Review of

Boeing B737 Gear Lever Set (replica)

Manufactured by Opencockpits

Intro

My journey around flightsim hardware has now taken me a step closer to real replica hardware – this time I have put my focus on a piece from Opencockpits; the Boeing B737 gear lever including the double front plate with text, the annunciators and the LEDs, wires and connections behind the gear lever.

As I have discovered, using hardware to develop a home cockpit really do add realism to the flightsim experience, but when adding replica hardware, the experience jumps to an even higher level of realism.

I have previously had the chance testing and reviewing the FMC v3 from Opencockpits which certainly was a positive and very surprising experience, so now taking a look at the Boeing B737 gear lever really excites me greatly.
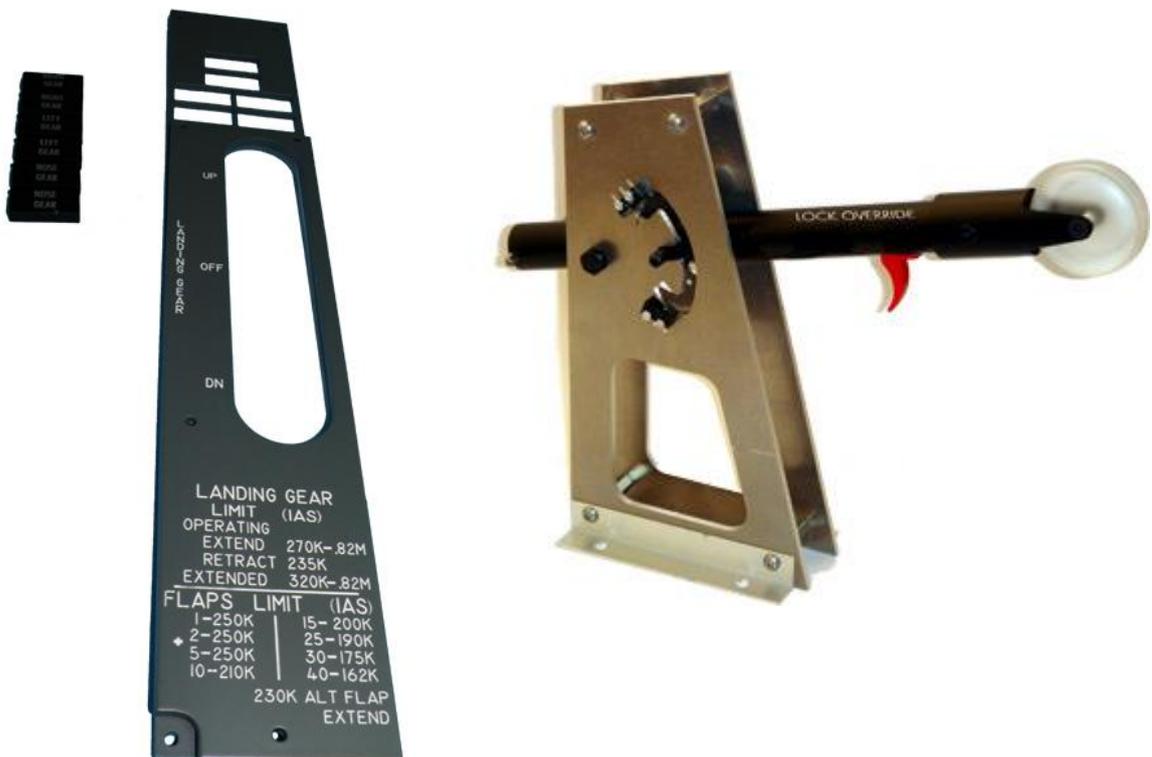
Purchase, Delivery and Packing

I purchased this unit directly at Opencockpits (in their webshop) and the purchase experience was good – the webshop is created with the feature to select either a Spanish or an English version, which is really nice since my spanish is rather limited and I was also here able to select who and how I wanted the consignment to be delivered to me.

After the purchase was completed I received a confirmation email and the very next day I also received a mail from the transport company including ETA and a tracking number. The transport only took a few days which I appreciate greatly because when I order a new piece I always want it urgently.... I almost cannot wait.

The packing was good – I ordered this unit together with some additional PCBs, switches, wires etc. and everything was carefully packed in a hard cardboard box filled with polystyrene foam that combined, functioned as the outer protection. The inner protection was made of bobble plastic that was wrapped around the gear lever but also the two front plates had their own bobble wrapping as protection.

