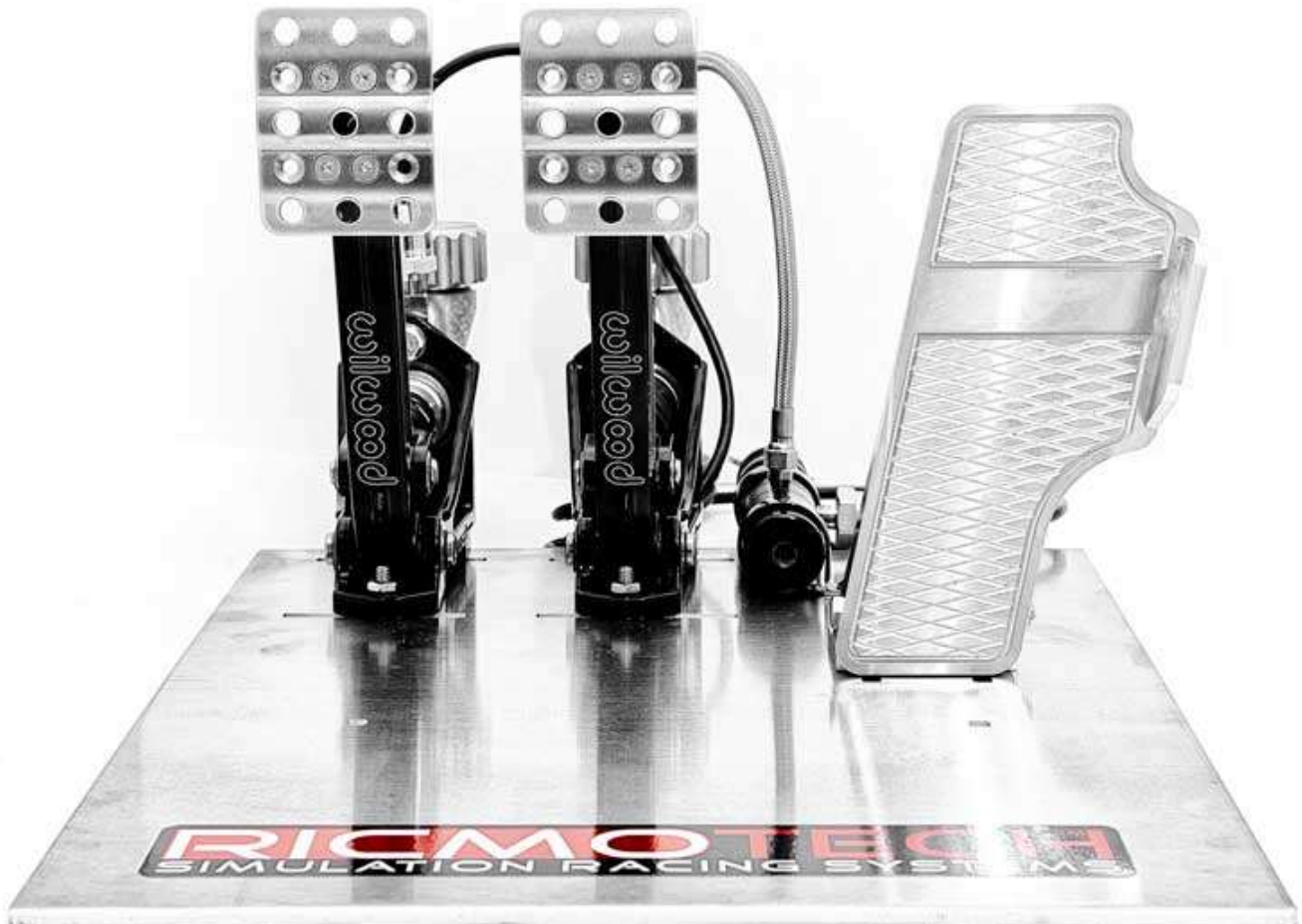




by **RICMOTECH™**

## GTpro1 Pedals Setup Guide

(all models)





