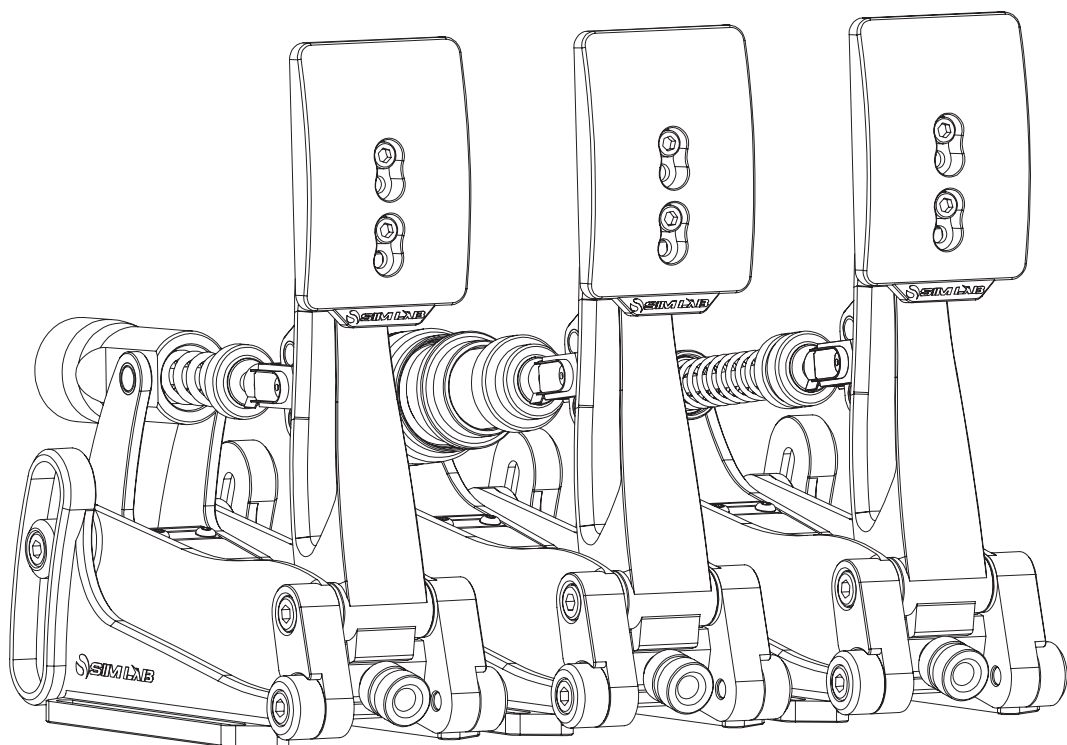


SIM LAB

INSTRUCTION MANUAL



XP-1 PEDALS

VERSION 1.8

Last updated: 15-05-2025

BEFORE YOU START:

Thank you for your purchase. In this manual we will provide you with the means to get started using your new pedals!

Introducing the Sim-Lab XP-1 200KG Loadcell Pedal Set! Simulate any pedal of any car with the most complete sim-racing pedal set available. Carefully crafted to satisfy the needs of serious sim racing enthusiasts, this top-notch and fully customizable pedal set is designed to take your on-track performance to new heights. Experience the thrill of absolute control, immerse yourself in the authenticity of sim racing, and unleash your true racing potential with the Sim-Lab XP-1 200KG Loadcell Pedal Set. It's time to elevate your racing experience and leave your competitors in the dust.

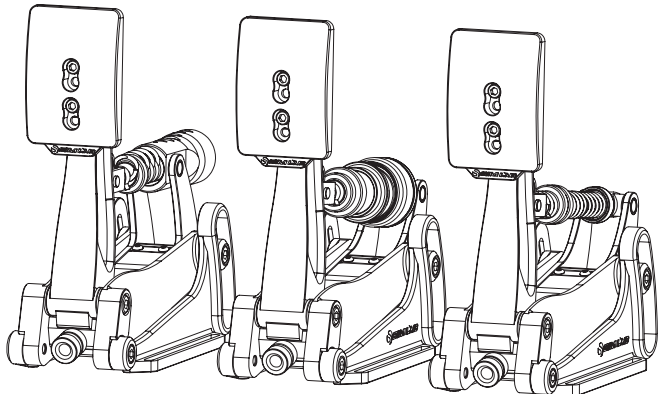
Update:

If you are looking for the accessories instructions, please refer to the end of this manual (page 19 onwards). We will go over them one by one.

XP-1 LC PEDAL SET and CLUTCH

Features:

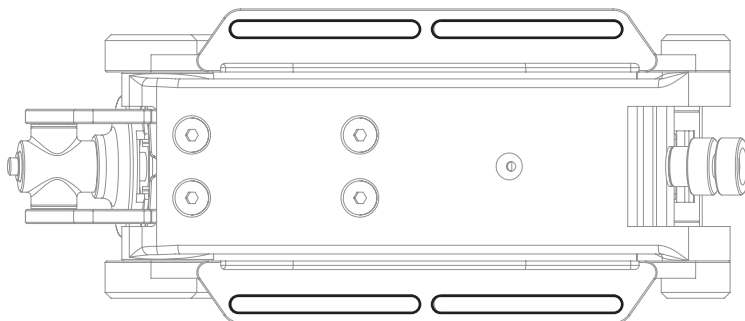
- Aluminum construction
- Custom integrated loadcell (Brake)
- Hall sensor (Throttle/Clutch)
- Multiple elastomers included
- Multiple springs included
- Plug and play (USB-B)
- 16-Bit resolution input



Installation

Depending on your setup, the pedals can be mounted directly to both profile (P1-X) or pedal decks (like the GT1-EVO). Also the latest universal baseplate is also compatible with these new pedals so no matter which setup you own, there are ways to mount this pedal set.

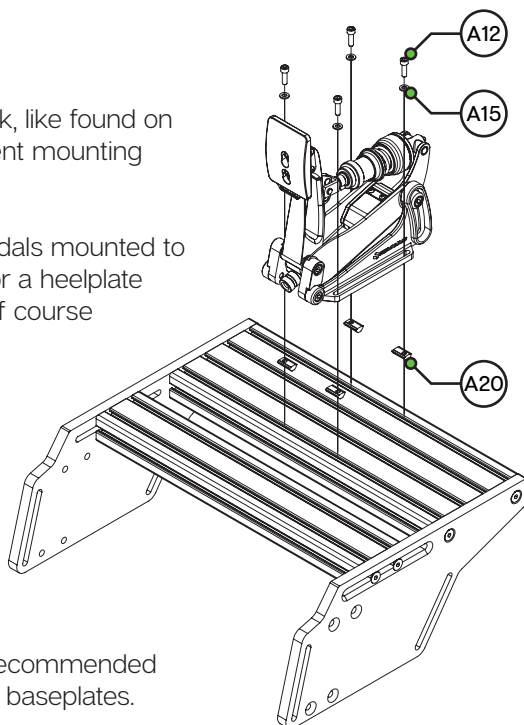
Simply bolt down the set using the 6mm slots (seen from the bottom) shown below.



