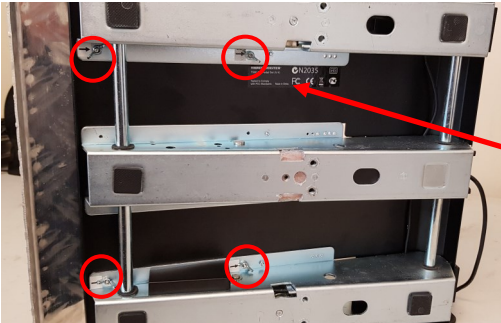


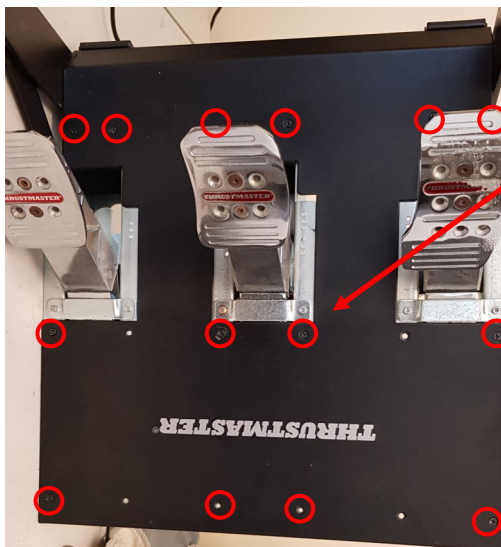
# INSTALLATION MANUAL FOR ALL MODEL LOAD CELL KITS

## THRUSTMASTER T3PA-Pro (ELC-5) load cell.



### Step one:

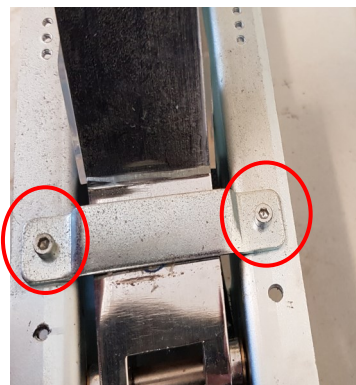
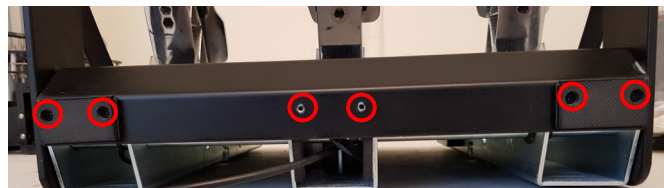
Remove the 4 screws holding the checker plate to the main base by holding the wing nuts and remove the plate and put it aside.



### Step 2:

Remove 14 screws holding the top cover to the base.

Remove 6 screws on the rear of the pedals and put the cover plate aside.



### Step 3:

Before removing the screws holding the pedal stop bar turn the pedals over and remove the locking nuts then loosen one screw and remove the second screw completely.

To help removing the screws push down on the brake pedal to relieve tension, as soon as the screw is removed swing the pedal stop bar around and allow the pedal to fold back over itself and let it lay out of the way.

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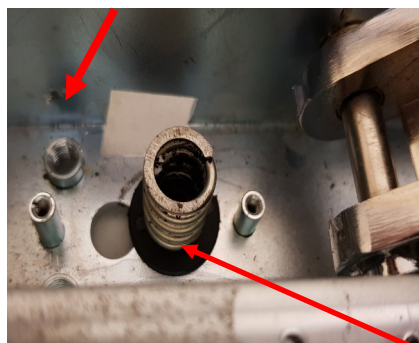
**Step 4:**

Remove the large spring and put aside as it will be reused in this mod.

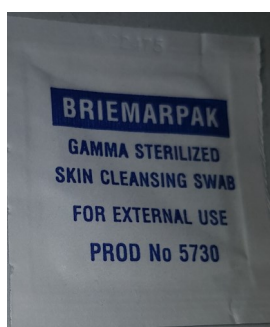
A. Turn over the base and remove the small screw that secures the spring and spring holder to the base.

B. Remove the spring holder.

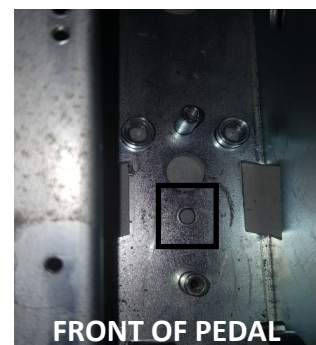
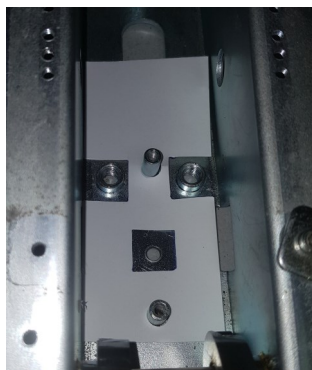
Spring holder and screw



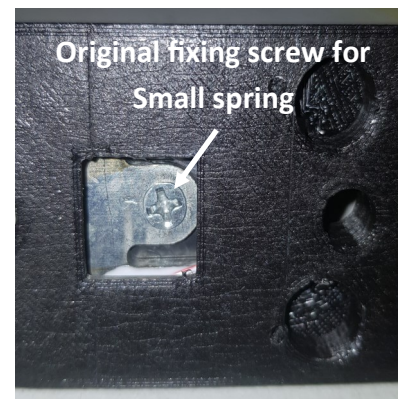
**Step 5.** Clean (alcohol wipe) the base of the pedal around the area of the hole where the small spring was secured with the screw.



**Step 6.** Place the template card over the locating lugs if it does not quite fit simply push it over the pins anyway. Draw a square box with a pen/pencil around the spring mount hole.



