

# PINSHAKERS

## Pinshakers Universal Shaker Motor Kit Installation

**Premium Vers 3.xx Stern S.A.M. / Whitestar Installation – Updated 03/13/2021**

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

### EXPECTATIONS OF USE

You agree to use our products in the manner described in the documentation provided. Any deviation from the provided documentation will likely cause damage to persons or property. You agree to only install our products in fully working and operating pinball machines. 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.



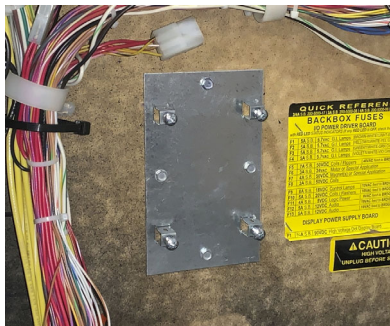
**Remove All Power!**



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

### Parts Required (included):

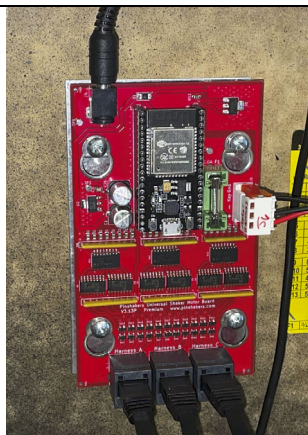
- ☐ Installation Manual
- ☐ Shaker Motor
- ☐ Shaker Motor Shield
- ☐ Motor Harness
- ☐ 12vdc 5A Power Supply
- ☐ Power Supply Cable with “Y” Connection Splitter
- ☐ Wire Harness “A”, “B”, & “C” Cable & Connector Adapters
- ☐ Motor Driver Board V3.xx
- ☐ Metal Board Mounting Backplate
- ☐ Metal Drill Guide
- ☐ 4 x 1/2” Wood Screws
- ☐ 4 x 1/2” Machine Screws (Installed on Backplate)
- ☐ 2 x Shaker Motor Shield Screws
- ☐ 4 x Tee Nuts
- ☐ 4 x 3/4” x 5/16” Nut Drive Screws
- ☐ Dip Switch Settings (download from [www.pinshakers.com](http://www.pinshakers.com))



### Step 1: Motor Driver Backplate Install

Find an open spot in the backbox to secure the backplate 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. Whitestar machines may require the plate to be installed on one of the sides inside the backbox.

**The backplate has sharp edges, use extreme caution.**



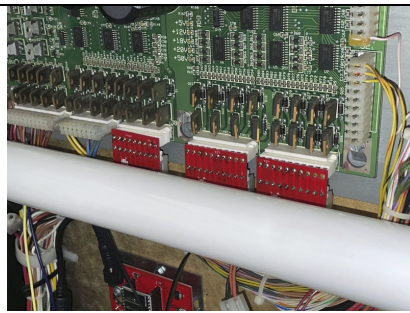
### Step 2: Motor Driver Board Installation

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 to the board.



### Step 3: Harness Adapter Installation

Locate the power driver board connector for the type of machine you have. Printed on each Cat5 adapter is the harness identifier as well as the Jxxx connection on the power driver board. If you have a fluorescent lamp you will need to remove it at this time. Unplug the connector on the power driver board and connect it to the bottom of the Cat5 adapter. Then connect the adapter back into the power driver board.



### Step 3a: Harness Adapter Installation

Replace the lamp if you removed it. The photo above shows the adapters installed with the lamp in place.



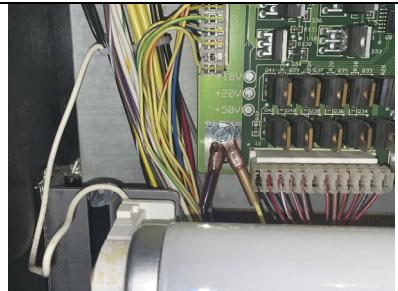
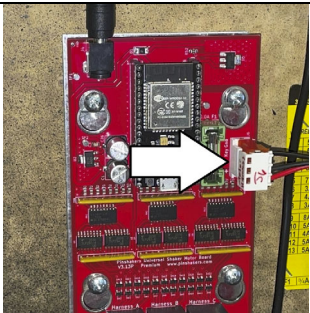
#### Step 4: Power Supply Installation

Find the 2 position molex connection leading to the backbox lamp. It is usually on the left side of the backbox coming up from the back of the cabinet. Disconnect the molex connection and connect the included power supply cable “Y” adapter into it.