Profile based pedal deck

In the case of a profile based pedal deck, like found on the P1-X, mounting is very easy. Sufficient mounting hardware is included.

The example on the right shows the pedals mounted to the bigger of the two profiles to allow for a heelplate to be fitted on the smaller profile. This of course depends on your preference.



On the next page, you can review our recommended mounting solutions for pedal decks and baseplates.

Pedal deck and baseplate

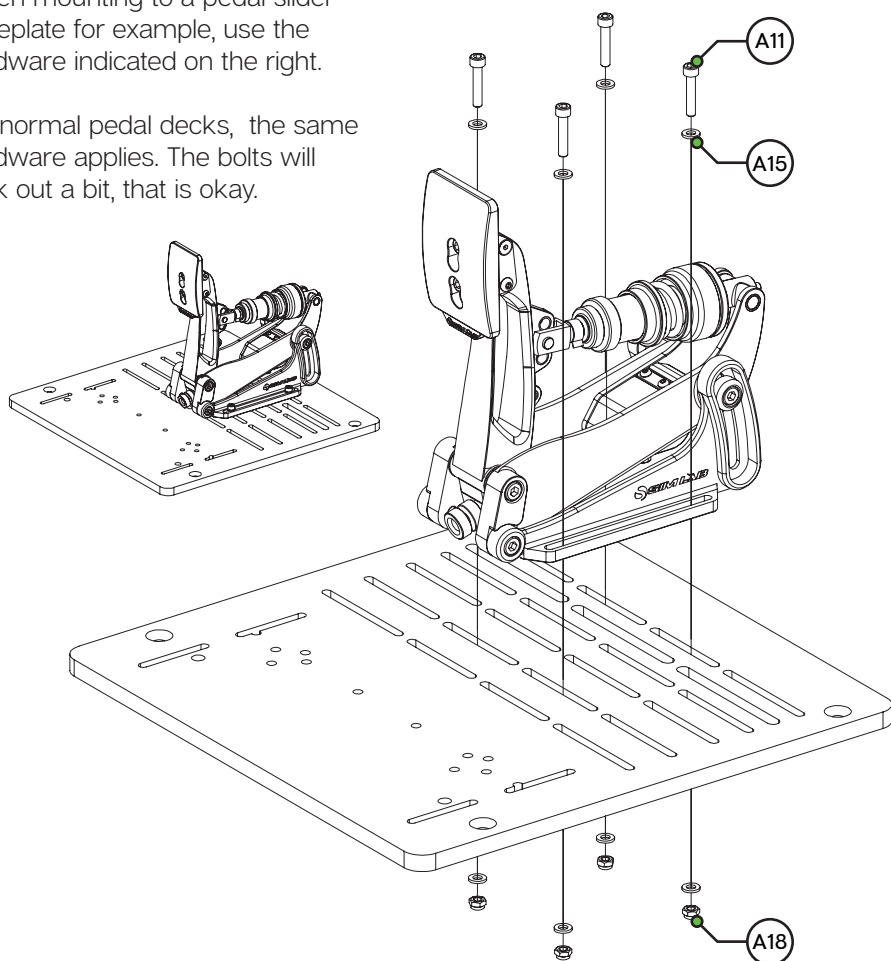
Due to the 6mm slots, you can use almost every slot found on these products and it all comes down to personal preference.

For baseplates, there still more than enough of possibilities.

The obvious difference here is the lack of slot-nuts, and the inclusion of some additional washers to help protect your baseplate. As mentioned, the exact slots you use really don't matter too much, as almost all slots on our pedal deck based products match the 6mm slots on the pedal side mounts.

When mounting to a pedal slider baseplate for example, use the hardware indicated on the right.

For normal pedal decks, the same hardware applies. The bolts will stick out a bit, that is okay.

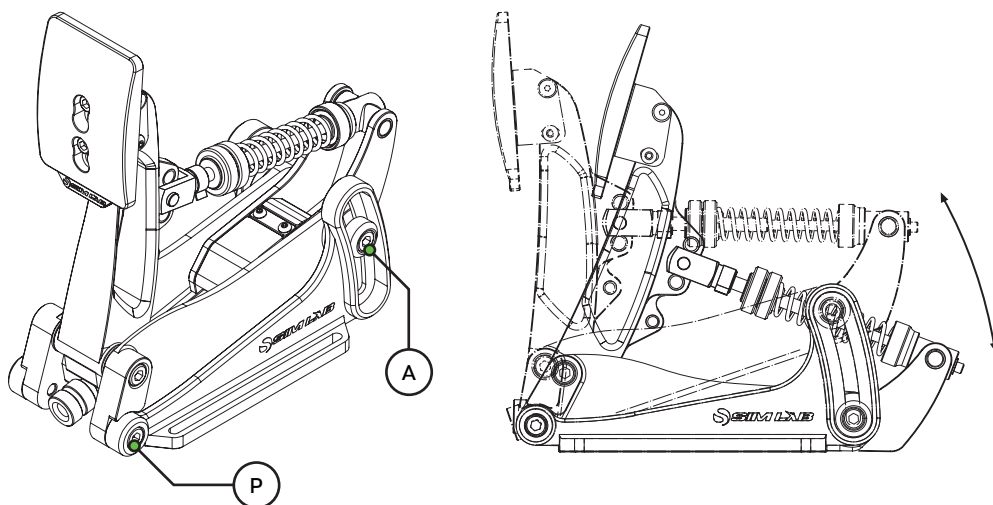


Configuration

Pedal Base

We tried to re-use as many parts throughout the pedals as possible. This means the configuration and adjustments are virtually the same for all three pedals.

The angle of the pedal arm in relation to your cockpit can be changed by adjusting the pedal base. Simply loosen four bolts, start with the two (P) where the arm pivots around. After those are loose, loosen the two (A) in the arcs. Now you should be able to rotate the entire pedal as a whole while the base remains fixed in place. Tighten all bolts again after you have found your preferred position and you are good to go.