**Step 7.** Remove the tape from the rubber block and stick the it over the square drawn on the pedal well. Attach the small spring and holder using original screw to the load cell.



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Step 8. Install the load cell body into the “pedal well” by lining up the two pins in the pedal base with the holes in the load cell body. Re-install the large spring over the small spring and lower the pedal back down and secure with pedal retention bar.

Step 9. Now feed the small cable (RJ12) from the control box through the gap behind the pedals and plug it in to the back of the load cell body.

**WARNING**—make sure you keep the large spring central on top of the load cell, misalignment can cause very erratic readings when trying to calibrate the load cell in the software.

Now go to page 7: “CONTROL BOX SETUP” to finish the installation.

**TROUBLE SHOOTING & DISCLAIMER ARE ON LAST PAGES**



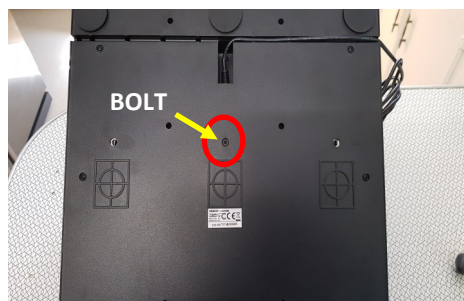
# T3PA (standard) 50 Kg load cell kit.



## TOOLS NEEDED



## Installation Instructions

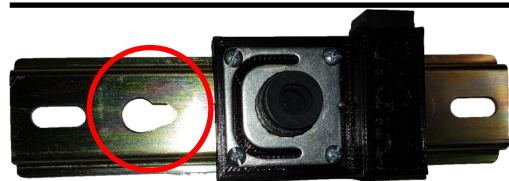


Loosen the lock nut on the back of the bracket. Remove rubber block from the bracket and place aside as it will not be used in this mod.

Re-fit the bracket back into the pedal base and tighten the bolt firmly.

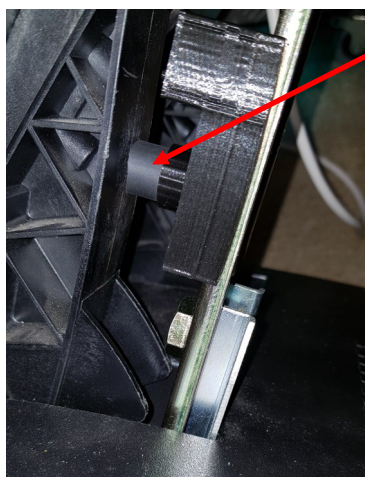


**STEP 1.** Using the allen key supplied with your T3PA pedal set, remove the bolt holding the “Conical Brake Mod” bracket.



**STEP 2.** Line up the hole in the Load cell bracket with the hole in the conical brake mod bracket and install the supplied 10mm bolt and tighten fully.

Ensure the bolt is tight and the bar sits upright in line with the pedal, the rubber block should be positioned central to the back of the pedal face.



## RUBBER BLOCK

The rubber block needs to be shortened to suit your preference. The best rubber we have found so far is a 14mm dia. Spear Gun rubber.

A larger diameter Spring would work well wrapped around the rubber block. We have intentionally made this part of the build customizable to allow the user to tweak the kit to obtain the ultimate driving experience.

**THAT'S IT YOUR DONE!!!**

Now go to page 7: “CONTROL BOX SETUP” to finish the installation.

**TROUBLE SHOOTING & DISCLAIMER ARE ON LAST PAGES**

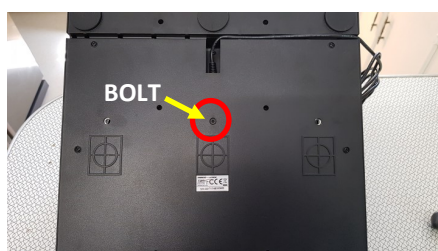
# T3PA 20 Kg load cell kit.



## TOOLS NEEDED



## Installation Instructions



**STEP 1.** Using the Allen key supplied with your T3PA pedal set, remove the bolt holding the “Conical Brake Mod” bracket.

Loosen the lock nut on the back of the bracket. Remove rubber block from the bracket and place aside as it will not be

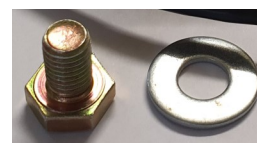


be used in this mod.

Re-fit the bracket back into the pedal base and tighten the bolt firmly.



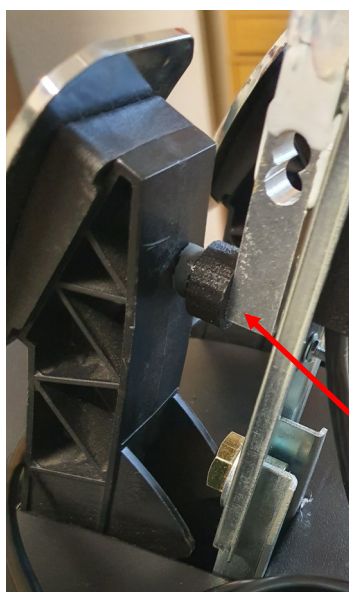
Now find the 10mm Bolt and large washer from your kit and proceed to next step.



**STEP 2.** Line up the hole in the Load cell bracket with the hole in the conical brake mod bracket and install the supplied 10mm bolt and washer —tighten fully.

Ensure the bolt is tight and the bar sits upright in line with the pedal, the rubber block should be positioned central to the back of the pedal face.

**STEP 3.** Grab the original pedal cable and plug into the socket on the RHS of the load cell then coil up the cable and tie with provided nylon tie.



**STEP 4.** Run the cable attached to the load cell kit and run it to your wheelbase and plug into the pedal socket behind the wheelbase.