Furthermore there were also included the necessary LEDs – both green and red together with the annunciators. Additionally I had purchased both red and blue wires and the needed input and output PCBs to complete the set. If you have your own input/output PCB solution, you don't need to purchase the PCBs that I did – you can easily connect the gear lever and LEDs to a standard input/output PCB(s)

Overall the purchase, delivery and packing was superb – the purchase was easy and very user friendly, the delivery was professional and quick and the packing was good with a high level of protection to the units inside.

The parts included when ordering the gear lever is only the gear lever, but when ordering the unit in the webshop it is highlighted that the purchase only consists of the gear lever, and that you need to purchase the following items – these items are easy to find on the Opencockpits webshop and are listed as Components needed (not included) with direct links when selecting the front plates. Please note that the front plates are a set and thereby listed as just one front plate – but actually consists of both the back and front part of the plate.

The complete set exclusive the PCBs is listed here below – everything can be purchased at Opencockpits webshop except for the resistors, which are needed to get the LEDs to function, these I purchased in a local DIY shop.

1x Boeing B737 Gear Lever (item no. MEC-TREN73)

1x Front Plates including 6x Annunciators (item no. P738B11)

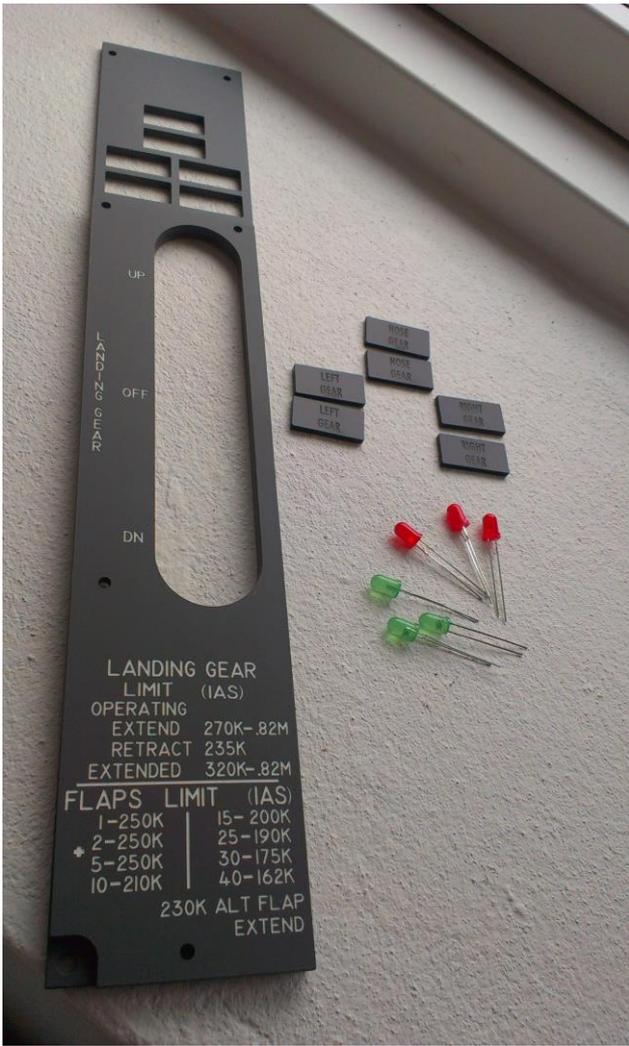3x High efficiency green LEDs (item no. 4TL3)

3x High efficiency red LEDs (item no. 4TL1)

6x 470 ohms resistors (cannot be purchased from Opencockpit)

Additionally you of course also need the input/output PCB(s) to connect the gear lever to the computer – these can of course also be purchased directly at Opencockpits, but the gear lever is also compatible with other input/output cards. In my configuration I used a setup of PCBs from Opencockpits.

Another additional purchase could be the annunciator boxes, which makes it easier to mount the LEDs behind the annunciators – these can of course also be purchased at Opencockpits.com, but I did not include them in my test.