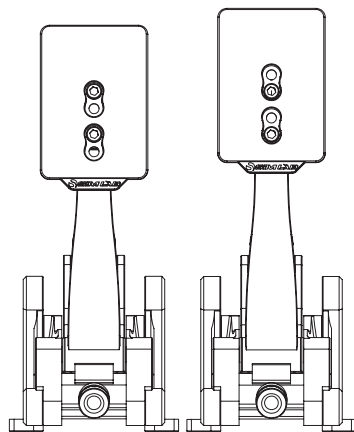
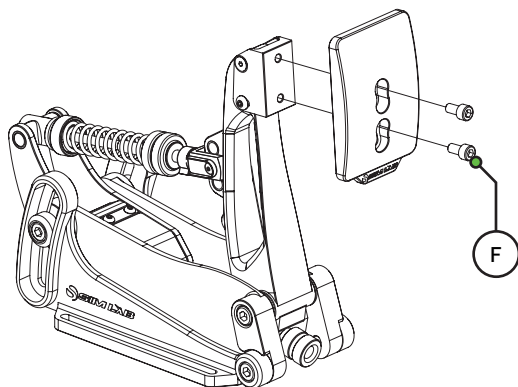


There is quite a large range of adjustment (20 degrees) possible so you can adjust these pedals to your seating position perfectly.

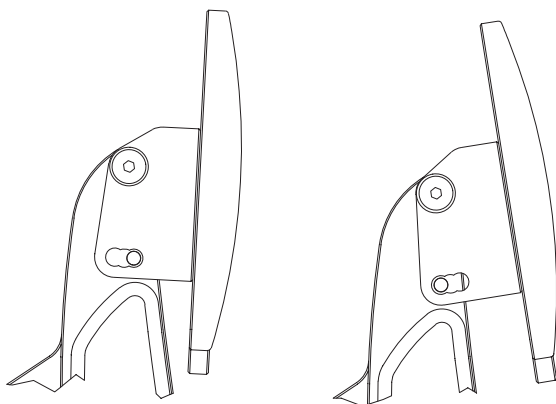
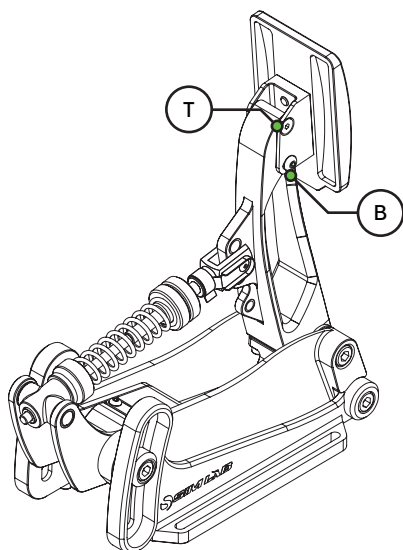
Note: especially for the brake pedal, make sure all four bolts (A,P) are tight before using the pedal with higher brake forces.

Pedal Face

One of the more simple adjustments is the ability to change the position and angle of the pedal face. Loosen the two bolts (F) holding the pedal face and you can adjust the position of the pedal face to your preference.

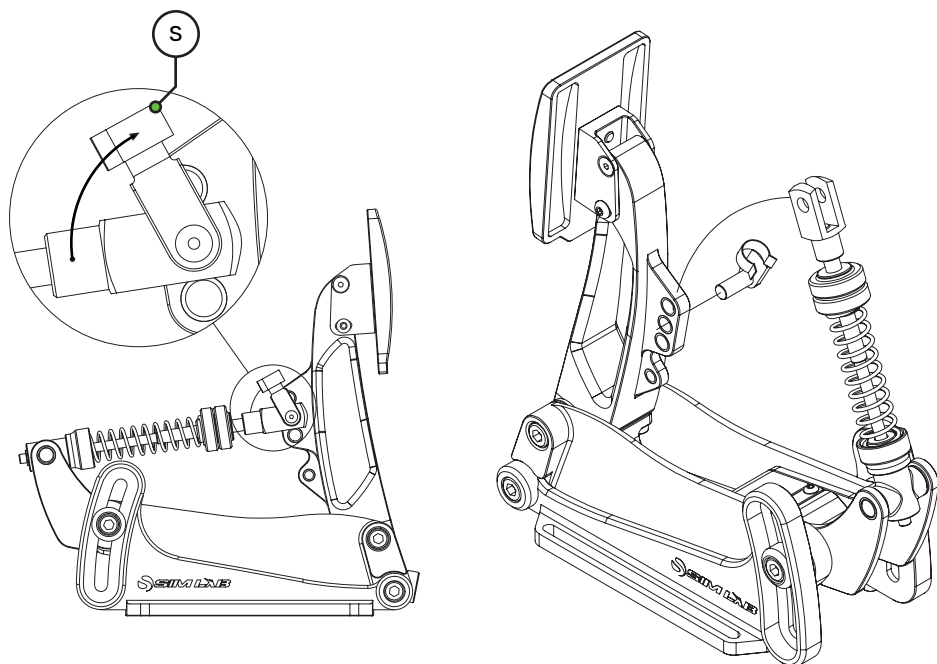


As mentioned, it is also possible to change the angle of the pedal face. Begin by loosening the top (T) (countersunk) bolts, but do not remove them. Temporarily remove the bottom (B) bolts and now the bracket can rotate freely. The bracket comes with a preset slot for different angles you can choose from. Choose your angle and fix it in place using the two bottom bolts (B). When happy, tighten the upper two (T) bolts again as well.



Prepare for changing parts

To get access to the parts we can change, first we must temporarily remove the spring bolt (S), which keeps the clevis fork attached to the pedal arm. In this example we are using the throttle pedal.



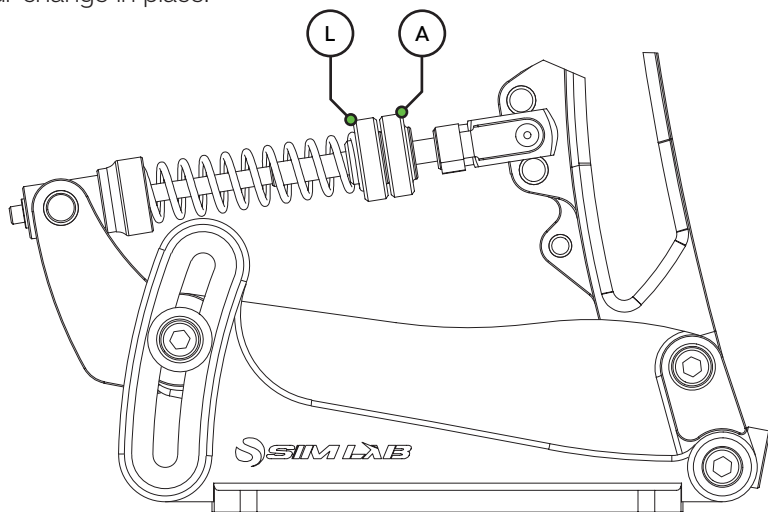
Release any tension from the spring by loosening any adjustment knob(s) before trying to remove the spring bolt.

