

# PINSHAKERS

## Pinshakers Universal Shaker Motor Kit Installation

Please visit [www.pinshakers.com](http://www.pinshakers.com) for the latest installation guides and videos

For product support email us directly at [pinshakers@gmail.com](mailto:pinshakers@gmail.com)

### Premium Driver Board Vers 3.xx Stern S.A.M. / Whitestar Installation – Updated 01/17/2021

<b>Tools Required:</b>	<b>Parts Required (included):</b>
<p>-Small Phillips Head Screwdriver -1/4" Nut Driver</p>	<ul style="list-style-type: none"><li><input type="checkbox"/> Motor Harness</li><li><input type="checkbox"/> 12vdc 5A Power Supply</li><li><input type="checkbox"/> Power Supply Cable</li><li><input type="checkbox"/> 12vdc Power Supply Extension Cable</li><li><input type="checkbox"/> Wire Harness "A", "B", &amp; "C" Cable &amp; Connector Adapters</li><li><input type="checkbox"/> Motor Driver Board V3.xx</li><li><input type="checkbox"/> Metal Board Mounting Backplate</li><li><input type="checkbox"/> 4 x 1/2" Hex Head Wood Screws</li><li><input type="checkbox"/> 4 x 1/2" Phillips Head Machine Screws (Installed on Backplate)</li><li><input type="checkbox"/> Installation Manual</li><li><input type="checkbox"/> Dip Switch Settings (download from <a href="http://www.pinshakers.com">www.pinshakers.com</a>)</li></ul> <p style="color: red;">Unpack and inventory all the included components. Please let us know as soon as possible if you have any missing items.</p>

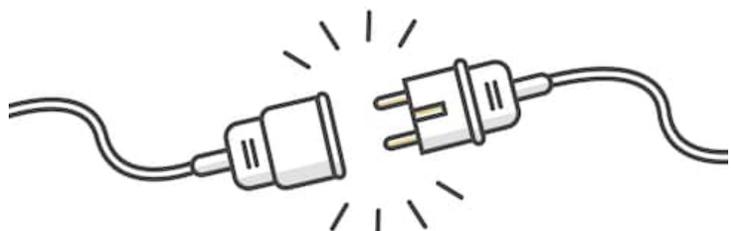
**Note:** Please hold onto this installation manual! In order to keep the price down on our kits we are only shipping one manual per household. You can still download our manuals from the website or watch the in-depth YouTube installation videos.

#### **EXPECTATIONS OF USE**

You agree to use our products in the manner described in the documentation provided. Any deviation from the provided documentation, or any custom modifications to our products, will likely cause damage to persons or property. You agree to only install our products in fully working and operating pinball machines. Any prior issues with grounding, loose connections, game resets, cold solder joints, hacked up circuit boards and other components, or any other pre-existing problems with your pinball machine will likely result in the damage of our product and/or your pinball machine. Other risks of installing our product in a machine that is not fully working is that of fire or bodily harm. Pinshakers will in no way be held responsible or liable for any damage that results in the use of this kit; either to any person, your pinball machine, or structure in which the pinball machine is operated.