## Features and Benefits

- Built using real after-market automotive pedals
- Brake can read up to 100lbs of pedal force, can be higher upon request
- Brake has exponentially increasing resistance like real brakes
- Brake designed to push back with hydraulic fluid rather than a stiff spring (spring can be added if desired)
- 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
- New 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
- Pedal Control Unit (PCU) designed to look like a race car 'black-box'
- Microcontroller based PCU with program switch and status LED (exiting the game is not required to make adjustments)
- PCU firmware is upgradable
- Reads pedals up to 15,000 times per second
- Up to 1,000 pedal updates sent to game per second (PC Limitation)
- Only updates PC when there are changes in pedal positions to conserve bandwidth
- Electronic adjustable dead zones and limits for all pedals
- Selectable response (linearity) curves for all pedals imitates characteristics of various brake pad compounds, clutch materials, and carburetor/throttle body responses
- Can Disable Clutch and/or handbrake to Optimize Processing
- Stores Five Profiles in Internal EEPROM
- All Settings Stored In Black Box EEPROM to work across all games
- Powered by USB
- For PC only
- Compatible with Win XP, Vista, 7 & 8 (32- and 64-bit)
- Simple Installation
- Unlimited Life-Cycle
- One Year Limited Warranty
- 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 GTpro pedals. Your GTpro pedals will provide you with all the adjustability that they would have in a real race car in order to provide you with the purest sim-racing experience possible.

Your pedals arrive to you fully filled and purged. The PCU (pedal control box) is calibrated for your pedals before shipping and are ready to drive after they have been mounted.

### About this Manual

This manual is written for all variations of RealGear pedals. Your pedals may vary from the ones shown in the photos and drawings, but the principles still apply. Also, 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)

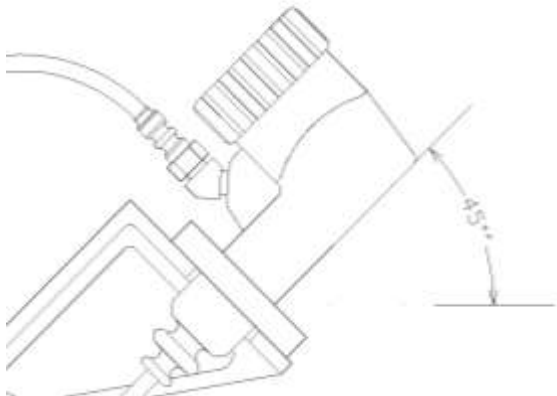
- Mounting bolts, nuts and washers
- USB Cable Type-A Male to Type-B Male
- Drill and drill bits
- Screwdrivers and wrenches
- DOT4 or DOT5 (pedals built before AUG 2018) Brake Fluid for topping off if required

#### WARNING!

**DO NOT MIX DOT4 AND DOT5 BRAKE FLUID! Please secure the cap on the brake master cylinder after filling with a long tie wrap or other adequate means if it is accessible to pets or children.**

### Step 1: Getting Your Pedals Ready for Installation

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. Check that the reservoir is filled to about 50% 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 on its side from this point forward.

### Purging Procedure

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.

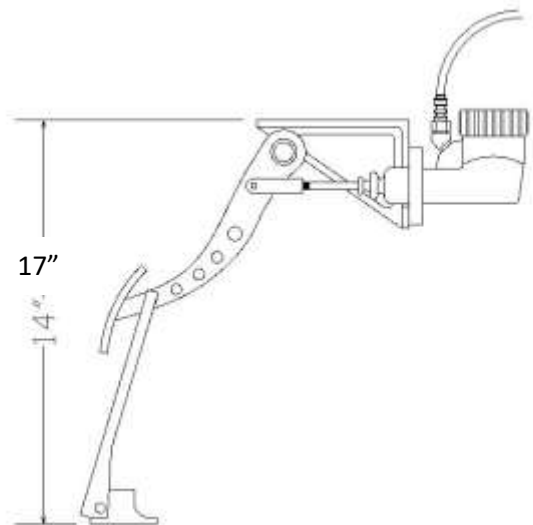
The pedal should also be pumped before any racing to prime the system and build up pressure in the system.