**STEP 5.** Remove the red tape from the double sided tap attached to the adjustment controller and stick in a convenient location behind your wheelbase.

## RUBBER BLOCK

The rubber block may need to be shortened to suit your preference. The best rubber we have found so far is Spear Gun rubber.

**THAT'S IT YOUR DONE!!!**

Now go to page 7: “CONTROL SETUP” to finish the installation.



# T3PA-Pro (Plug & Play) load cell



## TOOLS NEEDED



## Installation Instructions

### T3PA-PRO



CONICAL RUBBER BRAKE MOD

1. Using an allen key remove the screws holding the "Spring or Conical Brake Mod" bracket to your pedals.



2. Remove everything off the brake mod until you are left with just the bracket.

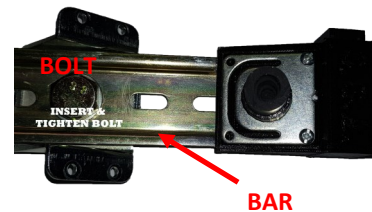
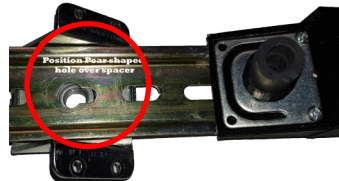
3. Place the spring washer or spring spacer block over the hole in the bracket before attaching the bar on to the bracket.



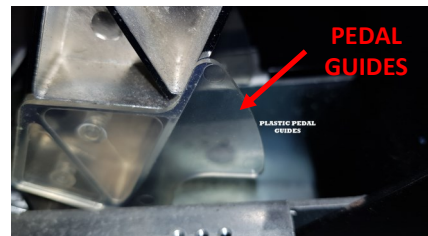
PLEASE NOTE: Latest kits are now supplied with a spacer block with a spring washer insert.

Spacer block  
Spring washer.

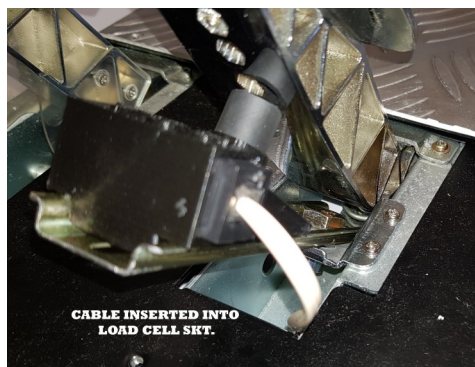
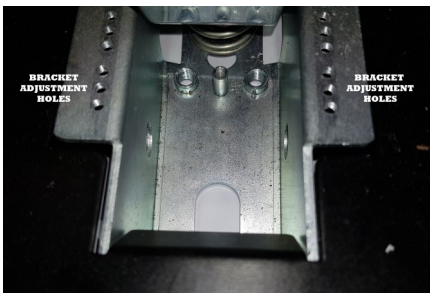
4. Insert the 10mm bolt through the bar and spacer and screw the bolt until fully tightened. Make sure the bar is sitting straight.



5. In some pedal models you may be required to remove the clear plastic pedal guides (if fitted), only if the guides foul the pedal movement against the load cell bar.



6. The position of the load cell relative to the pedal can be adjusted using the 3 screws either side of the brake pedal in the T3PA-Pro pedal base. These holes were used to position the Thrustmaster brake mod. Using the screws for the brake mod bracket secure the load cell and bracket back into the base



CABLE INSERTED INTO LOAD CELL SKT.

### RUBBER BLOCK

The rubber block included in your needs to be shortened to suit your preference or replaced with whatever you can find.

The rubber block needs to be cut to length to suit what pedal travel is desired and dependent on which mounting hole position in the pedal well you select.

The rubber block is a 14mm dia. Spear Gun Rubber Cord cut to length.

A larger dia. Spring over the rubber block may help as well. We have intentionally made this part of the build customizable to allow the user to tweak the kit to obtain the ultimate driving experience.

**THAT'S IT YOUR DONE!!!**

Now go to next Page: "CONTROL SETUP" to finish the installation.

**TROUBLE SHOOTING & DISCLAIMER ARE ON LAST PAGES**

**MORE ABOUT**

## PLUG AND PLAY (RUBBER BLOCK)

**All versions of Thrustmaster pedals.**

There is a short piece of rubber held in place by a 3D printed cup that has intentionally been made longer than you require and needs to be trimmed to your desired length to customize the distance between the load cell and the back of the pedal. If the type of rubber is not to your liking simply find and use any substitute that is 12mm in diameter and toughness of the rubber you may prefer.

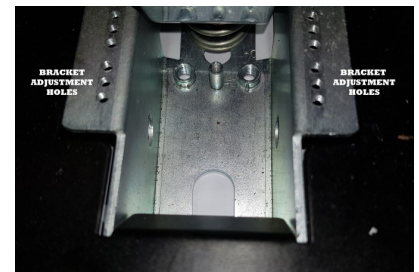
The best rubber found so far is spear gun rubber as it provides a springiness and strength to actuate and protect the load cell. If you find a better solution please contact me via the contacts page on [simgearau.com](http://simgearau.com), include any links to where you found the rubber.

**Please note:** There are slight variations in the Thrustmaster manufacturing of their pedals and problems have risen by providing a fixed length rubber block. If we issue a kit with a fixed short length of rubber and your pedals set does not quite match our pedal set the rubber may be either too long or too short causing possible problems.

**The rubber block can be cut with a pair of scissors.**

### T3PA-Pro Pedals.

There are 3 sets of threaded holes in the pedal base which were used to position the conical rubber mod against the back of the pedal face. By adjusting the correct length of rubber you can also adjust the dead zone distance and pedal throw for those drivers that like to rest their left foot against the pedal while driving.



