



GTpro3 Gen2 Pedals Installation and Setup Guide



Features and Benefits

- Built using real Tilton 600 Series after-market automotive pedals
- Adjustable pedal stops for both ends of travel on throttle
- Magnetic Hall-Effect sensor on throttle pedal is contact-less for long life and high accuracy
- Brake can read up to 175lbs of pedal force
- Brake has exponentially increasing resistance like real brakes
- Brake pedal firmness is infinitely adjustable
- Brake designed to push back with hydraulic fluid rather than a spring
- Real master cylinder on brake and clutch with metal reservoir to eliminate breakage and leaks
- Industrial pressure sensor on master cylinders reads pedal forces with high accuracy
- Pedal adjustability as possible in a real car
- Remote sensor unit for brake has user-changeable resistance modules to tailor the pedal resistance
- Brake pedal has small initial dead zone typical of the master cylinder bypass valve closing
- Optional resistance modules provide different brake pedal resistance effects
- Microcontroller based Intelligent Pedal Control Unit (PCU)
- PCU firmware is upgradable
- Reads pedals 1000 times per second
- Up to 1,000 pedal updates sent to game per second (PC Limitation)
- Electronic adjustable dead zones and limits for all pedals
- Changeable response (linearity) curves for all pedals imitates characteristics of various brake pad compounds, clutch materials, and carburetor/throttle body responses
- Stores Profiles in on PC
- Baseline Settings Stored In Black Box EEPROM to work across all games
- Powered by USB
- For PC only
- Compatible with Win XP, Vista, 7, 8 and 10 (32- and 64-bit)
- Simple Installation
- Free Technical Support

Congratulations on your purchase of the most realistic sim-racing pedals available. This setup guide will help you get the most out of your new GTpro3 Xtreme pedals. Your GTpro3 pedals will provide you with all the adjustability that they would have in a real race car to provide you with the purest sim-racing experience possible.

About this Manual

As we continue to improve the design of the pedals, some photos may not reflect all the upgrades and therefore may differ from the product you receive.

Tools and Items Required for Installation (not included)

- Mounting bolts, nuts, and washers
- Drill and drill bits
- Screwdrivers and wrenches

Step 1: Getting Your Pedals Ready for Installation

Mount the slave cylinder to the mounting bracket as shown.

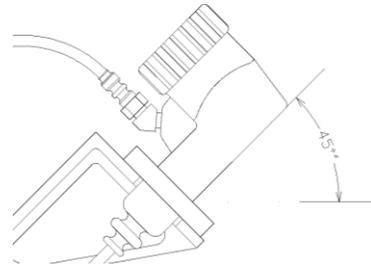


The brake pedal has been secured in the down position to prevent air from getting trapped at the pressure sensor during shipping. This is done to avoid the need to bleed the brake at the time of installation. Do not remove the strap yet.



Remove the “leak-prevention” stoppers from the reservoir and store them for transporting your pedals in the future.

Check that it is filled to about 30% capacity with fluid.



Set the pedal assembly tilted to 45 degrees, as shown, for a period of 5 minutes to allow any air bubbles to rise to the top of the reservoir. Remove the strap holding down the pedal and press on the pedal with your hand, the pedal should not move more than ¼ inch (6mm) before the stacking units begin to squeeze. Turn assembly upright and do not lay it sideways from this point forward.

If the pedal does move more than ¼ inch (6mm) without squeezing on the stacking units then air has made its way into the system during shipping. To remove the air, begin by removing the nuts that keep the stacking units in place (refer to figure 3 on next page) and putting the wing nut back on. Keep the pedal assembly tilted as indicated above and hold the remote sensor assembly below the height of the pedal. While holding the sensor assembly with the hose exiting straight up, pump the stacking unit shaft in and out with your hand about 5 to 10 times to flush any air bubbles to the reservoir above. Reinstall the stacking units and test the pedal, if the problem persists then repeat the steps above.

The pedal should also be pumped before any racing to prime the system and build up pressure in the system.

ATTENTION! The clutch reservoir ships empty and should remain empty at all times. This is intentional. Adding fluid will overload the sensor and will result in permanent failure.

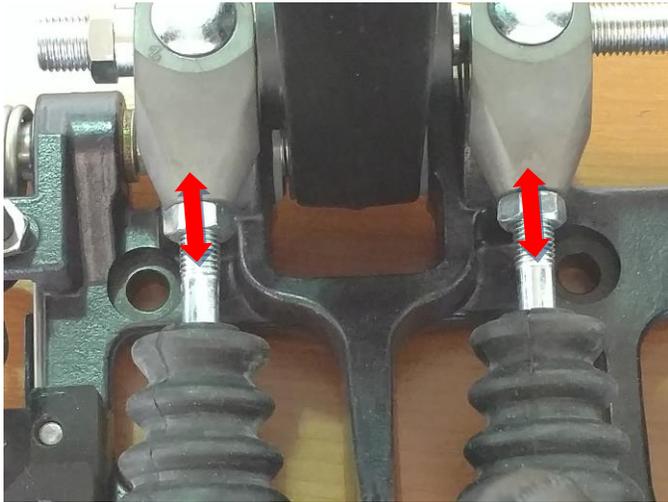
Step 2: Mounting Your Pedals

Ricmotech recommends hard mounting the pedals directly to your sim-racing chassis. The mounting positions suggested are only that, a suggestion. Please feel free to change the placement of the pedals to accommodate your preferred driving style.