**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

Identify each pedal by the color on the connector

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.



Suspended pedals should be mounted at a height of about 17 inches (43cm) above the sim-chassis floor. The pedals should be mounted so the brake pedal is approximately even with

the throttle pedal when it is fully depressed, typically about 1 inch (25mm), but this may vary based upon the pedal firmness setting. Mount the pedals using ¼ inch or 6mm thick bolts or screws (not included). Use nuts and washers to be sure the screws will not pull out.

Some pedals may include mounting templates to facilitate the placement of your pedals. Ricmotech suggests mounting the pedals to a wood board in order to experiment with different pedal spacing and positions before drilling permanent holes in the floor of your sim-cockpit.

Position the remote sensor assembly as shown in the image below. Be sure the hose is not stretched or kinked.



Route the cables to avoid having them get pinched or chafed using zip ties. Mount the PCU (Pedal Control Unit) in a location that is both out of the way yet within reach of the programming switch, such as next to your wheel.



Open the brake fluid reservoir and pry out the rubber plug. This plug is only to prevent spills during transport. Keep the plug in case the pedals or rig need to be moved in the future.

The initial position of the brake and clutch pedal can be adjusted by threading the master cylinder rod into or out of the clevis. 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.



### Step 3: Making the Connections

Plug the three(3) 4-pin connectors for the Throttle, Brake and Clutch to their respective connectors on the PCU or by color-matching the cables to the jacks on the PCU. Plug the USB cable (sold separately) to an available USB port on your PC.

Windows will install drivers from Windows Update. The pedals are powered from the USB port, no external power is required. You should see the LED pulse a red “heartbeat” signal. Restart the PC.

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

Windows XP, Vista, and 7: click Start, type: **joy.cpl** and ENTER  
Windows 8: go to the Start screen, type: **joy.cpl** and ENTER  
Windows 10: hit the “Windows” key, type: **joy.cpl** and ENTER

The Game Controllers panel will open and there should be a controller named GTpro Pedals, 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 bug that may cause Windows to install an incorrect driver for the pedals. 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.

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.

#### **Step 5: Programming and Calibration**

The PCU for the GTpro pedals retains all the settings and profiles in its internal memory. You can plug the PCU into any available USB port and even into a different PC and all the settings will be retained.

During final assembly of your pedals, a test configuration was programmed into the PCU and will still be there as a starting point when it arrives to you. Before making changes to the programming of the PCU, please familiarize yourself with the programmable features listed below.

Profiles: You may create five profiles which can be saved and later retrieved for use with different drivers or simulation titles. To create a profile simply change the settings to your preferences and then save the profile to one of the memory locations. To retrieve a profile, simply load the profile from the memory location you desire and those settings will replace the settings currently in the pedal controller. These settings will remain even after shutting down your pedals or connecting to another PC.

Pedal Max Travel (Sensitivity) Calibration: Each pedal can be calibrated to a maximum travel distance. This allows the pedals to output their full signal range even if you have adjusted the travel of the pedal to less than its full range. Alternatively, you can calibrate this to part way of the pedal travel. For instance, you may want to depress the clutch only half-way to get full engagement, pressing the pedal more than half way will not generate any additional output.

Pedal Dead Zone Calibration: Each pedal can be calibrated to have a dead zone. With this setting, the pedal will remain 'dead' until it has been pressed down a predetermined amount. This will avoid applying brakes if you simply bump into the pedal, or prevents the clutch from slipping if your foot is riding the clutch pedal.