## ADJUSTMENT CONTROL

The adjustment control box is common to all models and is the same to setup for all load cell kits. The box has a control knob used to calibrate the pedal strength or sensitivity.

1. Mount load cell as per above instructions.
2. Run the cable to behind your wheelbase and mount the small box at that position. Then plug the connector into your wheel base pedal socket.
3. Plug the original Thrustmaster pedal cable into the socket on the back of the load cell control box then gather the extra cable and wrap with the provided nylon tie in your kit.

There is a length of double sided tape attached to the underside of the control box to enable the box to be mounted near or on your rig or table. Some model have mounting holes in the control box for you to screw into your table.

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# LOGITECH LOAD CELL INSTALLATION MANUAL

8



Tools required to install your Logitech load cell kit.

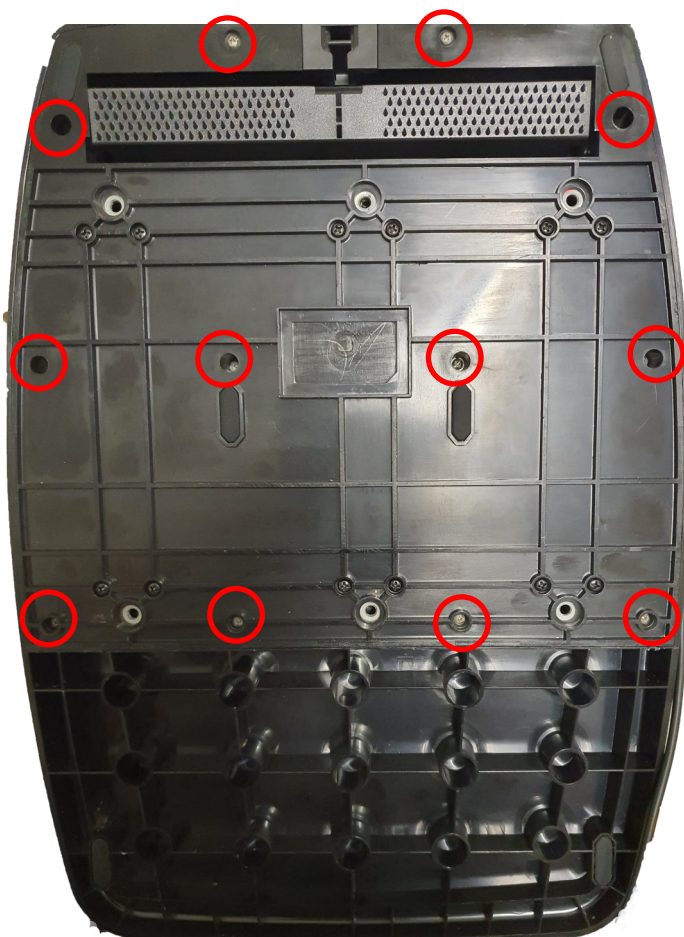
Medium sized phillips/star screwdriver

10mm open ended/ring spanner

2.5mm and 5mm allen key

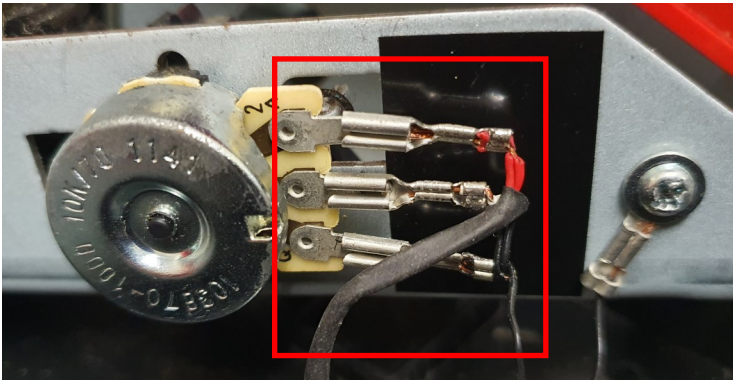


Using a 2.5mm allen key remove the 6 screws attaching the pedal faces and plastic inserts to the pedal arms and place in a safe location to be reused later during reassembly.

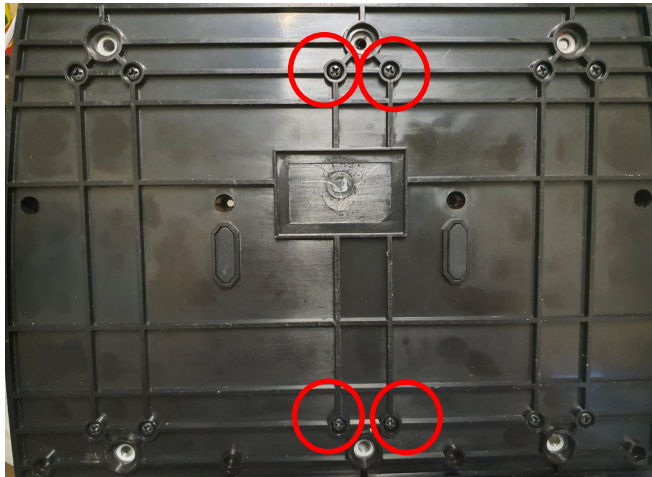


Remove the 12 screws that attach the base to the top cover and place in a safe location to be reused later during reassembly.