Unclip the spring bolt (S) from the clevis fork shaft (left drawing) by rotating it upwards, then pull it away from the clevis fork altogether. Now the entire shaft holding parts, can be turned away from the pedal arm and as many parts removed as desired.

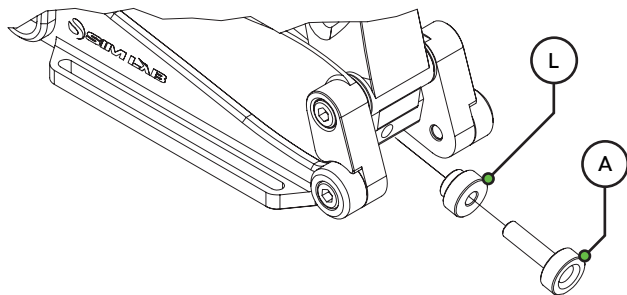
Be careful! The pedal arm is unsupported right now and will be able to fall towards the front or the rear of the pedal. We recommend to keep holding the pedal arm or provide support to it by other means, while removing the clevis fork and shaft parts, to avoid damage.

Throttle configuration

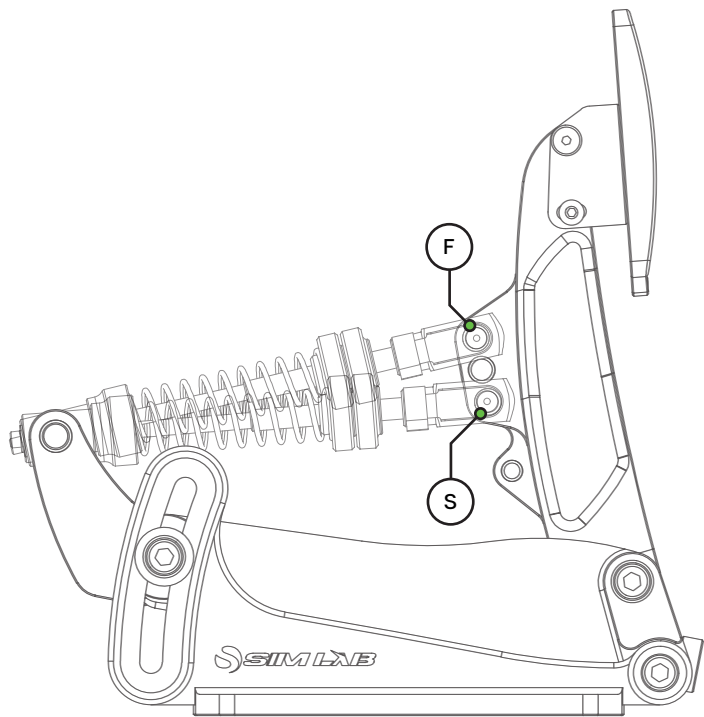
This pedal is easy to setup, be it stock or after you have changed the springs. There are two main options basically. The throttle spring can be adjusted to be more stiff or soft. Unlock the blue knobs and tighten (clockwise) the adjustment knob (A) for a stiffer throttle feel. To go softer, do the opposite. When you are happy with the change, hold the adjustment knob (A) and tighten the locking knob (L) against it, this locks your change in place.



The same principle applies to the maximum travel of the pedal. On the bottom of the pedal arm you will find two blue knobs as well. The inner one is the travel locking knob (L), the outer one is the travel adjustment knob (A). Turning the adjustment knob clockwise results in less travel, turning the adjustment knob anti-clockwise results in more travel. By default, the pedal has been setup to provide a middle of the road range of travel but you are free to experiment.



Adjusting spring force isn't only possible by using the adjustment knobs. Using the lower of the three adjustment holes on the pedal arm gives you a slightly softer (S) pedal pressure for example. The higher of the three a slightly firmer (F).



Note: by the nature of the position of the clevis fork so low on the pedal arm, travel might be mechanically limited. Please do check the travel manually (meaning literally, by hand) to see if you need to decrease travel using the travel adjustment knobs, to prevent the clevis fork interfering with the flange on the pedal arm. When it does, please reduce maximum travel until you have about 3-4mm between the flat base of the clevis fork and the pedal arm flange.

In case you aren't happy with the overall spring force range, we supply a heavy throttle spring for ultimate control. Simply follow the steps on page 7, remove the adjustment knobs and replace the default spring with the heavy one.

Brake configuration

After you have followed the steps on page 7, you can now remove the clevis fork and shaft. This makes it very easy to change around parts to suit your preference.

Keep in mind, all parts connected to the shaft are loose fitting. Make sure to keep parts together which don't need to be replaced to avoid misplacing them.

The parts which we expect to be removed when changing the brake stack as shown on the right:

- Locking Knob (L)
- Adjustment Knob (A)
- Elastomer (E)
- Bushing (B)
- Elastomer Washer (W)
- Pre-load Spring (P)