There is a grounding strap coming off of this connection that you will connect in step 5a.

#### Step 4a: Power Supply Installation

Connect the power supply cable to the power supply. Make sure you connect it securely and that it isn't loose when you wiggle it. Connect the 12vdc barrel plug into the motor board. You can place the power supply in the backbox as shown above or run it down into the back of the cabinet in step 5b.



#### Step 5: Motor Harness Installation

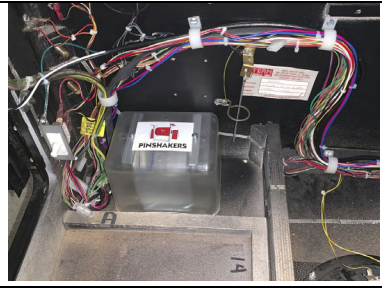
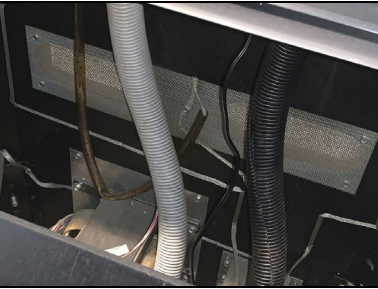
Connect the motor harness into the motor board as shown in the photo above.

#### Step 5a: Motor Harness Installation

There is a grounding strap coming off of that connection. Find a reliable grounding location and connect this strap along with the one from the power supply cable “Y” adapter to it. Above is an example of these straps connected to the bottom left side of the power driver board.

Installing this kit in a machine where something is not properly grounded will result in damage to components.

**DO NOT SKIP THIS STEP!**



#### Step 5b: Motor Harness Installation

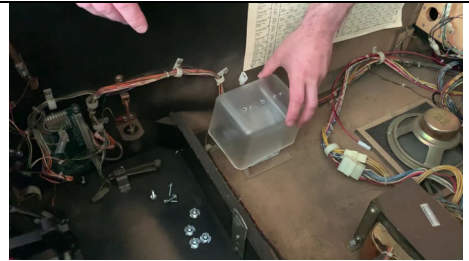
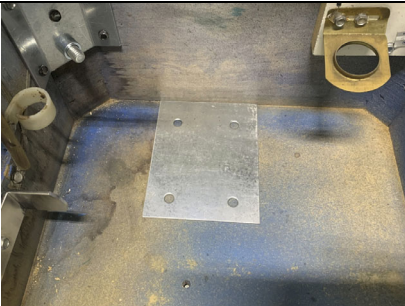
Now run the motor harness down into the front of the cabinet and leave all slack in the lines in the back of the cabinet at the base of these wire wraps. Use the wire wraps like the ones shown above to secure the wires. That way when you go to fold the backbox down, the slack will be used and nothing will get caught and ripped out.

If you want you can do the same with the power supply, again make sure there is plenty of slack in the lines to fold the backbox down in the future.

#### Step 6: Shaker Motor Installation

Choose where you would like to install your shaker motor. We have discovered you get the best results by installing the motor as close to the side and front of the cabinet as possible. The photo above shows the best location for the shaker motor. It is a tight fit and you may need to move some of the wire harnesses out of the way during installation.

Some of the photos in this step were taken in different machines, but the general guidelines still apply.



#### Step 6a: Shaker Motor Installation

Included is a metal drill guide with 4 pre-drilled holes that you will use to drill the 1/4" holes in the cabinet. Place the drill guide against the side wall in the spot you believe you want the motor to be mounted.

#### Step 6b: Shaker Motor Installation

Place the motor on top of the drill guide and line up the mounting holes for the motor with the pre-drilled holes on the drill guide. Place the motor shield on top of the motor to make sure you have plenty of clearance from any wires, switches, solenoids etc.