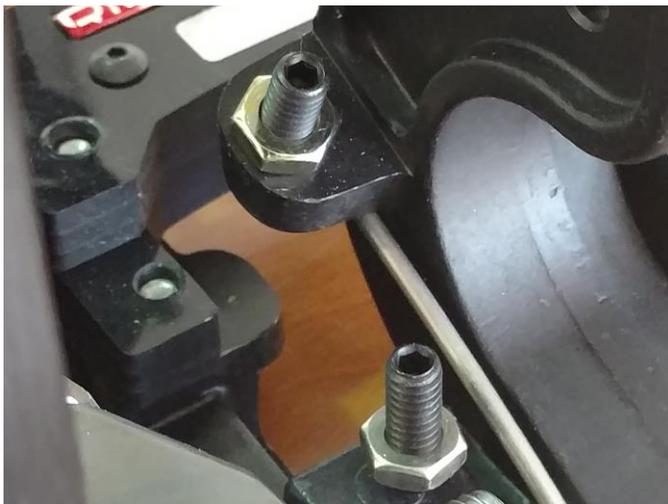
Pre-drill mounting holes in the floor of your racing simulator according to the template provided. Secure the pedals using 5/16 inch or 8mm thick bolts or screws (not included). Use nuts and washers to be sure the screws will not pull out.

Route the cables to avoid having them get pinched or chafed using the supplied cable straps. Mount the PCU in a location that is both out of the way and within reach of the programming switch.

The initial position of the brake pedal can be adjusted by threading the master cylinder rod into or out of the clevises. First loosen the jam nut and then rotate the master cylinder shaft. After you have reached the desired position tighten the jam nut to prevent it from moving.



The starting and ending positions of the throttle pedal can be adjusted by turning the stop screws located to the left of the throttle pedal. Turning clockwise will reduce the travel and counter-clockwise will increase the travel. Tighten the lock nuts when complete to prevent the settings from changing. Over-extending the pedal range is not recommended as it places additional strain on the spring which may cause them to break. The spring is a consumable item and replacements can be purchased as needed.



Similarly, the clutch pedal ending position can be adjusted by turning the stop screw located to the right of the pedal. Turning the screw clockwise will reduce the travel, while turning the screw counter-clockwise will increase the travel. Tighten the jam nut when the adjustments are complete to prevent the setting from changing.



When any adjustments are made to the travel of the throttle or clutch pedal, those pedals should be recalibrated by setting the new Absolute Min and Absolute Max in the SmartPanel software.

The pedal faces can be installed in one of 4 different positions vertically and 3 different positions horizontally. The height can be adjusted to two different positions by moving the pedal face to the other screw hole and can be set to 2 additional positions by flipping the pedal face upside-down. The holes are drilled off-center to allow four different positions.



Three different horizontal positions can be attained by moving the pedal to one of the other three mounting holes on the pedal arm.



Step 3: Making the Connections

Plug the pedals into the PCU as follows:

- Port A = Throttle
- Port B = Brake
- Port C = Clutch
- Port D = Hand Brake (Optional)
- Port E = (Spare for warranty purposes)

Windows will install its internal drivers. The pedals are powered from the USB port, no external power is required.

Step 4: Test Your Pedals to be Sure Windows has Installed Drivers Correctly

Windows XP, Vista, 7 and 10: click Start, type: **joy.cpl** and ENTER

On Windows 8 and 8.1 go to the Start screen, type: **joy.cpl** and ENTER

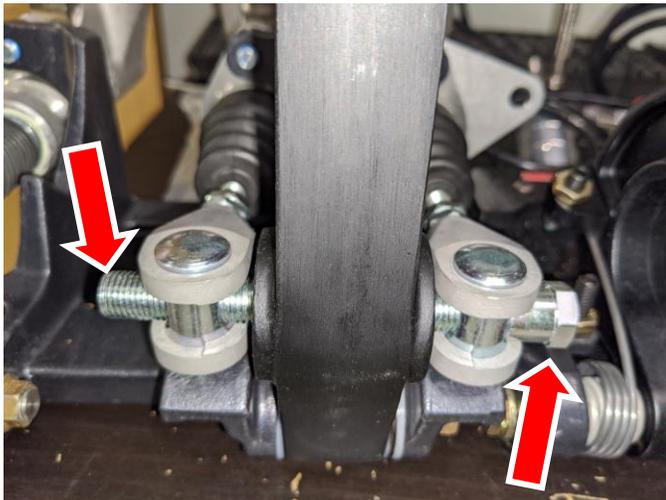
The Game Controllers panel will open and there should be a controller named GTpro Gen2, double click on it. A window with several axis and buttons should appear. Press each pedal in sequence and verify the X, Y and Z axis respond. If they do then Windows has properly installed the drivers and the data

is getting to the PC. There are other axis and buttons displayed in this window. Those are not used at this time but are there for future use.