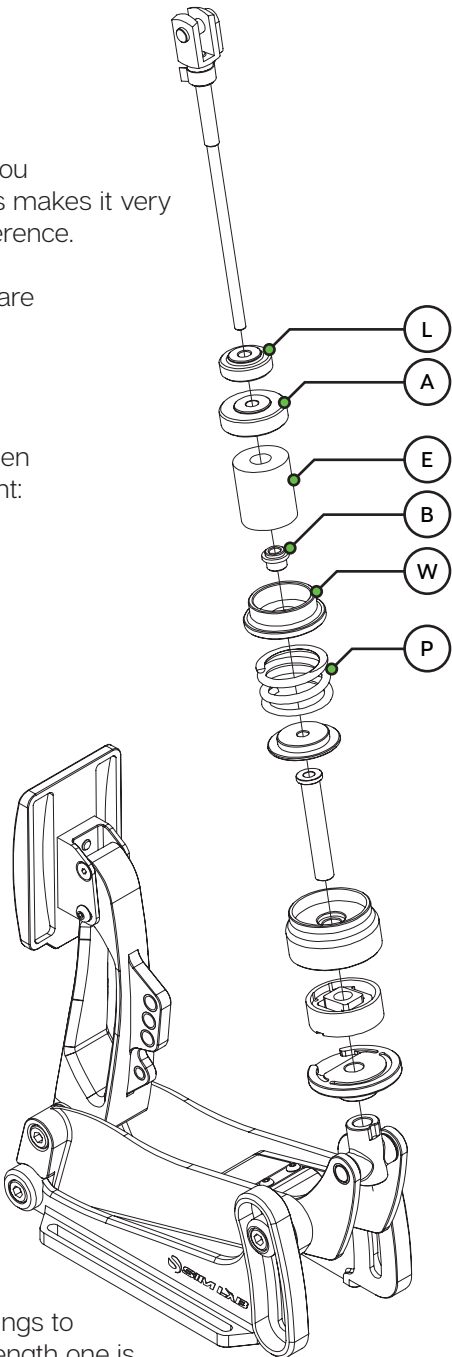
Depending on your preference, we have included elastomers (E) in different hardness (Shore A) ratings for you to try. The medium one is pre-installed.

Included are the following elastomers, the Shore A ratings are:

- Soft - Shore 50A
- Medium - Shore 60A
- Hard - Shore 70A

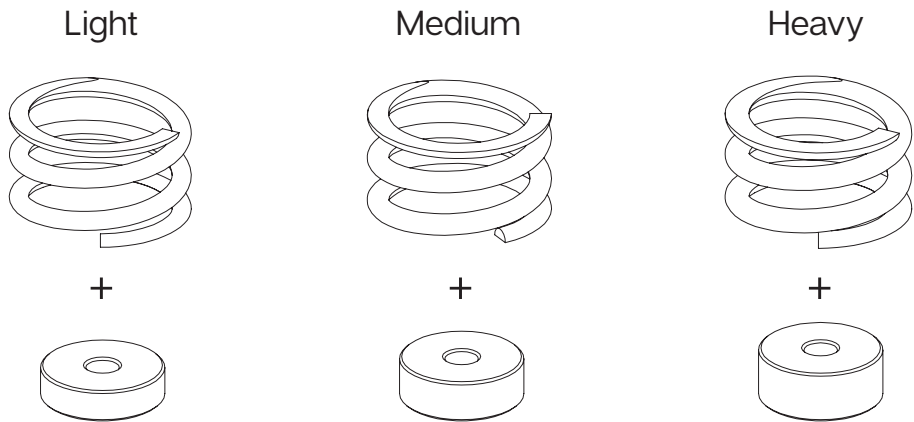
We recommend to match your max pressure to the elastomer rating. We expect you to run lower pressures with the 50A, this ensures its durability.

We also supply you with different preload springs to adjust the feel of the preload. The medium strength one is fitted. When a springs seems to make a sound when compressed after swapping, rotate (only) the spring a quarter turn or until the sound goes away.



These preload springs have buffers to prevent them from fully compressing. The hard buffer out of the set (A9) can also be used to replace a preload spring altogether.

Here are the correct combinations between springs and spring buffers. By default, the medium pair (spring+buffer) should be installed. If not, they are in their own bag along with the springs.



Brake calibration

While the throttle and clutch are pretty straight forward, the brake is a bit more involved when it comes to calibration. We will touch on the electronical side of this on Page 16 in this manual.

On Page 9, we already described the use of the adjustment holes. This not only works for the throttle and clutch, but this is an important part of the brake calibration in a mechanical sense.

If you find yourself near the 100% mark while calibrating, we strongly recommend to use the top adjustment hole on the pedal arm. This allows you to exert the force you favor on the pedal, without putting so much strain on the loadcell and other parts involved. Also, we recommend to fit the strongest preload spring, the 70A elastomer and the appropriate (lowest) spring buffer.

This should ensure you are free to push hard on those brakes, while keeping some headroom for the pedal to breathe.

Clutch (sold separately) configuration

We hardly mentioned the clutch in this manual so far. Let's change that.

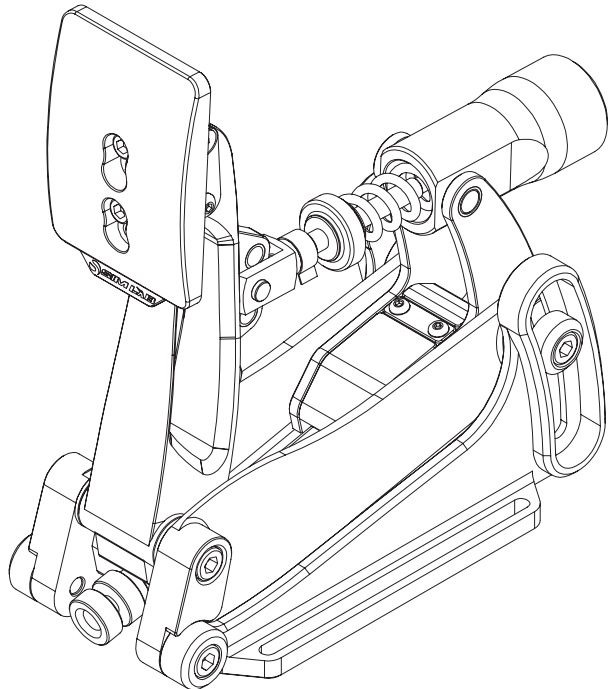
The clutch shares all base parts with the brake and mostly the throttle pedal. It does have an additional (heavy) spring and travel is adjustable to a point.

This is the only pedal which we limit to only using the top two adjustment points on the pedal arm. Because of the swiveling pivot part, we do **not** support the lowest adjustment hole. For the middle hole, a small adjustment in maximum travel is required. This is to make sure the clevis fork does not collide with the pedal arm.

The bitepoint is determined by which adjustment hole is used and the travel the pedal is allowed. We suggest using the maximum travel that is mechanically possible for this pedal, within the allowed adjustment range.

When adjusting the adjustment knob for spring tension, please be mindful that at full travel it doesn't collide with the pivot.

We recommend to make adjustments in small increments to make sure no parts collide with each other.