Clutch Enable/Disable: Turns off the clutch pedal and increases the update rate to the remaining pedals. Set to disable if clutch pedal is not connected.

Handbrake Analog/Digital/Disabled: Sets the output for the optional handbrake. Set to analog for games that support it,

otherwise set to digital. When set to digital, the handbrake will trigger when it is pulled over 50% of its calibration. Set to disable if handbrake is not connected.

Handbrake Calibration: Operates the same as Max Travel and Dead Zone Calibration for the pedals.

Invert Axis: Most games and racing simulations will function regardless of this setting. If you find that your software accelerates and brakes when you *let go* of the pedal, then set this option to 'inverted' to correct this.

Smoothing: Both the throttle and the brake have a smoothing adjustment. Some computers have power fluctuations which cause the axis to flutter. Increasing the smoothing setting reduces the flutter. Use the least amount of smoothing required to eliminate objectionable flutter.

Linearity: Linearity settings allow you to modify the behavior of a pedal axis. See Linearity profiles at the end of this manual

Programming is done with the 2-way rocker switch and the red/green LED. The rocker switch can be moved to 2 positions, '1' and '2' and each position is marked. The LED will flash red and green to confirm the selection of options.

## The mechanics of programming

Programming settings on the pedal controller involves 4 steps:

1. Enter program mode.
2. Select the programming option.
3. Follow the steps for that particular setting.
4. The controller returns to normal operating mode.

If another setting option is to be changed, the 4 steps above should be repeated. This was designed this way to avoid being lost in a several layers of menus.

**Step 1.** Enter programming mode by clicking and holding the switch to 2 until one long green pulse of the LED confirms you have entered programming mode.

**Step 2.** Click the switch to 1 the number of times corresponding to the option you wish to select, the green LED will flash each time the switch is clicked. For example, to select option 1 click the switch once, to select option 2 click the switch twice, to select option 3 click three times, etc.  
**NOTE:** Failing to click or clicking more than 14 times results in a long red flash and the controller returns to normal operating mode.

**Step 3.** After 3 seconds, the LED will flash green confirming the selection you made. Skip to the respective section on this sheet and follow those instructions.

### Option 1 – Load Profile

1. Click 1 according to the profile you wish to load.

Click 1 Time	Load Profile 1
Click 2 Times	Load Profile 2
Click 3 Times	Load Profile 3
Click 4 Times	Load Profile 4
Click 5 Times	Load Profile 5

2. After 3 seconds, the LED will flash indicating the selection you made.
3. The controller will exit program mode with your new settings and return to normal operating mode.

Note: Failing to click or clicking more than 3 times results in a long red flash and the controller returns to normal operating mode.

Selecting a profile which has not been previously programmed may set up the pedals with non-functional settings.

### Option 2 – Save Profile

1. Click 1 according to the profile you wish to load.

Click 1 Time	Save Profile 1
Click 2 Times	Save Profile 2
Click 3 Times	Save Profile 3
Click 4 Times	Save Profile 4
Click 5 Times	Save Profile 5

2. After 3 seconds, the LED will flash indicating the selection you made.
3. The controller will exit program mode with your new settings and return to normal operating mode.

Note: Failing to click or clicking more than 3 times results in a long red flash and the controller returns to normal operating mode.

### Option 3 – Calibrate Throttle Pedal

The LED will pulse red 1 time indicating you are at Max Limit setting. You may click 2 if you want to skip this part.

1. Press the pedal to the maximum travel you desire. It does not have to be all the way down. The LED will pulsate red if you have reached maximum travel of the pedal.
2. Release the pedal.
3. Click 1 to accept and the LED will pulse green 1 time to confirm, or click 2 to skip/cancel.

The LED will pulse red 2 times indicating you are at Dead Zone setting. You may click 2 if want to skip this part.