LANDING GEAR
LIMIT (IAS)
OPERATING
EXTEND   270K-.82M
RETRACT   235K
EXTENDED 320K-.82M
FLAPS LIMIT (IAS)
1-250K   15-200K
2-250K   25-190K
5-250K   30-175K
10-210K   40-162K
230K ALT FLAP
EXTEND

NOSE GEAR
NOSE GEAR
LEFT GEAR
RIGHT GEAR
LEFT GEAR
RIGHT GEAR

UP

LANDING GEAR

LOCK OVERRIDE

This gear lever set is a replica of the real gear lever set found in the Boeing B737 series and it comes fully assembled, meaning that the gear lever is mounted in the special made frame and the micro switches are soldered onto the frame both at the top and the button position of the lever.

The lever itself is built in aluminum with the characteristic wheel in one end, then mounted into a special made aluminum frame, where the lever have three holding points – top, bottom and center making the gear lever as realistic as possible. The micro switches are placed at each outer point = top and bottom meaning there is no micro switch at the center position (not necessary since the micro switches can be programed for both activate/hold but also release).

The frame has a 15 degree angle between the bottom mounting and the front, giving the gear lever a perfect setup where the mounting is done horizontally and the front is then perfectly aligned with the cockpit panel. The cockpit panel in real life is not raised 90 degrees = vertically, but only 75 degrees – providing the pilots a better view of the entire panel.

The setup that I have is not a Boeing B737 replica so this angle actually gave me some challenges since my cockpit panel is mounted vertically. To compensate for that I adjusted the horizontal mounting with 15 degrees in the back, giving me a perfect aligned gear lever in 90 degrees angle.
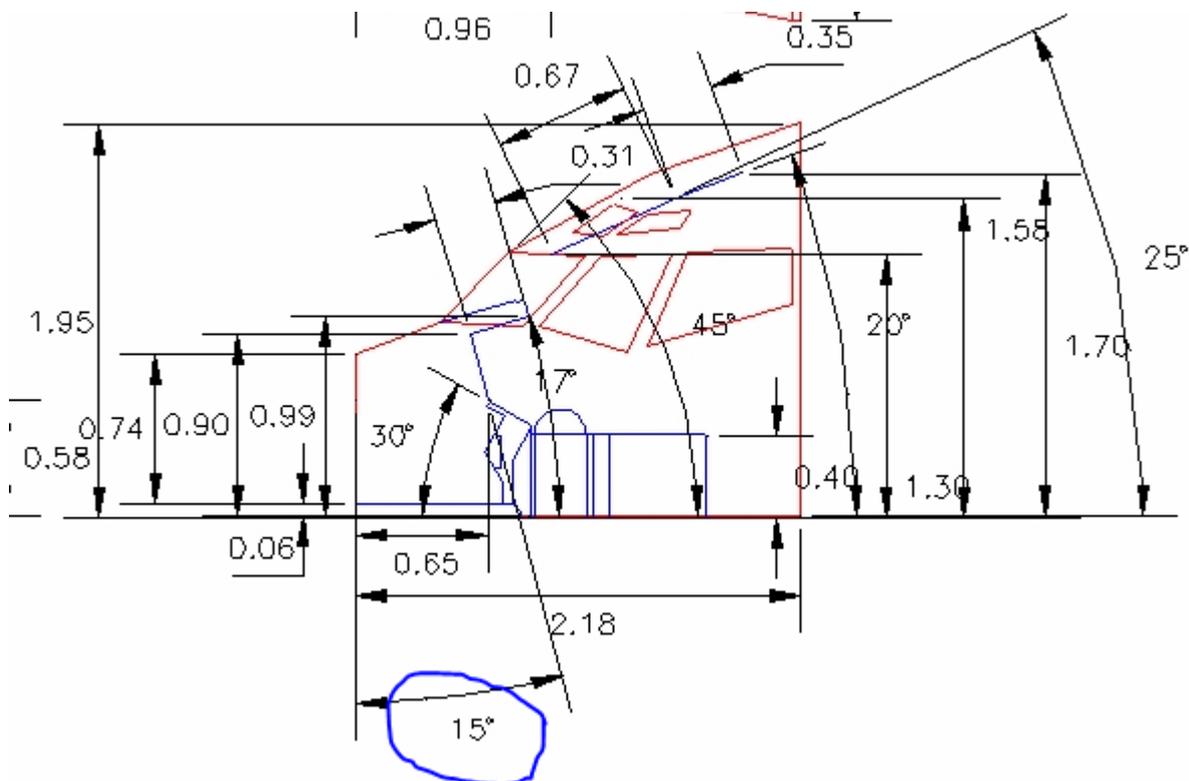
The tension of the gear lever I found to be rather high meaning that I had difficulties moving the gear lever out of the top/center/bottom position – not the actual move up/down, but only the move out. I have previously flown a Boeing B737 simulator and can't remember that I had that issue. However that gear lever was mounted into a complete setup and when I first tried this gear lever, it was not mounted yet.