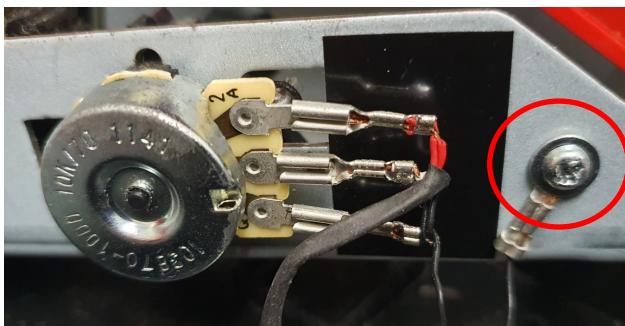




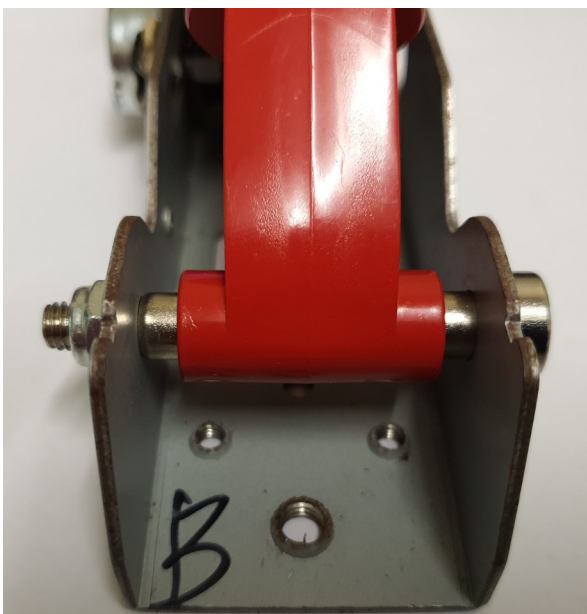
Carefully remove the 3 connectors from the potentiometer. (note wire colours)



Unscrew the 4 screws securing the brake pedal base to the bottom pedal base



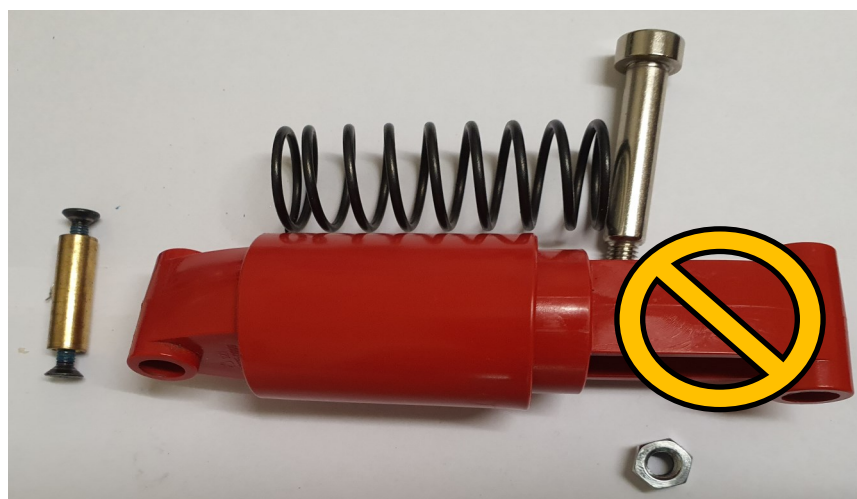
Carefully turn over the bottom base holding the brake pedal base and remove the ground wire from the pedal base using a small star screwdriver.



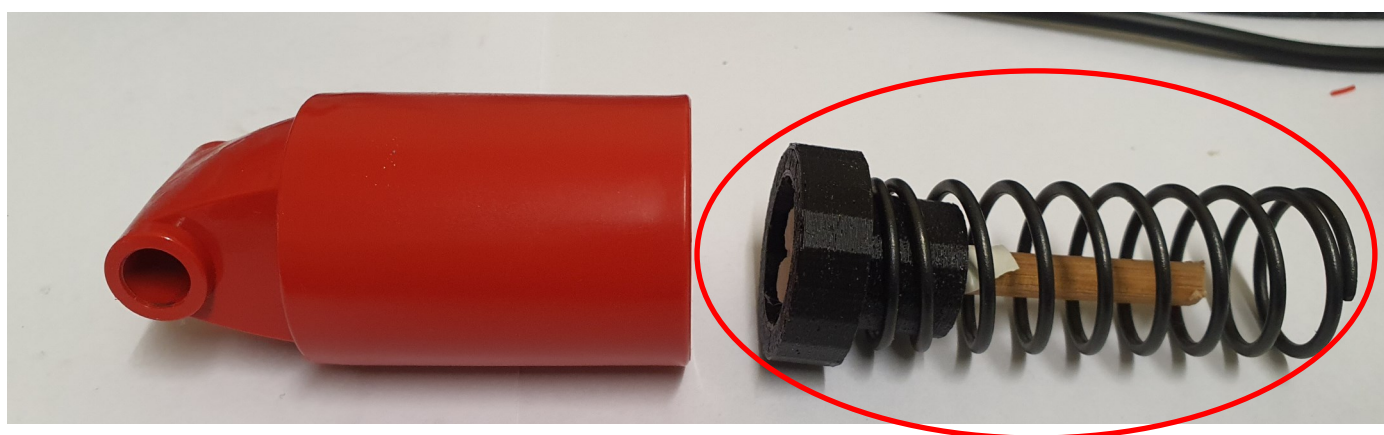
Remove the lower arm bolt using a 5mm allen key and 10mm ring spanner and remove the spring and rubber block out of the red/black lower casing. Keep the large spring as it will be used in the reassembly process.



Using the small allen key remove the 2 allen screws from either side of the pedal shaft.



Complete removed assembly, in later models of pedals you may also find a small rubber block that is used to simulate a progressive brake pedal. (the rubber block and lower casing is not required to complete the reassembly of the pedals.