1. Press the pedal for the desired dead zone. Do not press the pedal if you would rather have no dead zone. The LED will pulsate red to indicate it has reached maximum.
2. Release the pedal.
3. Click 1 to accept and the LED will pulse green 2 times to confirm, or click 2 to skip/cancel.

The controller will exit program mode and return to normal operating mode and should show a “heartbeat”.

### Option 4 – Calibrate Brake Pedal

The LED will pulse red 1 time indicating you are at Max Limit (Sensitivity) setting. You may click 2 if you want to skip this part.

1. Press the pedal to the maximum force you desire. It does not have to be all the way. The LED will pulsate red if you have reached the maximum range of the pedal.
2. Release the pedal.
3. Click 1 to accept and the LED will pulse green 1 time to confirm, or click 2 to skip/cancel.

The LED will pulse red 2 times indicating you are at Dead Zone setting. You may click 2 if want to skip this part.

1. Press the pedal to the end of the desired dead zone. Do not press the pedal if you would rather not have a dead zone. The LED will pulsate red to indicate it has reached maximum.
2. Release the pedal.
3. Click 1 to accept and the LED will pulse green 2 times to confirm, or click 2 to skip/cancel.

The controller will exit program mode and return to normal operating mode and should show a “heartbeat”.

### Option 5 – Calibrate Clutch Pedal

The LED will pulse red 1 time indicating you are at Max Limit setting. You may click 2 if you want to skip this part.

1. Press the pedal to the maximum travel you desire. It does not have to be all the way down. The LED will pulsate red if you have reached maximum range of the pedal.
2. Release the pedal.
3. Click 1 to accept and the LED will pulse green 1 time to confirm, or click 2 to skip/cancel.

The LED will pulse red 2 times indicating you are at Dead Zone setting. You may click 2 if want to skip this part.

1. Press the pedal to the end of the desired dead zone. Do not press the pedal if you would rather not have a dead zone. The LED will pulsate red to indicate it has reached maximum.
2. Release the pedal.
3. Click 1 to accept and the LED will pulse green 2 times to confirm, or click 2 to skip/cancel.

The controller will exit program mode and return to normal operating mode and should show a “heartbeat”.

### Option 6 – Clutch Enable/Disable

1. Click 1 according to the setting you desire.

Click 1 Time	Enable the Clutch Pedal
Click 2 Times	Disable the Clutch Pedal

2. After 3 seconds, the LED will flash indicating the selection you made.
3. The controller will exit program mode and return to normal operating mode and should show a “heartbeat”.

Note: Failing to click or clicking more than 2 times results in a long red flash and the controller returns to normal operating mode.

**Option 7 – Handbrake Mode**

- Click 1 according to the setting you desire.
 

Click 1 Time	Set Handbrake to Analog
Click 2 Times	Set Handbrake to Digital
Click 3 Times	Disable Handbrake
- After 3 seconds, the LED will flash indicating the selection you made.
- The controller will exit program mode and return to normal operating mode and should show a “heartbeat”.

Note: Failing to click or clicking more than 3 times results in a long red flash and the controller returns to normal operating mode.

**Option 8 – Calibrate Handbrake** –(must be done for analog and digital handbrake mode)

The LED will pulse red 1 time indicating you are at Max Limit setting. You may click 2 if you want to skip this part.

- Pull the handbrake to the maximum travel you desire. It does not have to be all the way up.
- Release the handle.
- Click 1 to accept and the LED will pulse green 1 time to confirm, or click 2 to skip/cancel.

The LED will pulse red 2 times indicating you are at Dead Zone setting. You may click 2 if you want to skip this part.

- Pull the handle for the desired dead zone endpoint. Do not pull the handle if you would rather have no dead zone.
- Release the handle.
- Click 1 to accept and the LED will pulse green 2 times to confirm, or click 2 to skip/cancel.

The controller will exit program mode and return to normal operating mode and should show a “heartbeat”.

**Option 9 – Invert All Axis**

- Click 1 according to the setting you desire.
 