### Step 6c: Shaker Motor Installation

Tape the drill guide in place so that it will not move.

### Step 6d: Shaker Motor Installation

Drill your 4 holes with a 1/4" drill bit. It is VERY important to keep your drill completely perpendicular to the bottom of the cabinet. If you make your drill holes at any kind of an angle, then the tee nuts will not fit properly and your motor will not install securely. Take your time and be patient, you only get one shot at this!

When you are done drilling the holes remove the drill guide and tape and vacuum up all of the sawdust.

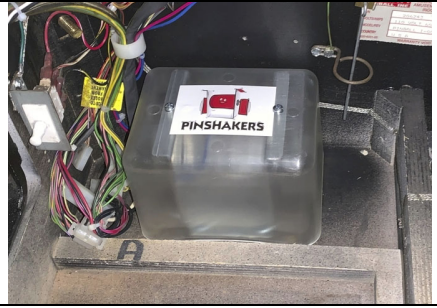


### Step 6e: Shaker Motor Installation

Once you get all 4 screws drilled, go underneath and hammer in the 4 tee nuts. Use a 1/2" deep socket to help so you don't smash your fingers. Hammer the tee nuts as far in the cabinet as they will go. If they do not go all the way in they will finish flush when you screw in the hex screws in the next step.

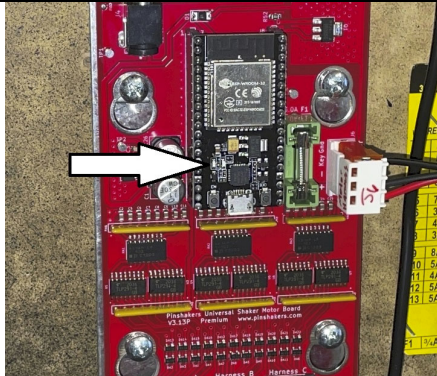
### Step 6f: Shaker Motor Installation

Use a drill, 5/16" socket, and an extension to drill in the screws and compress the tee nuts the rest of the way flush with the cabinet. Reach under with one hand and hold the tee nuts from falling out during this step. It is best not to tighten down any of the screws all the way until all 4 are installed.

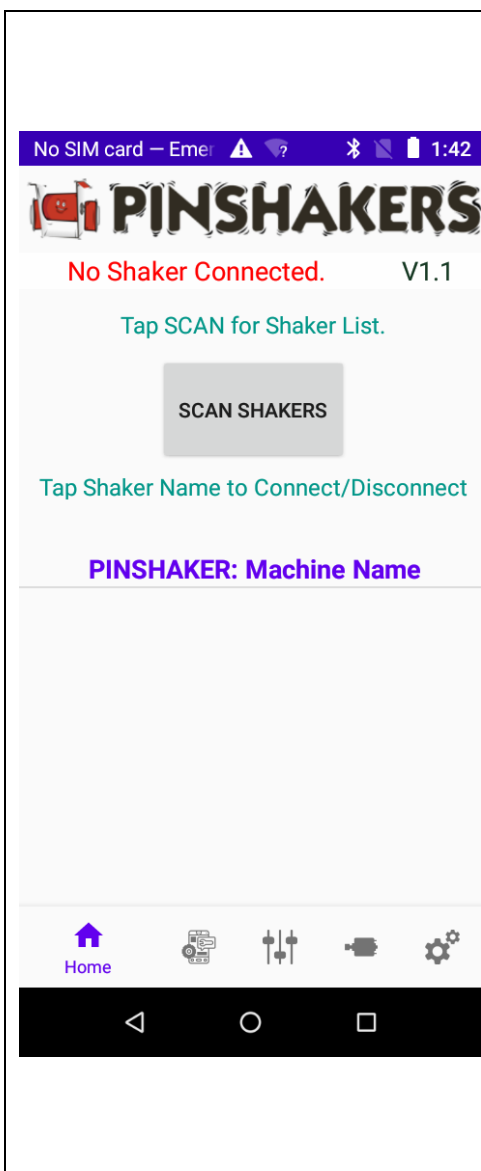


Here is an example of properly installed tee nuts. See how they rest flush with the wood. If your tee nut falls out while you are trying to screw them in, that means you probably did not hammer them in far enough. Make sure you take a pair of pliers and straighten out the prongs before you try to re-install it.