**Remove All Power!**

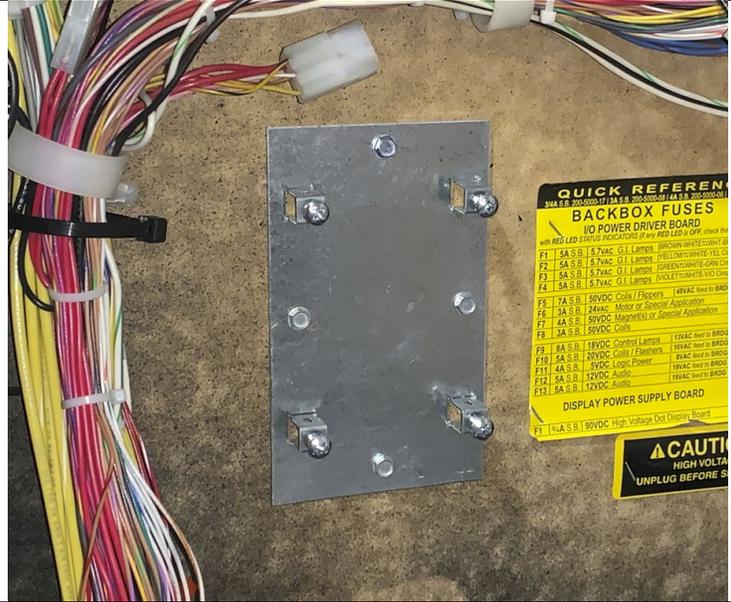


**On/Off Switch Is NOT Enough!**

**Step 1: Motor Driver  
Metal Backplate  
Installation**



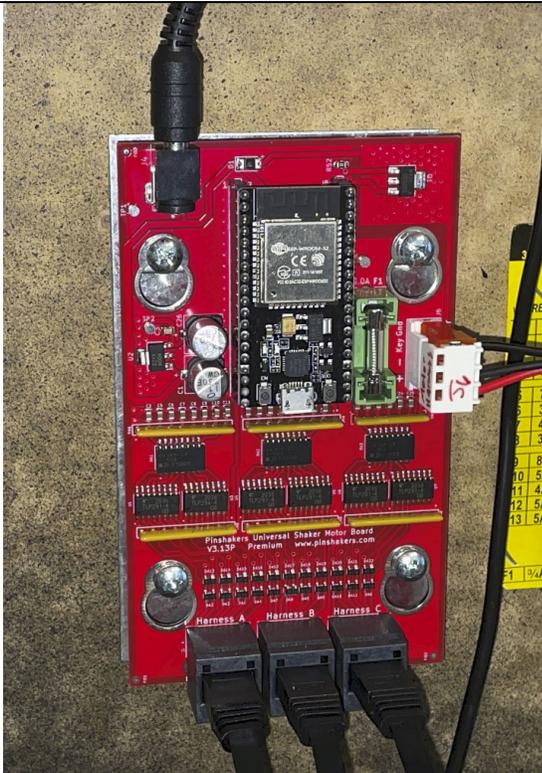
**In this step you will be handling the metal backplate. Be careful as there might be some sharp edges on the sides or on the back of the plate.**



You received a metal Backplate with your kit that is used to mount the motor driver board. Find an open spot in the upper right side of the backbox to secure it with the 4 hex head wood screws in the hardware bag. It is ok if the plate is mounted over a grounding strap or grill.

**Step 2: Motor Driver Board Installation**

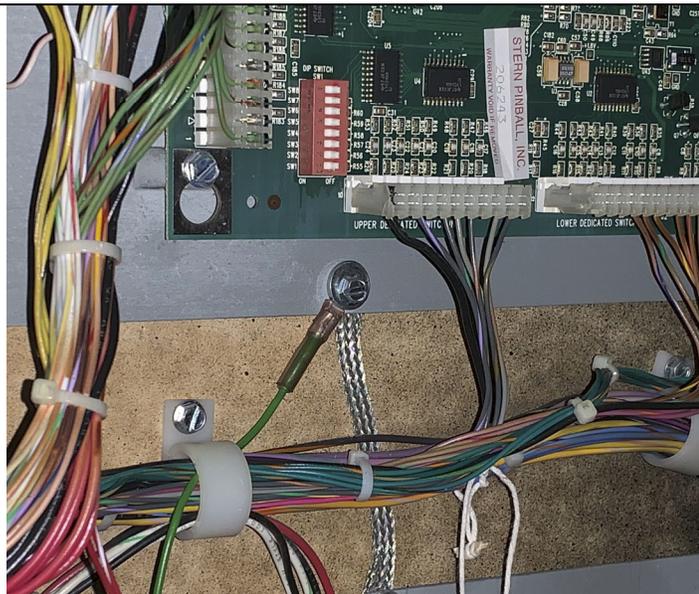
Mount the motor board on the metal backplate. Be careful not to tighten the screws too tightly otherwise you will damage the threads. Connect the included Cat5 cables, motor harness, and 12vdc power supply extension cable to the board.