Click 1 Time	Normal Axis (all axis are 0 at rest)
Click 2 Times	Inverted Axis (all axis are 1023 at rest)
- After 3 seconds, the LED will flash indicating the selection you made.
- The controller will exit program mode and return to normal operating mode and should show a “heartbeat”.

Note: Failing to click or clicking more than 2 times results in a long red flash and the controller returns to normal operating mode.

**Option 10 – Throttle Pedal Smoothing**

- Click 1 according to the setting you desire.
 

Click 1 Time	No Throttle Smoothing
Click 2 Times	Light Throttle Smoothing
Click 3 Times	Medium Throttle Smoothing
Click 4 Times	Heavy Throttle Smoothing
- After 3 seconds, the LED will flash indicating the selection you made.
- The controller will exit program mode and return to normal operating mode and should show a “heartbeat”.

Note: Failing to click or clicking more than 4 times results in a long red flash and the controller returns to normal operating mode.

**Option 11 – Brake Pedal Smoothing**

- Click 1 according to the setting you desire.
 

Click 1 Time	No Brake Smoothing
Click 2 Times	Light Brake Smoothing
Click 3 Times	Medium Brake Smoothing
Click 4 Times	Heavy Brake Smoothing
- After 3 seconds, the LED will flash indicating the selection you made.
- The controller will exit program mode and return to normal operating mode and should show a “heartbeat”.

Note: Failing to click or clicking more than 4 times results in a long red flash and the controller returns to normal operating mode.

**Option 12 – Throttle Linearity**

- Click 1 according to the setting you desire (see table at right).
 

Click 1 Time	Flat
Click 2 Times	A Weighted (recommended)
Click 3 Times	B Weighted
Click 4 Times	AB Weighted
- After 3 seconds, the LED will flash indicating the selection you made.
- The controller will exit program mode and return to normal operating mode and should show a “heartbeat”.

Note: Failing to click or clicking more than 4 times results in a long red flash and the controller returns to normal operating mode.

**Option 13 – Brake Linearity**

- Click 1 according to the setting you desire (see table at right).
 

Click 1 Time	Flat
Click 2 Times	A Weighted
Click 3 Times	B Weighted
Click 4 Times	AB Weighted (recommended)
- After 3 seconds, the LED will flash indicating the selection you made.
- The controller will exit program mode and return to normal operating mode and should show a “heartbeat”.

Note: Failing to click or clicking more than 4 times results in a long red flash and the controller returns to normal operating mode.

**Option 14 – Clutch Linearity**

- Click 1 according to the setting you desire (see table below).
 

Click 1 Time	Flat
Click 2 Times	A Weighted
Click 3 Times	B Weighted (recommended)
Click 4 Times	AB Weighted
- After 3 seconds, the LED will flash indicating the selection you made.
- The controller will exit program mode and return to normal operating mode and should show a “heartbeat”.

Note: Failing to click or clicking more than 4 times results in a long red flash and the controller returns to normal operating mode.

**Option 15 – Handbrake Linearity**

- Click 1 according to the setting you desire (see table below).
 

Click 1 Time	Flat
Click 2 Times	A Weighted
Click 3 Times	B Weighted (recommended)
Click 4 Times	AB Weighted
- After 3 seconds, the LED will flash indicating the selection you made.
- The controller will exit program mode and return to normal operating mode and should show a “heartbeat”.

Note: Failing to click or clicking more than 4 times results in a long red flash and the controller returns to normal operating mode.

**Option 16 – Heartbeat Mode**

- Click 1 according to the setting you desire.
 

Click 1 Time	Enable
Click 2 Times	Disabled
- After 3 seconds, the LED will flash indicating the selection you made.
- The controller will exit program mode and return to normal operating mode and should show a “heartbeat”.

Note: Failing to click or clicking more than 2 times results in a long red flash and the controller returns to normal operating mode.