I of course mounted the gear lever into my setup to try if that changed anything – it certainly did! First I was a bit concerned about my panel setup if it was strong enough, so that the move of the gear lever would not pull out the screw connections etc. but not to worry – it held perfectly and the tension now felt very realistic.

One thing I discovered was that the tension is created within the other end of the gear lever handle, where a spring load is mounted. I have not tried to unlock the spring load, but I am confident that if I wanted to ease up the tension, I could easily unlock the spring load, and either shorten the spring or insert a new spring with a lower tension.

To make sure the gear lever is always centered (left/right) there are mounted four guide units – two on each side of the gear lever, which holds the gear lever perfectly in place and also removes any kind of play/backlash. This could also have an effect on the tension, but I believe that the primary control of the tension is still located within the spring load.

The gear lever is created according to real life also in regards to the basic usage. E.g. to move the gear lever you cannot just move it up or down, but you have to pull it towards you before moving the gear lever. Opencockpits way of creating this feature is done through the gear levers frame, where the left and right side of the frame is specially cut and then with the secondary function of the spring load this features is then created. Very nice and realistic touch!
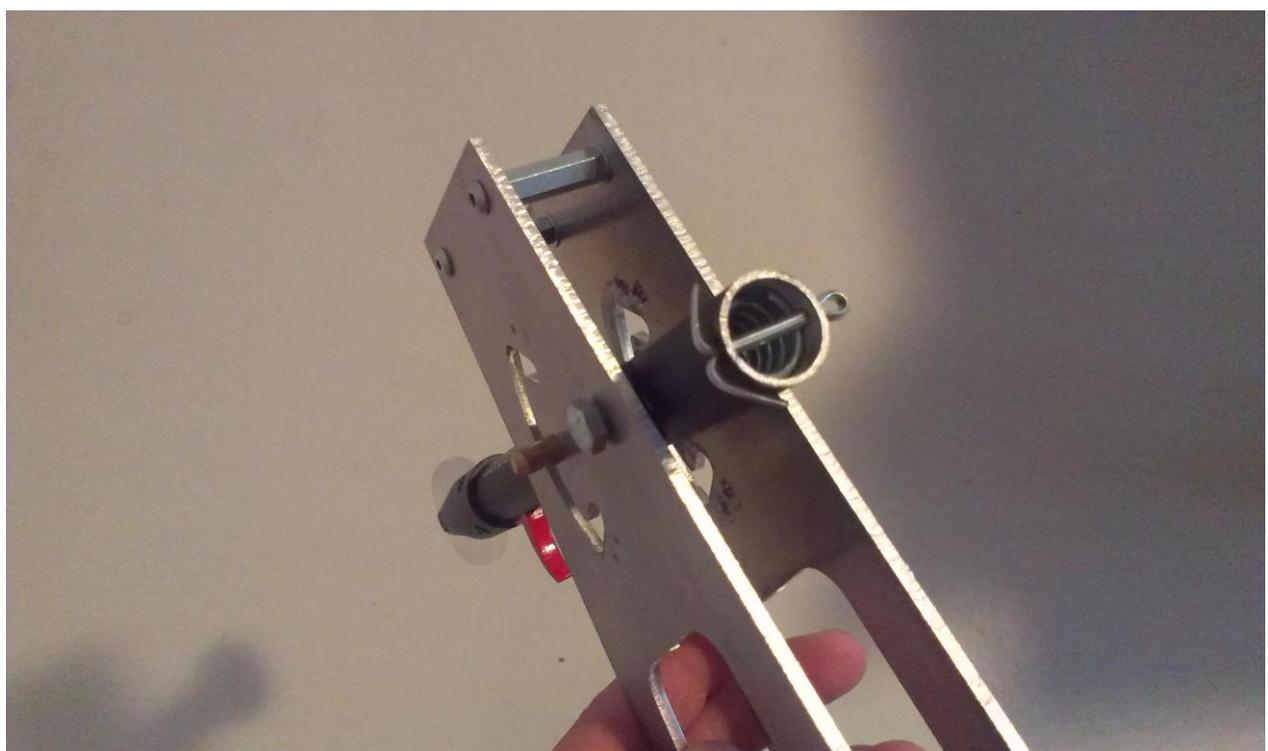
To complete the gear lever set I also purchased the additional parts mentioned earlier in this review. There were a set of front plates = two front plates where one is the back part featuring the square holes for the annunciators and also the gear lever hole. This part also has the function of adding greater depth to the front plate section.