**Step 6g: Shaker Motor Installation**  
Install the shaker motor plastic shield with the two small shield screws and plug in the motor to the motor harness.



**Step 7: Power On & Test** Power the machine on and look for the led on the motor driver board. The photo above 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 8: 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.

**8a:** 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.

**8b:** 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.

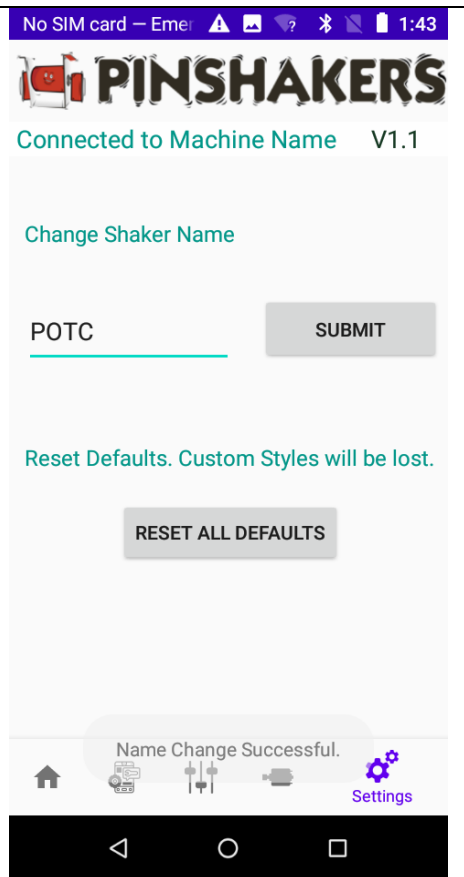
If you get a message stating “No Shakers Found, Try Again”, then make sure there is power to the board and do steps **8a**, and **8b** over again.

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”.

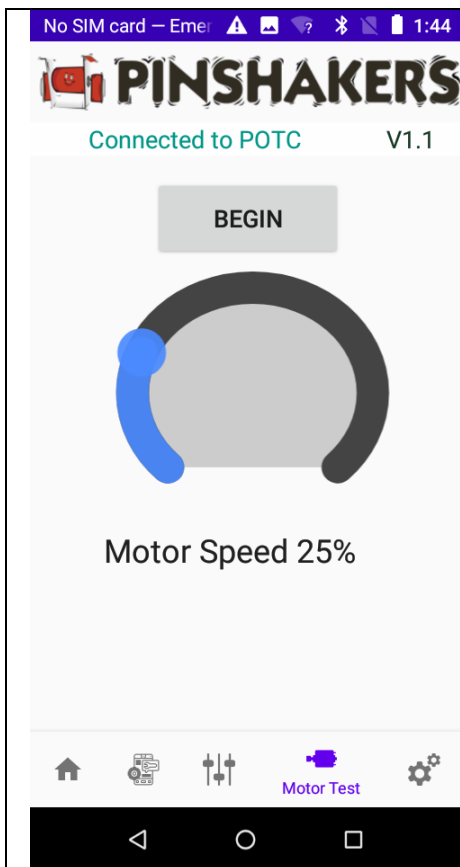
### Step 9: Changing The Shaker Name

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 10: 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.