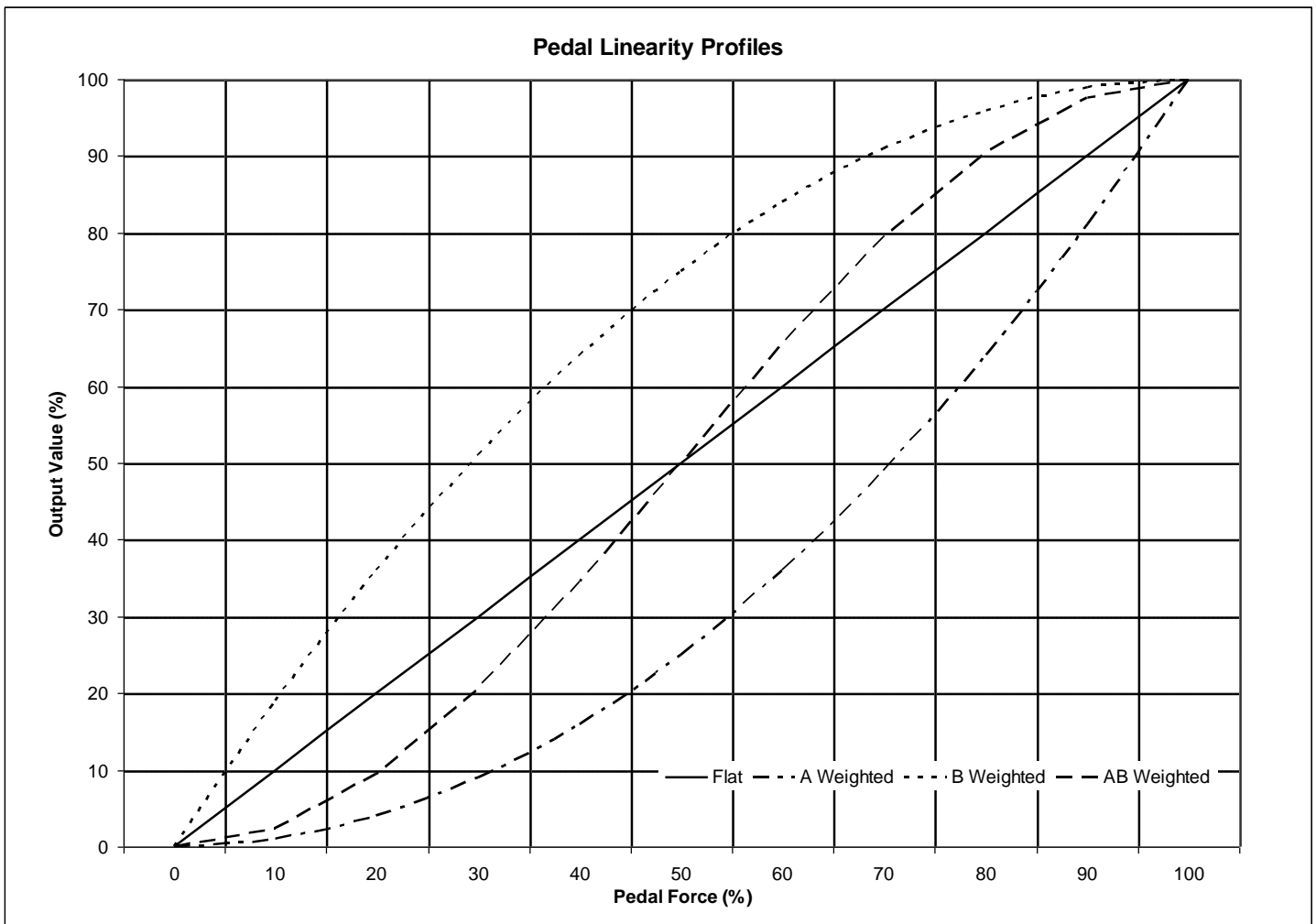


## The Concept of Linearity Curves

Linearity curves allow the pedal axis to be tailored to allow better modulation at various ranges throughout the pedal travel or force application. For instance, on a certain track, you may prefer to have better modulation at the low-end of the throttle range to help with slippery turns or perhaps you prefer to have better modulation at the high-end of the throttle range to better control over-steer. At first, these linearity profiles may appear to act like “cheats” in order to compensate for car or track conditions. In reality, these linearity profiles replicate various adjustments which can be done in a real race car and tailored to the driver’s preferences. Throttle response linearity can be adjusted to your preference much like it can easily and legally be done in a real race car by using different throttle cams or fuel mappings. Brake linearity can easily be modified in a real race car by changing brake pad compounds and rotor machining and the brake pedal on your Real-Gear pedals can be adjusted to replicate a similar level of customization.

The curves below are a representation of the four available linearity profiles available for each pedal. Effectively, the closer to horizontal the curve is, the greater the level of modulation while the more vertical the curve is, the lesser the level of modulation. Of course, there is always a trade-off; when modulation is increased at one area of pedal travel, it must be reduced in another area. The flat curve, as it implies, has equal modulation throughout its range. The A-weighted curve has increased modulation near the end of its range, while sacrificing modulation toward the beginning of its range.