On top of the back part the front part is placed. The front part features of course the gear lever hole but also various texts etc. which is also found on the real gear lever – this is e.g. information about speed limits and flaps positions etc.

The material that these two plates are made of is not metal or aluminum, it feels just like the material that was used to create the front of the FMC v3 – that was methacrylate used for the FMC v3, which I think is probably a lot less expensive to purchase but also very much easier to process – that contributes to keep the costs down which I am sure every simmer will appreciate.

The plates are painted with a standard Boeing B737 color – which I have been told can actually vary, but I have used some RAL7011 paint for some other projects and the color of the front plates are indeed very close to that color, if not in fact that specific RAL code.

There were a total of 6 annunciators which fitted perfectly into the back plate and all what was now needed was the LEDs – I purchased 3 red and 3 green LEDs – the red LEDs was for the annunciators that would report e.g. gear not coming down or gear in raising mode etc. The green LEDs is for the pilots confirmation that the gear is indeed down either during final or when on ground... well when on ground I guess it would be very easy to fell if the gear was not down or maybe only partly down, but during approach or final this is some really important information for the pilot.

Connecting the gear lever is really easy – there are only two micro switches which have to be connected to an Input PCB – and if you are in doubt of how to, Opencockpits has included a downloadable manual from their website describing exactly how to solder the micro switches and connect them to the input PCB (see here below including text from the manual).

To weld the cables to the micros, lay the hardware in a horizontal position to have a better access to them.

Solder one cable to pin (2) of the mechanism, this will be the common cable. Solder another cable to the central pin (1).
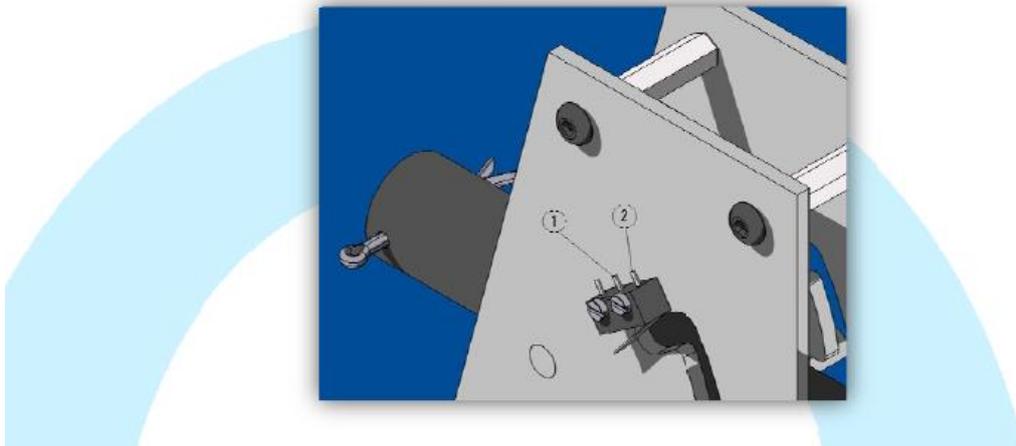
When the micro switches are connected, the next is the LEDs – these are not connected to the input PCB, but needs to be connected to an output PCB (if you have a PCB supporting both input and output, it will of course be the same PCB, but in my setup I have both an input and an output PCB)