Control box

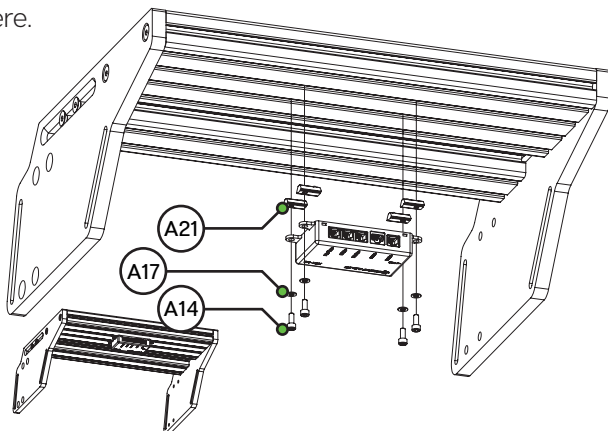
Installation

The mounting tabs are suited to a 80x40 pattern so they can be mounted almost everywhere near your pedals. Here we chose to mount the control box underneath a profile based pedal deck found on our P1-X and X1-Pro cockpits.

Using the hardware provided the control box won't go anywhere. Don't overtighten the M5 bolts, the control box doesn't go anywhere.

Connected the cables to and from the pedals as labeled. We recommend taking some time for cable management.

Please refer to the included quick start guide for more information about mounting the control box.



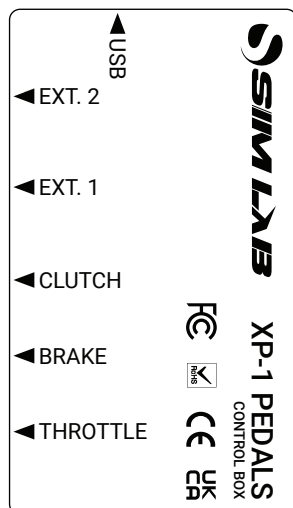
Plugging in the pedals

All pedals are plugged into the control box the same way. All inputs are labeled, for reference, here is top-down drawing with the same information as found on the box.

Every pedal uses the same connector, so you don't have to worry about mixing up the cables or anything. They are all identical to each other.

When your computer is powered on during installation, please make sure you plugin the USB cable last. This ensures all connected pedals are calibrated correctly on the first connection.

When you have trouble calibrating pedals correctly, we recommend to reset the control box by unplugging the USB cable, wait a second or two and plug it back in. Now you can resume calibration of all pedals.

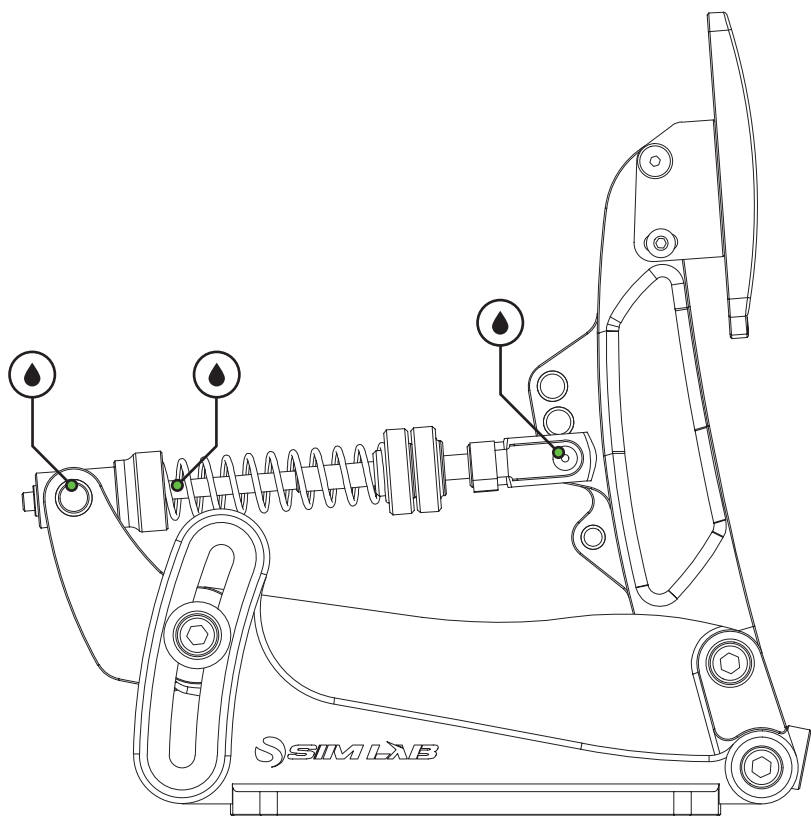


Maintenance

Although the pedal set has bronze bushings and teflon parts, some cleaning and lubrication will benefit performance and condition of your pedal set.

As for lubrication (💧), we generally recommend WD-40 Specialist White Lithium Grease to lubricate moving parts (rotating and sliding). Also, do not forget the spring bolt which also sits in a bushing on the pedal arm.

This doesn't take much time and effort at all but goes a long way into enjoying your pedal set for many hours on the virtual track to come.



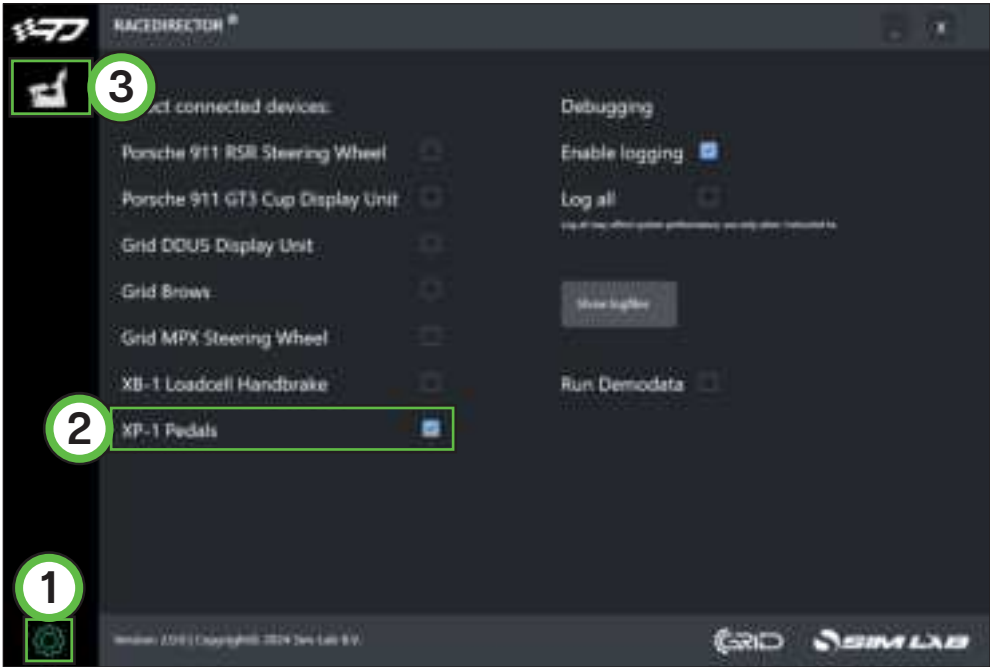
RaceDirector

Download and install the latest version of RaceDirector from www.sim-lab.eu/srd-setup

For explanation on how to install and use RaceDirector, please read the manual. This can be found here: www.sim-lab.eu/srd-manual

We will now go over the very basics to get going using RaceDirector to get you on track asap. We really urge you to go through the manual for a more in depth explanation of the possibilities RaceDirector has to offer.