It is best to try all the curves with different cars and tracks until you find the one that helps you achieve faster lap times. It is not uncommon to find that different linearity profiles work best on different car and track combinations. Adjusting the linearity curves is much like tailoring a car setup to a different track, there is no one correct curve.



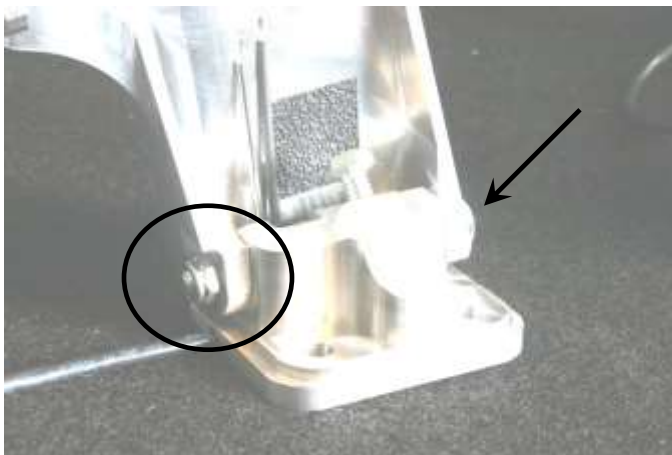
## Optional Auxiliary Throttle Spring Kit

This kit will increase the firmness of the GTpro1 floor mounted throttle pedal by allowing you to install a removable auxiliary spring. Once the kit is installed, the spring can be easily removed and reinstalled. This will permit you to have a lighter throttle spring for certain types of cars and tracks while giving you the ability to have a stiffer pedal for other types of cars and races.

If the kit was ordered with a new set of pedals, all or part of the kit will already be installed.

### Installation

Begin by removing the throttle pedal from your racing rig.



Using two wrenches, hold the pivot bolt (arrow) while removing the locknut (circle). Do not remove the pivot bolt from the pedal assembly.



Install the spring post by threading it onto the end of the pivot post. Tighten the post by turning the pivot bolt until it is snug. Do not over-tighten.



Install the shoulder bolt with the provided nut on the lowest hole of the side plate.



Mount the pedal back into your racing rig while using the right side mounting bolt to also secure spring perch tab with the groove facing upward.



To mount the spring, slip the spring onto the spring post with the short leg resting in the groove of the spring perch.



Using pliers, wind the spring and set it on the shoulder bolt. Make sure the spring seated properly by moving the pedal back and forth to insure it does not slip off.

## Optional Brake Tuning Kit



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.

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.

Bushing 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