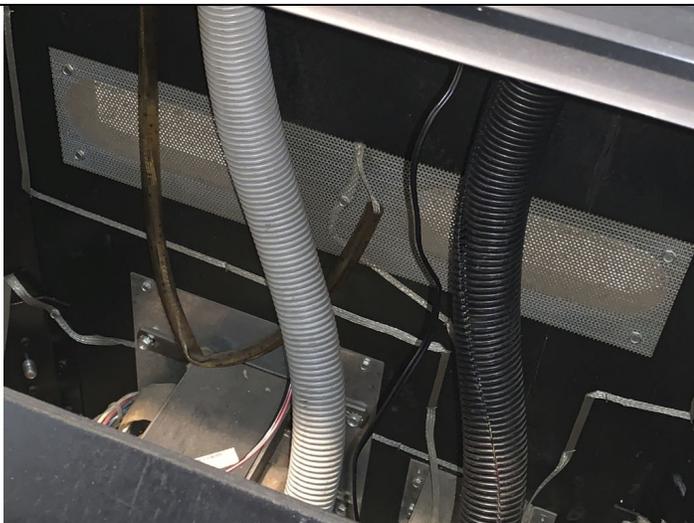
### Step 3: Harness Adapter Installation

Locate the power driver board connector for the type of machine you have. Unplug it and connect it to the connection on the bottom of the Cat5 adapter. Then connect the adapter back into the power driver board. Last, connect the Cat5 cable to the adapter. A photo to the right shows the 3 stern S.A.M. connectors J6, J7, and J8.

The Cat5 adapter will have the connection printed on it for which harness you are installing as well as what connector to use on the power driver board.

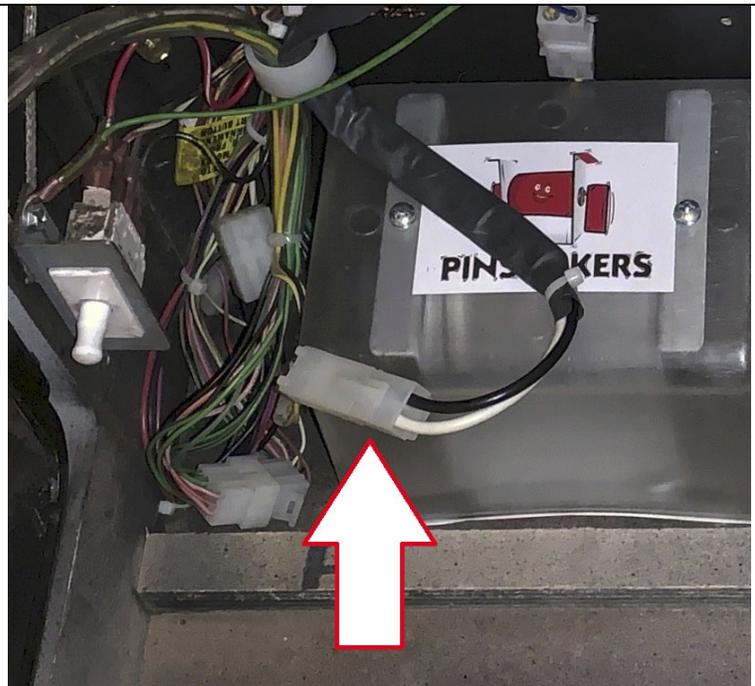


**Step 4: Grounding Strap** Find a reliable grounding strap and connect the grounding cable that is on the motor harness. Do a visual check to make sure the grounding braid goes from this junction to the circuit boards and down into the cabinet. To be completely sure, I recommend you use a DMM in the continuity test mode and check for proper grounding between the circuit boards, this junction, and all the way to the front of the cabinet. If you notice any breaks in your grounding strap you must repair them prior to applying power to this motor driver board. Installing this kit in a machine where something is not properly grounded will result in the damage to your shaker motor driver board, the shaker motor, and possibly even your pinball machine circuit boards. **DO NOT SKIP THIS STEP!**