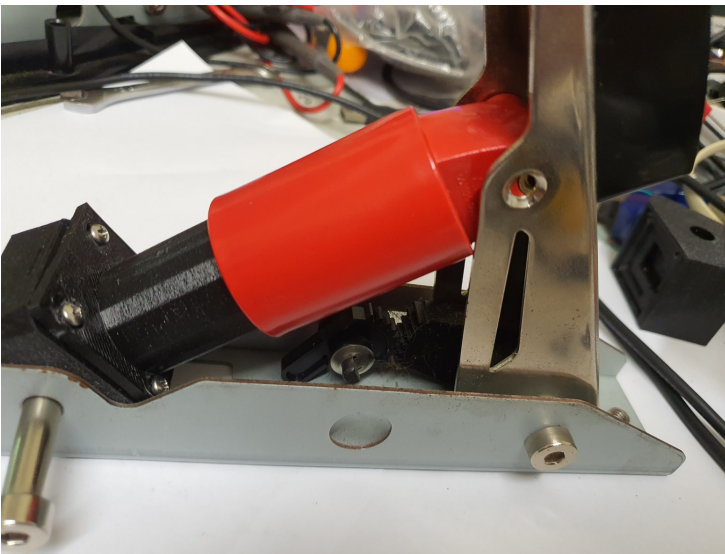


ASSEMBLE SPRING AND PLUNGER AS PER PICTURE ABOVE.

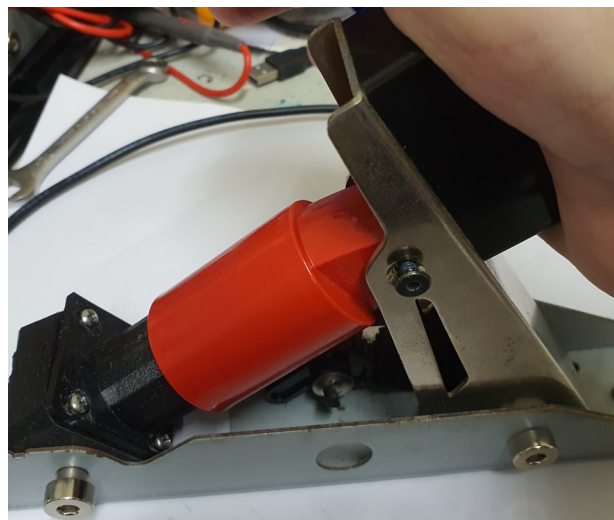




Insert into main load cell body.



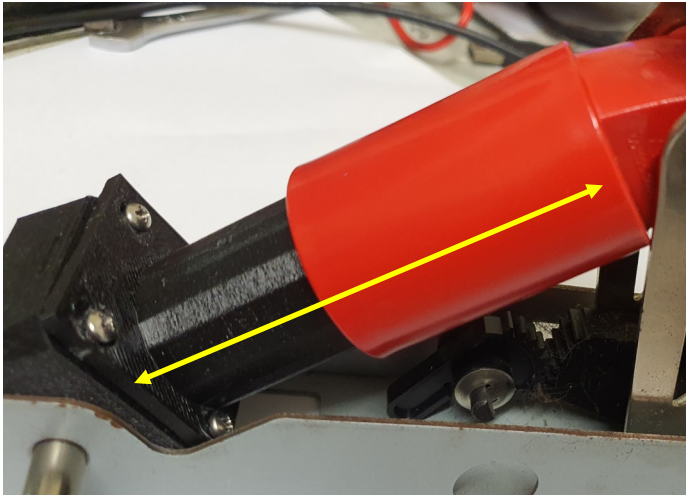
Insert complete load cell assembly into the brake pedal channel and insert the main bolt into lower section and add the nut a few threads to start with.



Before Inserting the 2 x 2.5mm allen bolts into the top of the load cell assembly **\*\*DON'T\*\*** forget to re-insert the brass threaded spacer into the top red/black Logitech cylinder.

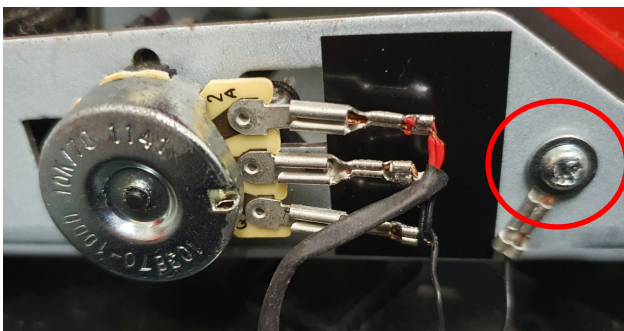
When assembly is loosely in position press down on the pedal spacer block to make sure the load cell assembly is working. If you are happy with the operation then tighten the top bolts.



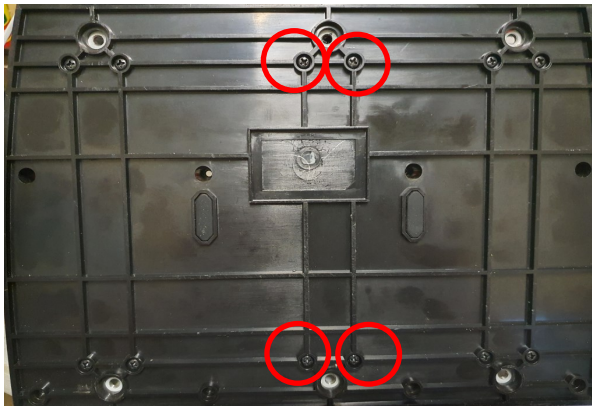


Before tightening the lower main bolt make sure the two halves are lined up in a straight line . When you are satisfied that the two halves are in alignment tighten up the lower bolt.

