	155	150

The above speeds are increased for longitudinal windspeeds L.T. 45 knots by 33% of the longitudinal windspeed and above by 15knots.

L.T. = less than G.T.= greater than

3.4.3 Indicators for acceleration/deceleration

near the speed bar are yellow arrows displayed. The length of the arrow shows the speed which is achieved in 15 seconds when acceleration or deceleration remains.

3.4.4 Indicator for localizer course

In ILS mode a magenta cross is shown in the compass bar to indicate the course of the localizer.

3.4.5 Vertical speed is indicated in figures

Above or below the VSI the the vertical speed is displayed in feet per minute

3.4.6 Improved HSI needle

the needle is thicker and better visible

3.5 MFD Select Panel

3.5.1 Baro Knob

At altitudes less than 18.000 feet you can toggle between QNH and Standar Pressure if you push the center of the bar knob

3.5.2 WPT, VORD, NDB,ARPT

You can now display all at the same time, if you push the button for the function.

CSTR Button has no function.

3.6 MFD

3.6.1 Wind Indicator

The wind indicator is now showing the correct angle.

3.6.2 Track Indicator

The expanded mode, that is the mode where you can only see what is in 160 degrees in front of the aircraft, has now also a green track indicator.

3.7 ECU /Throttle

Please read about the SFCC to understand why the flaps handle has 4 position and 5 slats and flaps configurations are possible.

3.8 Gear Panel / Autobrake

The brake is activated by left mouse click on the button.

On the ground you can only select the MAX button and in this case the RTO (Refused Take-Off) brake program is selected.

In the air you can select LO / MED/ MAX

3.9 ECAMS

The ECAMS shows the 5 configurations for flaps and slats.

A right mouse click in the upper right corner of the ECAMS (above the slats and flaps) toggles between kg and lbs.

The standard configuration is kg.

In the lower part you will see various messages about the configuration of the aircraft.

For example if set

on the left side:

Landing lights;

seat belts;No smoking;

Landing gear down an locked;

Pitot Heat;

Deice eng1 ; deice eng2;

Deice wing

right side:

Autobrake status (see Autobrake);

Spoilers Armed;

Parking Brake

Hydraulics

Generator

warning if take-off or landing weight is exceeded.

The panel works with A321-100 and A321-200.

For A321-100 max_gross_weight is less than 90 000kg or 198416lbs in that case max. take off weight is 73483kg and max landing weight is 83008kg.

In cases where max_gross_weight is greater than 90 000kg or 198416lbs the reference values for A321-200 are taken and in that case max. take off weight is 78790kg and max landing weight is 92988kg.

3.10 ECAMS2

The functions screens for ENG, BLEED, PRESS, APU, HYD, FUEL and FCTL show now in the last two lines of the screen informations about temperature TAT and SAT, Time Zulu and Local and total weight.

3.10.1 Checklist

On the upper side of the bezel is a button for the checklist. If you push the button you can see a checklist. The screen is a touch screen and the blue fields are mouse click sensitive. All parameters which I could get from the aircraft are displayed automatically. Those items in the checklist who have no variable in FSX must be selected by mouse click.

This is my personal checklist when I fly at VATSIM or IVAO. So it is not 100% realistic but for my own use it is quite ok.

The manually set values in the checklist are all reset for the next flight when you check on the side "TAXI TO THE GATE" "XPDR STBY". To switch the transponder to standby must be done after each flight and that is why I use this to reset all variables for the next flight.

If you don't like the checklist function you can easily remove it.

Remove the panel.cfg and rename the panel_without_checklist.cfg to panel.cfg

4 Hints for better simulation

4.1 Sound

The default sound of the A321 is terrible. I found a sound which I like very much. you can find it at FlightSim.com under the file name

a32cfm56.zip

It is a sound for FS2004 but it works with FSX.

After installation open the sound.cfg and add the following lines at the end.

[NO_SMOKING_ALERT]

filename=CabinAlert

[SEATBELTS_ALERT]

filename=CabinAlert

Then you can hear the cabin alert when switching on seatbelts or no smoking sign.

4.2 Frame rates and appearance of taxiways

In the past I have tried a lot of things to get better frame rates. After installing some textures I got a real improvement.

Look at FlightSim.com for the following files:

fpsenhancev2.zip

taxiway1.zip

vcraintx.zip

5 Copyrights and Disclaimer

These gauges are freeware, NOT Public Domain and it is available for your personal use.

Without my explicit permission, it may NOT be sold, re-distributed and/or uploaded to another website or bulletin board (in ANY shape or form).

If you want to bundle (part of) this gauges with your (freeware !!) panel, you may ONLY do so AFTER my explicit permission and inclusion of this README file AS-IS.

If you want to use the CALLOUT_SOUND.dll VERSION 3.8.2.0 you need the permission of Doug Dawson

And obviously, installing & using this gauges is at your own risk

6 Credits

Thanks to Doug Dawson, for the permission to use his perfect XML sound gauge (included in this package).

7 Finally

I hope you enjoy the gauges. If you have questions or suggestions for improvement please let me know.

Please read the above carefully before you contact me reporting any bugs.

Have fun and happy landings

Stefan Liebe
Germany
Email:pan.01@arcor.de