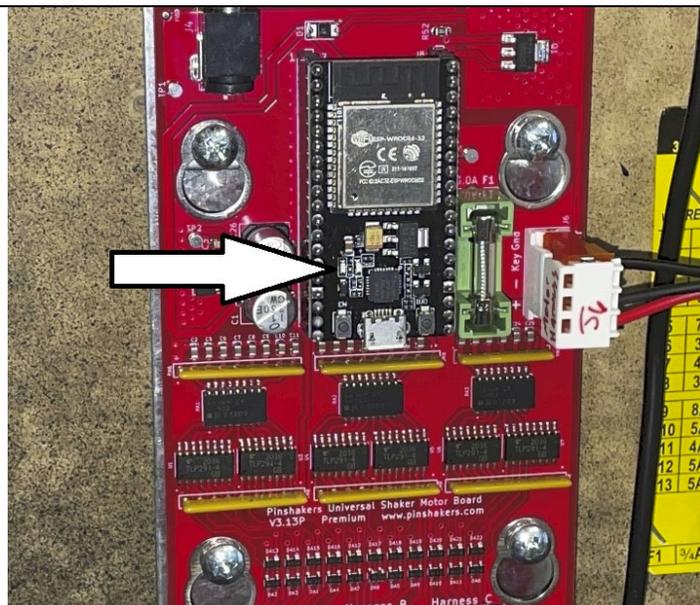
**Step 5: Motor Harness Installation** Now run the motor harness and the 12vdc power cord extension down into the cabinet. Use the wire wraps like the ones shown to the left to neatly secure the wires. Connect the motor harness to the shaker motor, and leave all slack in the lines in the back of the cabinet at the base of these wire wraps. That way when you go to fold the backbox down, the slack will be used and nothing will get caught and ripped out.

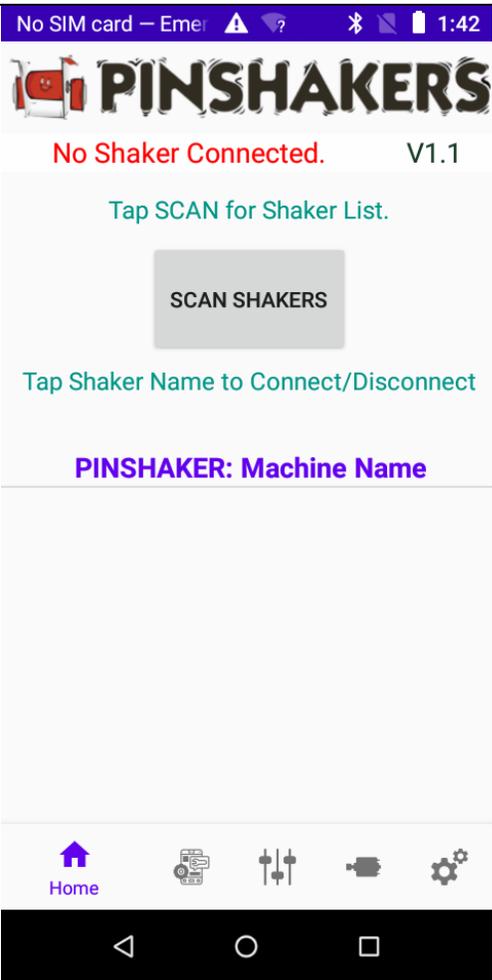
**Step 6: Power Supply Installation** Find the 2 position molex connection leading to the bill validator. It is usually on the left side of the machine along the harness in the vicinity of the tilt switch or next to where you installed the shaker motor. Disconnect the molex connection and connect the included power supply cable into it. There is only one way to connect the power supply cable into this connection. Once you do this, you will not have power going to a bill validator unit. If you require the use of a bill validator, let us know and we can supply you with a 3 way adapter.