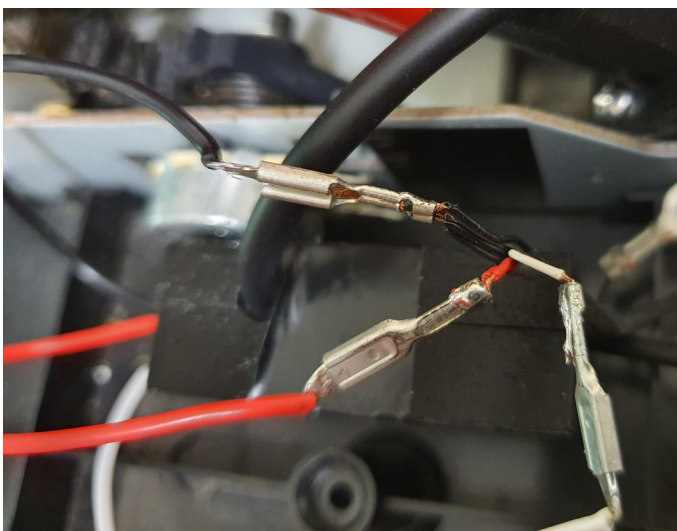
**Do not overtighten.**



Re-fit the ground wire.



Re-mount the brake pedal assembly into the pedal base and screw back into place.

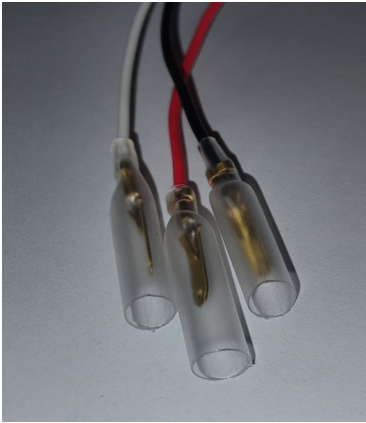


Connect the 3 wires from the load cell control box matching colour for colour.

RED to RED

WHITE to WHITE

BLACK to BLACK



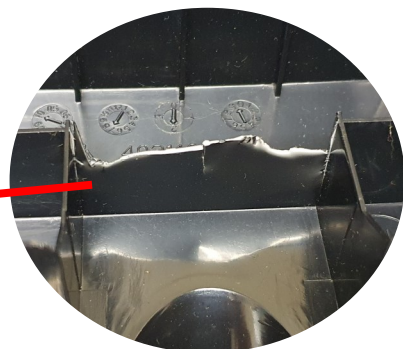
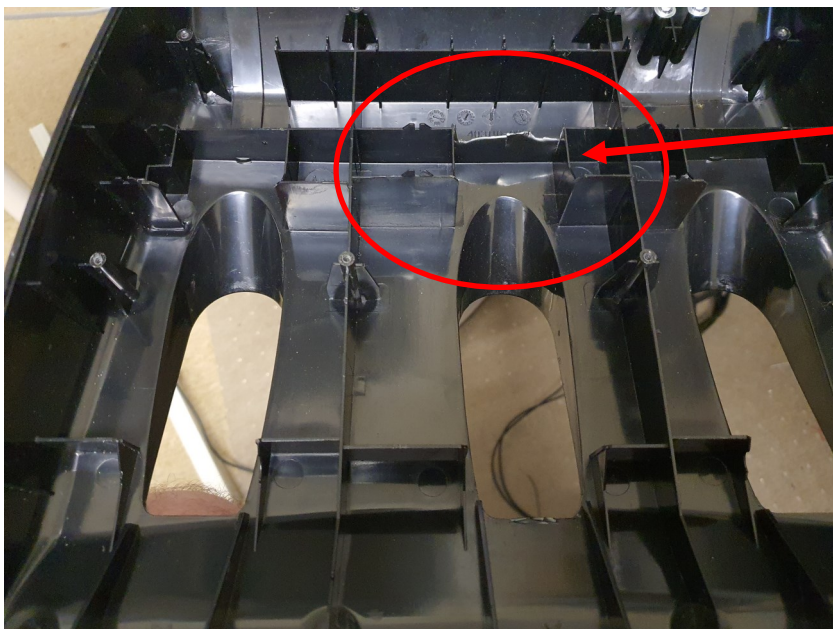
Once wires are joined pull the clear plastic over the entire connection and gently apply heat (heat gun or lighter) to shrink the plastic to protect and insulate both sides of the connection.

Remove the red tape (double sided tape) and stick the load cell control box to the pedal base, place as close as practicable to the existing brake potentiometer. The three wires should face forward and the small load cell cable faces to the rear.

### MODIFY THE TOP COVER OF THE PEDALS



Enlarge the gap in the cable entry position to accommodate two cables.



Keep cropping until top cover fits without fowling the top of the load cell main body.

Run the existing pedal cable and the calibration adjustment cable up to and behind the wheelbase.

Plug the pedals back into the wheelbase and find a suitable location for the calibration adjustment control box which is convenient to enable on the fly brake adjustments while seated.

## GAME SETUP

Game setup is more a personal preference and is not the same for everyone. The things to keep mindful of the pedals although are made of metal are susceptible to stress and strain. The load cell mod and rear pedal parts are made of plastic and are prone to breakage if too much pressure is applied to the pedal.

As immersion is the name of the game there is no need to adjust the pedal movement in such a way that there is a need for excessive pressures to obtain the correct immersion.

Due to the nature of the load cell you may not achieve full calibration and depending on the wheelbase and game settings you may need to adjust the pedals so there is a small amount of movement at the beginning of the pedal travel to achieve full scale.

If this is the case simply add a small amount of dead zone to cover the beginning of the pedal travel.

In some games the small fluctuations at the beginning are not noticed anyway. If you are using a USB adapter then it is highly recommended that you calibrate the pedals in the windows joystick manager prior the setting up your game.