If your Game Controllers panel opens but does not show any axis or buttons, please go to the next step. There is an unresolved Windows issue that may cause this. **Your pedals will still function in the game.** If you wish to resolve the issue and are comfortable navigating through the windows registry, then please contact Ricmotech support and someone will walk you through the steps to resolve this.

Adjusting the Brake Pedal Firmness

The firmness can be adjusted by turning the “bias” screw. Loosening the bias locknut and turning the screw clockwise will make the pedal firmer, while turning the screw counter-clockwise will make the pedal softer. It is possible to add a remote bias adjuster to perform this operation while sitting in the driver’s seat. Tighten the locknut when adjustments are complete to prevent the adjustment from changing.



It is recommended to first adjust the pedal firmness to your liking first, then calibrating the point of maximum braking electronically (100% braking).



An optional brake tuning kit is available for those that want to tailor the sensation of the brake pedal. The kit includes two soft bushings (orange), two medium bushings (black), and one hard spacer. When these are used in conjunction with the original bushings (hard red bushing and extra-hard black bushing) there are 10 combinations possible.

The pedals are set up so that the master cylinder on right is at its firmest, while the master cylinder on the left is set softer and can be adjusted by changing bushings. The “bias”

adjustment allows the user to make the pedal favor the soft side or the firm side. This is how infinite adjustability is achieved.

Open your favorite racing sim title and navigate to the controllers setup screen. Set the new axis for each pedal according to that software’s procedure. It is recommended to calibrate each pedal to its maximum and remove any linearity or other custom settings in the sim. The pedal PCU will allow customizations to be done and will be retained in the pedal PCU memory. The settings in the pedal PCU will work in every game. Setting custom settings in both the pedals and the game can yield undesired results.

Care should be taken when softening the brake pedal to be sure mechanism does not bind causing strain to the pedal and master cylinder assembly. In the fully pressed position be certain the knuckles do not bind against both sides of the pedal arm. The mechanism can slide side-to-side so at least one side needs to have clearance.

When placing the bushings on the slave cylinder, it does not matter in which position they are placed, the resulting firmness is the same. Use the table below to achieve the desired firmness, where 1 is the softest combination and 10 is the firmest combination.



Bushings Combinations		
Bushing 1	Bushing 2	Firmness Rating
Stepped Black	Hard Spacer	10
Stepped Red	Hard Spacer	9
Cylindrical Black	Hard Spacer	8
Cylindrical Orange	Hard Spacer	7
Stepped Black	Stepped Red	6 (Stock)
Stepped Black	Cylindrical Black	5

Stepped Black	Cylindrical Orange	4
Cylindrical Black	Cylindrical Black	3
Cylindrical Black	Cylindrical Orange	2
Cylindrical Orange	Cylindrical Orange	1

This pedal set has the ability to replicate the pedal firmness of various styles of race cars. There are many factors that affect the way a pedal should feel based on the type of car being simulated. In a white paper titled "Brake Systems and Upgrade Selection" published by Stephen Ruiz, Engineering Manager and Carroll Smith, Consulting Engineer at StopTech LLC, all aspects of a high performance racing brake system are discussed. The full document is available at:

<http://www.stoptech.com/technical-support/technical-white-papers/brake-system-and-upgrade-selection>

For our purposes, we are only interested in the section about brake firmness and modulation. Here is an excerpt as it applies to racing simulators:

BRAKE PEDAL FIRMNESS AND MODULATION

The human brain/body system modulates most effectively by force, not by displacement. The side control sticks on current fighter aircraft hardly move. The feel of the brake pedal should approach the firmness and consistency of a brick. There are several factors at work here:

- 1) Brake hoses: Optimum pedal firmness cannot be achieved with the stock fabric reinforced rubber flexible hoses which swell under pressure - decreasing pedal firmness while increasing both pedal travel and brake system reaction time. The first step in upgrading the braking system of any vehicle is to replace the OEM flexible hoses with. . .
- 2) Master cylinders and Caliper piston diameters: While it is true that the most effective master cylinder arrangement is the twin cylinder with adjustable bias bar that is universal in racing, replacing the OEM master cylinder on a road going car is simply not practical. When selecting an aftermarket system, make sure that the caliper bores are designed for the specific application.
- 3) Disc run out and thickness variation: Run out in excess of six thousandths of an inch (0.006") can be felt by the driver as can more than 0.001" of thickness variation and any amount of material transfer from overheated pads. Run out is caused by poor design of either vanes or the junction between the friction surfaces and the mounting bell, by poor machining, by thermal stress or by any combination of the three.
- 4) Caliper and caliper mounting stiffness: Clamping force tries to open the opposing sides of the calipers - resulting in a longer than optimum pedal travel and uneven pad wear. The only solution is optimal mechanical design and material selection - there is no effective development fix for "soft" calipers. . .