**Step 7:** Connect the power supply cable to the power supply. Make sure you connect is securely and that it isn't loose when you wiggle it. Connect the 12vdc line from the power supply to the included 12vdc extension cord that you ran down from the backbox.

**Step 8: Power On & Test** Power the machine on and look for the led on the motor driver board. The photo to the right shows the location of the led. If it is on then it is receiving power and you can continue on to the next step.





**Step 9: Android App Connection** The premium boards are only compatible with Android phones, there is no IOS version of the app at this time. Download the app from the Google Play store... do a search for "Pinshakers" and you should see the app in the search results as long as your device is compatible.

**9a:** After you have installed the app, you need to make sure you set the permissions on the app to allow use of your location. This is typically done by going to Settings > App Permissions > Pinshakers App > Permissions > Your Location. You will also need to make sure you have Bluetooth enabled on your phone, however do not attempt to connect to the shaker from the Bluetooth screen in the settings, instead you will connect within the app itself.

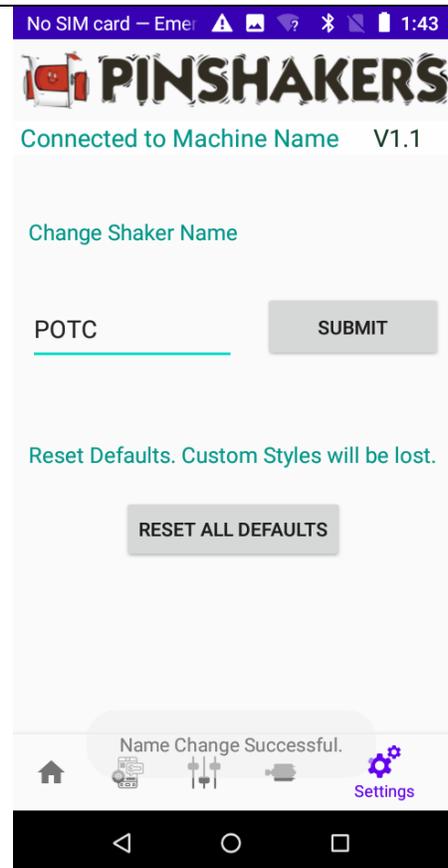
**9b:** Now, open the app and you should be greeted with the home screen as you can see from the photo on the left. Click on the "Scan Shakers" button and wait a few seconds. When it finds the shaker motor board, you will see the "PINSHAKER: Machine Name" link appear. Click on this link and you will connect to the board.

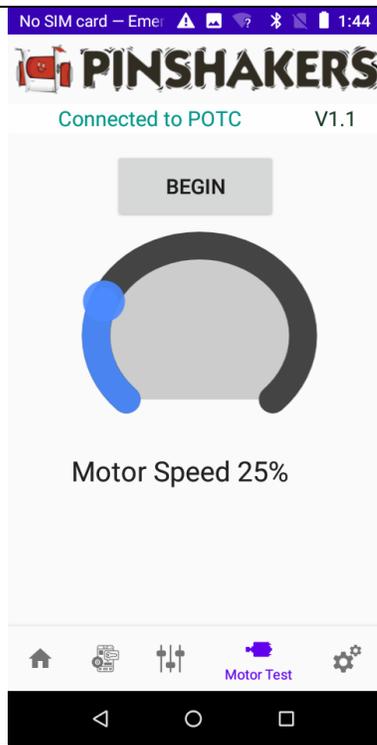
If you get a message stating "No Shakers Found, Try Again", then make sure there is power to the board and do steps **9a**, and **9b** over again.

Once connected, if you want to disconnect from the motor board simply click on the same link again and you will see the message at the top change back to "No Shaker Connected".

**Step 10: Changing The Shaker Name** The app allows you to change the name of the shaker motor board to match the machine you have it installed in. This can come in handy if you happen to have more than one machine with the premium kit installed in it. Go to the "Settings" page and type in the name of the machine. Click on the "Submit" button and you should see the message at the bottom say "Name Change Successful".