First we need to activate the product, this is done on the 'Settings' (1) page.



Tick the 'Activate' tickbox next to 'XP-1 Pedals' (2) and its icon (3) should appear on the left side of the screen. Selecting the icon (3) will take us to its device pages.

Device pages

CONTROLLER (A)

The device page for the pedals allow you to calibrate (1), adjust the graph and adjust deadzones (2). We will focus on the middle column in this example, as their functionality is identical:



Calibration

- Press 'Calibrate' (1) for the device to enter calibration mode.
- Press the pedal to the maximum travel or force, release, press 'Finish calibration' when done.
- We recommend to dial some deadzone (2) on both sides of the spectrum. This way when you're not touching a pedal, it can't provide an unwanted input.

From RaceDirector V2.4.0 onwards , we are showing a % while calibrating the brake pedal. This makes it easier to re-calibrate a little under or over 100% brake force. Let's say you calibrated your brake pedal to your liking. During driving you find that you'd like a bit more, or a bit less input. Now when you press 'Calibrate' you can simply only push to 96%, or to 105%. Let's say you went for the 105%, so you need to push a bit harder. This can be adjusted again, but keep in mind, the % shown is a 0-100% of the calibrated value in memory. So if you want to reduce brake force, always choose a value smaller than a 100%.

Graph

This is where most of the device page for this product type revolves around. The curve in the graph can be adjusted to your liking by manipulating 7 points. The first and last point are controlled by adjusting the deadzones (2). The middle five can be manipulated by clicking and dragging to really dial in your input.

As a means of providing a starting point, we provide three presets (3) which are Linear, Aggressive, Progressive.

- 'Pedal profile name' (4): The currently loaded profile, or create a new profile by changing the name.
- 'Save profile' (5): By pressing 'save profile' (5) you can save all settings.
- 'Default' (6): Use the drop down to select a profile.
- 'Load profile' (7): By pressing 'load profile' (7) you can load the selected profile.

SUPPORT (D)

If you run into trouble with your hardware, here are a few options to help you in finding a solution.



FIRMWARE (C)

On this page you can see the current firmware loaded on the wheel. If your firmware is out of date, we recommend to update it using our tool.



RaceDirector keeps tabs on current firmware versions. When it detects a difference, a notification ● will let you know more recent firmware has been detected.

Press 'Firmware update tool' (1) to download the tool.

For more information on how to use the tool, please see its documentation: sim-lab.eu/firmware-updater-manual

Bill of materials

THROTTLE AND BRAKE SET			
#	Part	QTY	Note
A1	Brake pedal	1	
A2	Throttle pedal	1	
A3	Control box	1	
A4	Pedal cable short	2	30cm.
A5	Pedal cable long	2	75cm.
A6	USB-C cable	1	
A7	Elastomer set	2	50A, 70A.
A8	Brake preload spring set	2	Light, Heavy.
A9	Brake preload buffer set	1	
A10	Throttle spring heavy	1	
A11	Bolt M6 X 30 DIN 912	10	
A12	Bolt M6 X 20 DIN 912	10	
A13	Bolt M5 X 25 DIN 912	2	
A14	Bolt M5 X 12 DIN 912	4	
A15	Washer M6 DIN 125-A	20	
A16	Washer M5 DIN 9021	2	
A17	Washer M5 DIN 125-A	4	

#	Part	QTY	Note
A18	Lock-Nut M6	20	
A19	Lock-Nut M5	2	
A20	Slot-Nut M6	10	
A21	Slot-Nut M5	4	

CLUTCH			
#	Part	QTY	Note
B1	Clutch pedal	1	
B2	Clutch spring heavy	1	
B3	Bolt M6 X 30 DIN 912	4	
B4	Bolt M6 X 20 DIN 912	4	
B5	Washer M6 DIN 125-A	8	
B6	Lock-Nut M6	4	
B7	Slot-Nut M6	4	

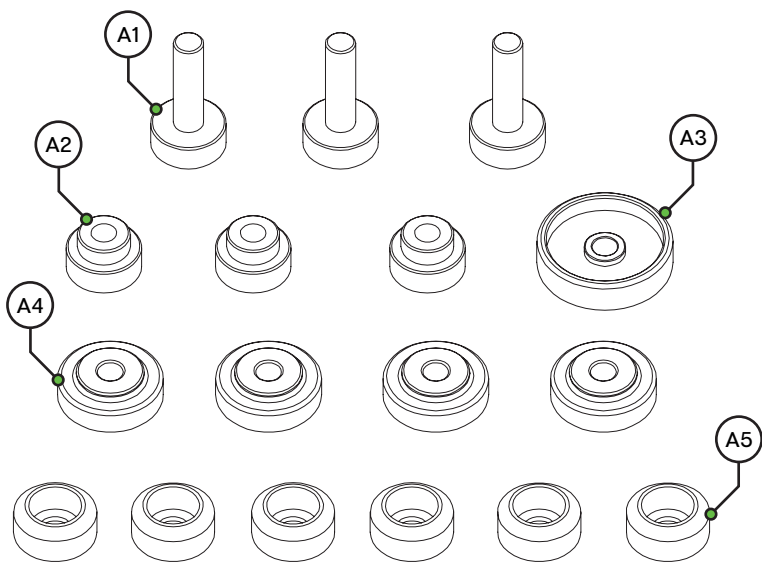
Accessory: Black conversion kit

Our 3-Pedal Set Black Edition was limited to only having black parts. Although our iconic blue parts are adding to the unique look and feel of our pedals, we listened to our customers who requested the black parts.

Packaged are enough parts to convert a 3-pedal set.