Always calibrate your games prior to using the pedals, it only has to be performed once and will not change again unless you recalibrate.



The potentiometer on the load cell control box is used to calibrate the pedals to the game, on PC you can use the Thrustmaster/Logitech driver software to help you. By turning the knob in either direction the sensitivity of the pedal can be changed to suit your taste.

To adjust the load cell calibration push the pedal until it is firm and hold, then rotate the adjustment knob until you get full scale deflection on the game/driver control options panel (see example pic below). There is no need to push any harder on the pedal as the load cell only requires microns of movement to push harder only achieves a broken load cell plate.

It is advised console owners install the associated wheelbase PC driver on their PC or Laptop plug the wheel USB cable into the PC/Laptop place the wheel into PC mode, calibrate the pedals using the driver control panel when calibration is complete plug the wheel back to your console and start playing.

### **PLEASE NOTE: (reminder)**

**This manual is constantly being upgraded and updated so if you downloaded when you first initially purchased and now ready to install your newly arrived kit check the web page prior to beginning your project.**

### **Disclaimer:**

All load cell kits leave fully tested using workshop testing and in actual simulation on a PC. Any damage (including broken wires) caused by poor installation practices or abuse while operating the load cell mod during game play is not the responsibility of BF Electronics or Sim Gear Australia.

The load cell kits will not interfere with electronics in the Thrustmaster / Logitech wheel bases as the load cell simply replaces the original potentiometer attached to the brake and will not damage a wheel base.

Return post is the responsibility of the buyer, if any kit returns to us that has been damaged especially due to too much force been applied the load cell will not be replaced free under any circumstances. If there is a failure of the electronics and is not due to abuse etc then the load cell kit will be repaired/replaced.

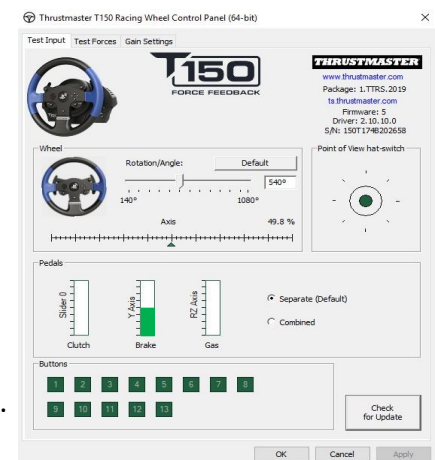
We will replace an undamaged faulty unit free of any cost including return post. Only "Dead on Arrival" and/or electronics failures at installation are replaceable.

Note: 1. Quality of finish on 3D printed parts varies, sometimes the print curls but will not interfere with the operation of the load kit after all the device is there to provide functionality not good looks as it sits behind the pedal anyway.

2. The metal bracket used in the plug and play versions is of heavy gauge. So if you have bent this bracket you need to revise how hard you push on the pedal and readjust the load cell sensitivity.

3. All effort has been done in the electronics to prevent fluctuations in the signal, if you experience fluctuations check your cables, connections or the installed environment where the kit has been installed.

[See details on last page of this manual](#)



## **TROUBLE SHOOTING PROBLEMS AFTER INSTALLATION**

I get many calls/emails from customers mainly regarding erratic movement and in 99% of the time its an installation, environment or a wheel base issue. I have taken great effort to provide a stable signal in the design of the Load Cell kits.

All kits are tested up to 4 times during assembly and a final test, installed on the actual pedals the kits are designed for in game—usually Project Cars and Assetto Corsa. Any kit displaying erratic behavior during testing go back to the bench for investigation so any manufacturing errors are repaired before been packed and posted.

At present our failure rate is near perfect and in 2 years have had no more than 5 returns and in those cases I missed something, repaired it and sent back. So when someone contacts me to say the load cell is not working I then send them an email/s with what to check, to save repeating myself I have decided to add this trouble shooting guide to the manual. If after checking the following items and still have problems then please contact me, and add some photos of the problem that can sometimes help .

### **THE FOLLOWING IS A GENERAL RANGE OF PROBLEMS ENCOUNTERED TO BE CHECKED:**

#### **ENVIRONMENT:**

Cables, especially 240Volt power cables running inline or near the pedals and cables can on rare occasions cause problems. There have been a few instances where the wheelbase power supply is not working properly (electronically noisy) and causes fluctuations in pedal behavior. Usually there are no problems with the clutch and gas pedals as they use analog potentiometers which are not as susceptible to noisy power supplies. Remember—The load cell uses a low voltage digital amplifier which is sensitive to line noise).

#### **CONNECTIONS:**

The most common cause is the Thrustmaster offset connectors that sometimes you need to unplug and re connect to get the connectors to seat properly especially at the wheelbase socket. The plugs used in the kit can not be obtained from Thrustmaster and have been sourced elsewhere— not sure if this is the problem but its worth trying as it works in about 80% of the complaints and in my testing.

Another factor is that the Thrustmaster wheelbases do not like the pedals removed and re-connected while powered on. I found this during testing on many occasions while building the load cell and everything usually clears. A sign of this, in most cases is the Gas and Clutch pedals do not travel (Thrustmaster driver screen) past 50-60%.

#### **OTHERS:**

In the case of the Thrustmaster T3PA Pro pedals try earthing the pedals to a good ground (PC Case etc). Should not make much of a difference but it might be worth a try.

With [Logitech](#) make sure you have aligned the aluminium shaft correctly so that it contacts the load cell plate.

### **ELC-5 MODEL ONLY:**

One major problem on this model is the position of the large spring under the pedal that rests on top of the load cell. If not in the correct position can cause major erratic behavior of the brake pedal. There is no set position for all pedals so it may take a little trial and error to get the correct position of the large spring.