Now when you navigate through the rest of the app, it should say the name of the machine at the top that you are connected to. Sometimes you may have to disconnect from the shaker motor board and re-connect as you did back in step 9b before the name at the top changes.





**Step 11: Motor Test** You can test the motor within the app to make sure it is working and everything is installed properly. You can also use the motor test function to get an idea of how strong you want the motor to be.

Click on the “Motor Test” page and click on the “Begin” button. The motor should run once for about 1 second. Feel free to adjust the motor speed slider and run additional tests.

Please note, this page is for testing only, you will set the actual motor strength in a later step.

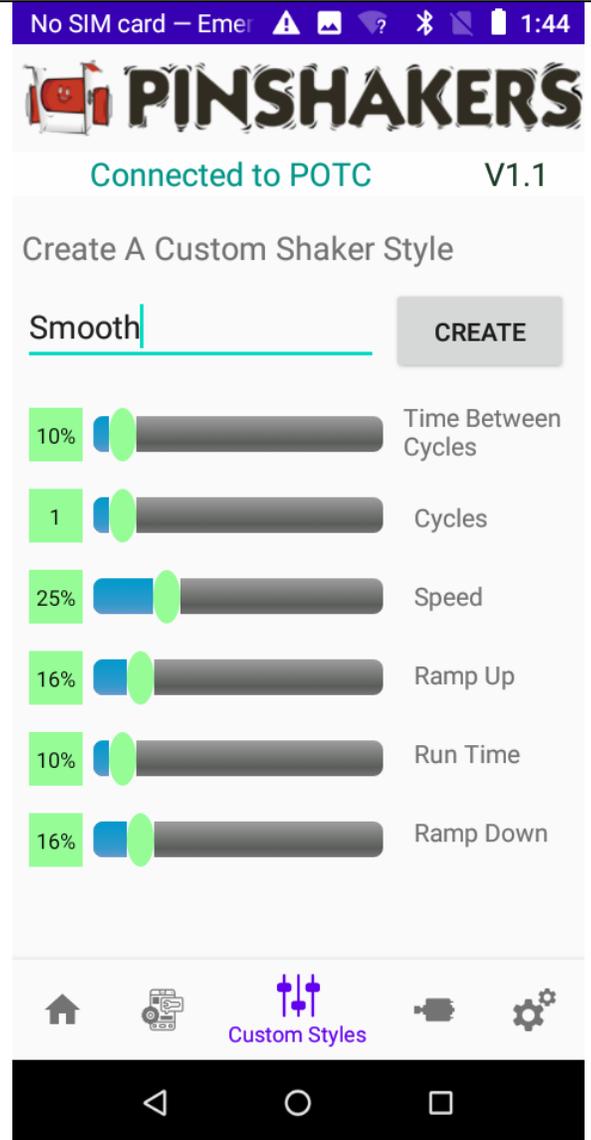
**Step 12: Custom Shake Styles** This version of the shaker motor board allows for you to create custom “Styles” of how you want the shaker motor to feel. There are no limits to the number of custom styles you can create.

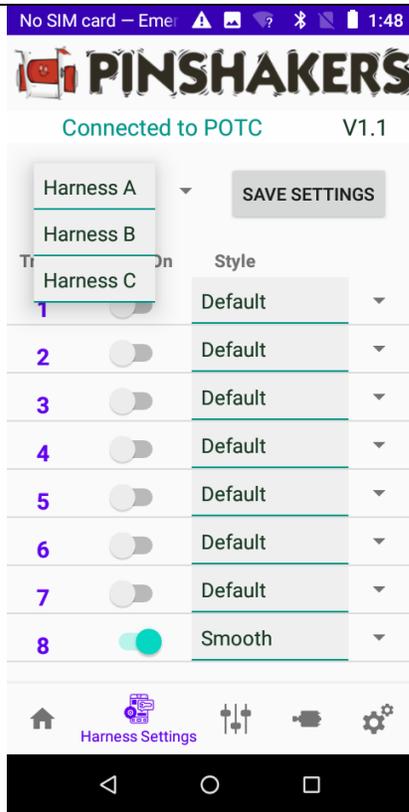
Click on the “Custom Styles” page and change the name of the style. The entire Style is activated each time the motor is triggered. Using the photo to the right as a reference, here are the definitions of each parameter you can control.