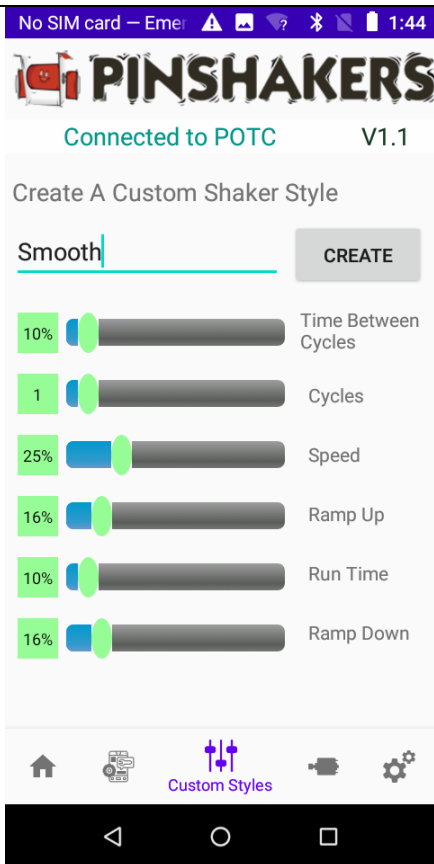
**Step 11: Custom Shake Styles** This version of the shaker motor board allows for you to create custom “Styles” of how you want the shaker motor to feel. There are no limits to the number of custom styles you can create.

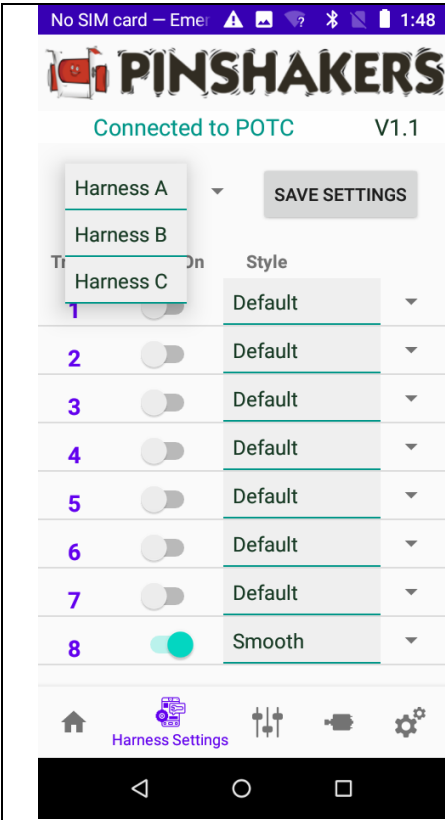
Click on the “Custom Styles” page and change the name of the style. The entire Style is activated each time the motor is triggered. Using the photo to the right as a reference, here are the definitions of each parameter you can control.

- a. **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.
- b. **Ramp Up** - Time it takes for the motor to go from zero to the max speed.
- c. **Speed** - Max speed of the motor at the top of the cycle. This is where you set the motor strength.
- d. **Run Time** - Time the motor runs at the max speed.
- e. **Ramp Down** - Time it take for the motor to go from the max speed back to zero.
- f. **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 12: 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.

**12a.** Choose which harness you want from the drop down menu at the top left of the screen.

**12b.** Toggle on the triggers you want to activate the motor.

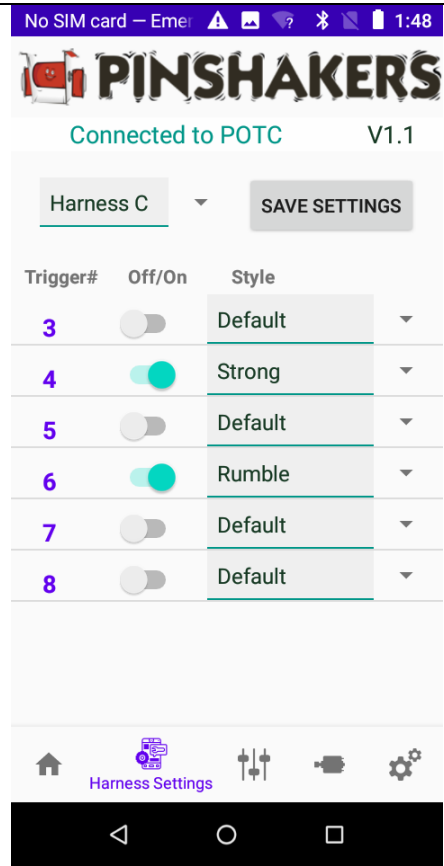
**12c.** If you created any custom styles in the previous step, you can assign those styles to individual triggers. You can assign different styles to different triggers.

**12d.** 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 your new Pinshakers shaker motor kit! If you have any questions or problems please do not hesitate to reach out to us for help.

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