Installation

Simply remove all blue parts from your pedals and replace with their black version.



Bill of materials

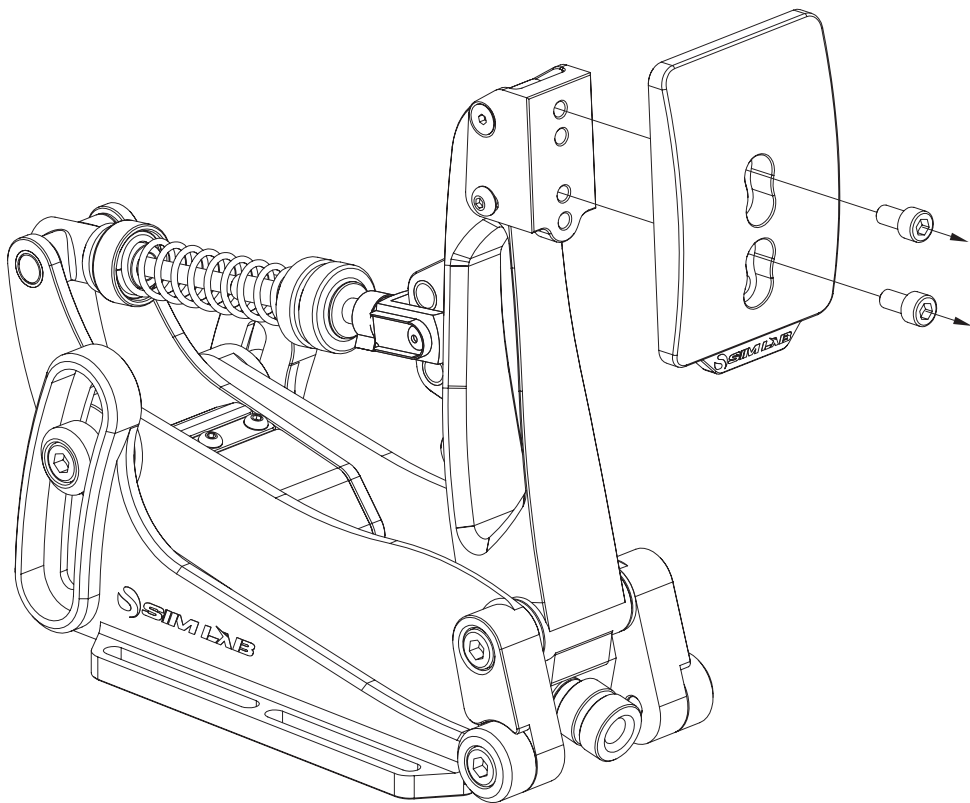
BLACK CONVERSION KIT			
#	Part	QTY	Note
A1	Travel Adjustment Knob	3	
A2	Travel Locking Knob	3	
A3	Adjustment Knob	1	Brake only
A4	Locking Knob	4	
A5	Capwasher M8	6	

Accessory: Foot Support

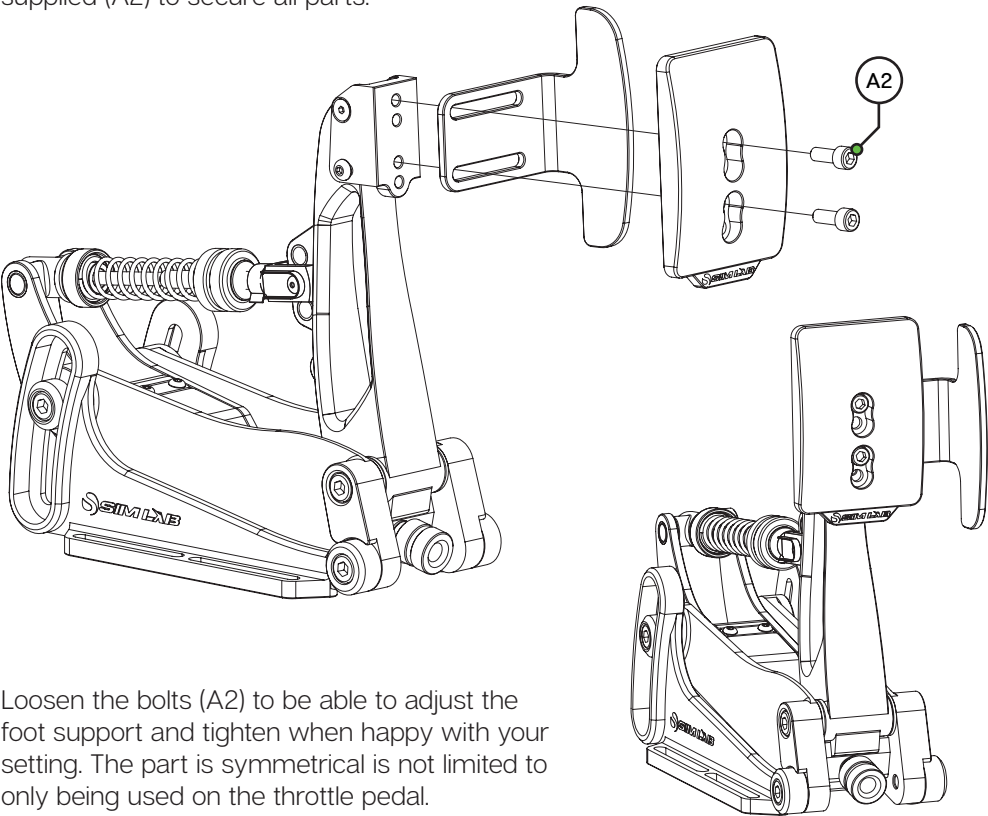
To allow a more secure foot placement on the throttle pedal, we offer foot support. This will be installed between the pedal face and pedal arm.

Installation

Simply remove the two bolts and the pedal face.



Add the foot support between the pedal arm and pedal face. Use the new bolts supplied (A2) to secure all parts.



Loosen the bolts (A2) to be able to adjust the foot support and tighten when happy with your setting. The part is symmetrical is not limited to only being used on the throttle pedal.

Bill of materials

FOOT SUPPORT			
#	Part	QTY	Note
A1	Foot support	1	
A2	Bolt M6 X 16 DIN 912	2	

More information

If you still have some questions regarding assembly of this product or about the manual itself, please refer to our support department. They can be reached at:

support@sim-lab.eu

Alternatively, we now have Discord servers where you can hang out or ask for help.

www.sim-lab.eu/discord

**Product page on the
Sim-Lab website:**