- Cycles** - Full activation of the motor from zero, full speed, back to zero. This chooses how many of these cycles will run each time the motor is triggered.
- Ramp Up** - Time it takes for the motor to go from zero to the max speed.
- Speed** - Max speed of the motor at the top of the cycle. This is where you set the motor strength.
- Run Time** - Time the motor runs at the max speed.
- Ramp Down** - Time it take for the motor to go from the max speed back to zero.
- Time Between Cycles** - Time between each full cycle of the motor, only applicable if you have more than one cycle selected.

After you have made all of your selections, click on the “Create” button to create your new custom style.

If you want to edit a custom style you have already made, start typing in the name and you will see the name of the style will automatically pop up that you can select. Make your changes and click on the “Create” button again.





**Step 13: Harness Settings** In order to choose which triggers activate the shaker motor you will need to go to the “Harness Settings” page. Refer to the dip switch settings chart that you can download from our website to get the exact harness and trigger number you want to activate.

**13a.** Choose which harness you want from the drop down menu at the top left of the screen.

**13b.** Toggle on the triggers you want to activate the motor.

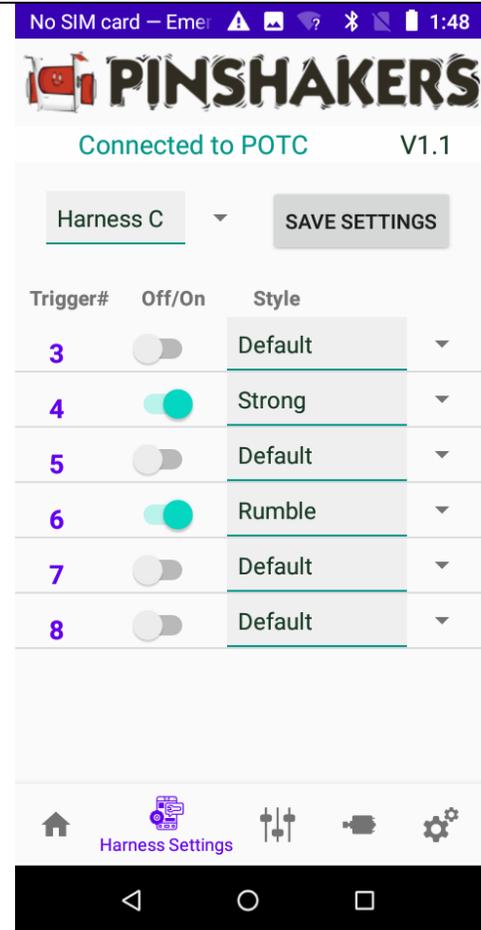
**13c.** If you created any custom styles in the previous step, you can assign those styles to individual triggers. You can assign different styles to different triggers.

**13d.** Click on the “Save Settings” button at the top right. You should see a message pop up at the bottom of the screen that says “Save Settings Successful”.

After you have completed the above steps you can select a different harness and repeat them for that harness.

The photo to the right shows an example of Harness “C” with triggers 4 and 6 turned on as well as a different custom style assigned to each. You can always use the factory “Default” style which is simply a standard shake of the motor like what you would feel on any other Stern machine.

Please take note that with the premium board Harness “C” only has 6 total triggers. Triggers 1 & 2 are not used on this harness.



Congratulations, you have successfully installed the motor driver board, shaker motor, wiring harness, and power supply! If you have any questions or problems please do not hesitate to reach out to us for help.