One thing to remember when using LEDs is that connecting LEDs requires some resistors – one for each LED in this setup, so in my setup I connected in total 6 resistors. These come in many variations but the ones needed for this gear lever setup are 470 Ohms.
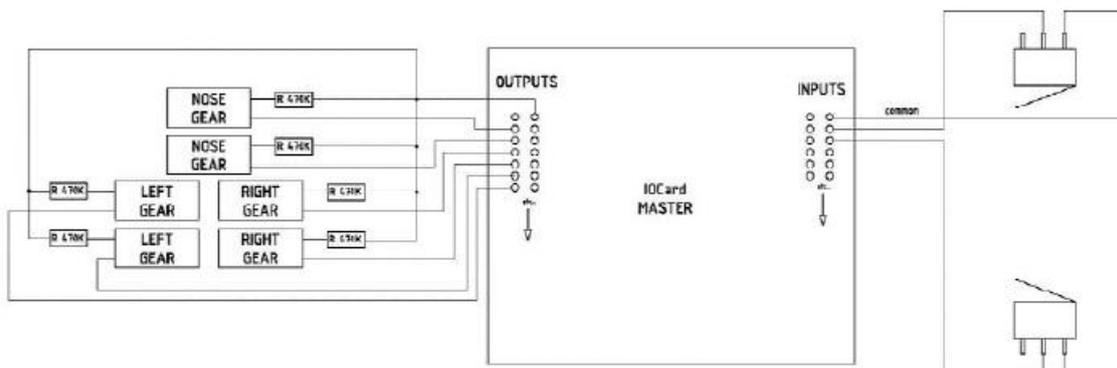
To make it all work there are several ways to approach the programming. Opencockpit is known for using the SIOC software, which in my opinion is actually a very powerful tool, and to use it you don't need an education in SIOC because Opencockpits has already done all the prep work for you. When downloading the file including the manual from Opencockpits website, you also download everything you need to program the gear lever with both inputs and output.

Using the SIOC software for this programing, the gear lever is set up to function with all aircrafts that features retractable gear and not just the Boeing B737. Even though this is a replica it can be used for all aircrafts within your virtual hangar.

If you are not a fan of using the SIOC software, you can of course just configure the micro switches using other configuration programs as e.g. FSUPIC or similar – well basically you can use the included assignment configuration part of FSX, however I would suggest using either the SIOC or FSUPIC.

I used the SIOC software to do my programing of the gear lever – it was indeed easy and the manual describes very well how to etc. Basically you connect the micro switches and LEDs to the PCB(s) according to the schematics (also included in the manual) and then run the CONTROLADOR.EXE software to locate which input/outputs are connected to where.

Next step is to run the SIOC software CONFIG_SIOC.EXE to import the necessary scripts which are also included in the download file – there are both an iocp.txt script and an FSUPIC.txt script.

All we need to do now is to correct the script to contain the correct input/output locations and the gear lever is ready for use. Just one additional information, is that you need to start up the SIOC.EXE when you have loaded the flight in FSX to get the function to work – if your flight starts at e.g. the parking/gate with gear down, the green light will now come alive.

When using the SIOC for the programing of the gear lever, the function is that; gear down lights up all green LEDs/annunciators; gear up lights up all red LEDs/annunciators for the period of time which is takes for the gear to come up and being secured, and finally the LEDs will turn off and you can now move the gear lever to the OFF position (center position).

If you use the FSUPIC to configure the micro switches directly through FSX, you will of course not have to start up the SIOC.EXE when the flight has been loaded, however I have not tried to do manual programing of the gear levers output function (LEDs) using the FSUPIC, so I cannot verify if the LEDs will work properly – probably they will if you know how to do that programing correctly. I would recommend using the SIOC software because Opencockpits has here already done all the programing for you.

Conclusion

My conclusion for this Boeing B737 replica gear lever including front plates and annunciators etc. is that this piece of hardware certainly is of a very high quality. The resemblance to the real life counterpart is remarkable and the realism created when I mounted this unit in my own setup was absolutely awesome.

The finish is superb and I really am very amazed with the level of detailing put into this unit. It is not a very complex unit but it is created with an eye for the detail and it tells a story about a company that does not make compromises on details and quality, but instead goes all in on creating this beautiful piece of hardware as realistic as possible.

The fact that the gear lever is also so very user friendly in regards to connection and setup just improves my overall experience of the product greatly. To top it all, it is a versatile gear lever meaning that it works with all kinds of aircrafts in the virtual hangar as long as they are aircrafts that features retractable gear.

Price wise I find this gear lever to be within a fair price range – of course flightsim hardware is rather costly, but this gear lever all-in has a cost of only about EUR 160,- (about USD 218,-) ex VAT and transport.

I rate this unit from Opencockpits with 5/5-stars and thanks Opencockpits for creating such a beautiful piece for the home cockpit builder. I would certainly recommend this piece to my fellow simmers and home cockpit builders – it has increased my experience in my home cockpit with an additional level of realism – this even though my home cockpit is not a Boeing B737 replica but instead of my own design.

Rays Aviation

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FLIGHT SIMULATOR REVIEW

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