

# PINSHAKERS

## Pinshakers Universal Shaker Motor Kit Installation

### Standard Vers 3.xx WPC/WPC-95 Installation – Updated 01/27/2023

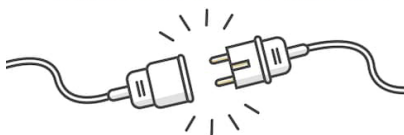
Please visit [www.pinshakers.com](http://www.pinshakers.com) for the latest installation guides and videos

#### 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):

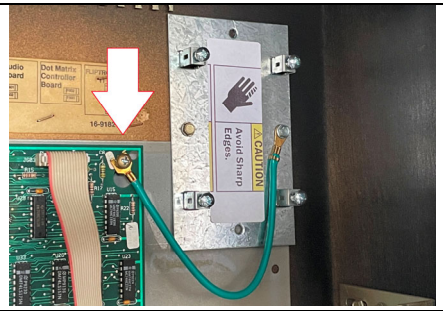
- ☐ Installation Manual
- ☐ Shaker Motor, Shield, & 2 x Shield Screws
- ☐ Motor Harness
- ☐ Power Harness
- ☐ Grounding Strap
- ☐ Wire Harness “A” and “B” Cable & Connector Adapters
- ☐ Motor Driver Board V3.xx
- ☐ Metal Board Mounting Backplate
- ☐ Metal Drill Guide
- ☐ 4 x 1/2” Wood Screws
- ☐ 4 x Tee Nuts
- ☐ 4 x 3/4” x 5/16” Nut Drive Screws
- ☐ 4 x 2” x 5/16” Nut Drive Screws (used on some raised transformer decks)
- ☐ 17/64” Drill Bit



### Step 1: Motor Driver Backplate Install

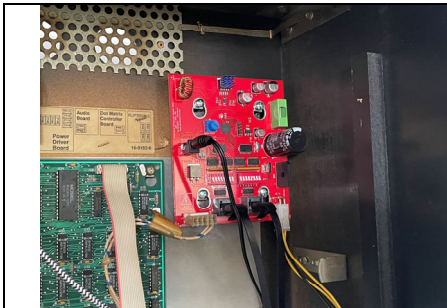
Find an open spot in the upper right side of the backbox to secure the backplate with the 4 hex head wood screws in the hardware bag. It is OK if the plate is mounted over a grounding strap or grill.

**THE BACKPLATE HAS SHARP EDGES, USE EXTREME CAUTION!**



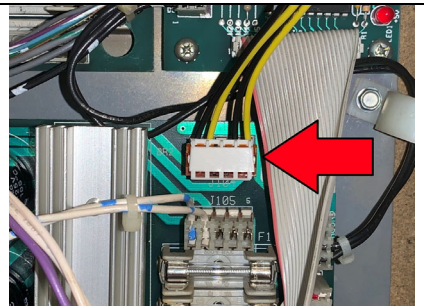
### Step 2: Grounding Strap Installation

Find a reliable grounding source. You can secure it to the backbox metal panel, a part of the grounding strap, or connect it to one of the board mounting screws like the photo above. Installing this kit in a machine where something is not properly grounded will result in damage to components. **DO NOT SKIP THIS STEP!**



### Step 3: Motor Driver Board Installation

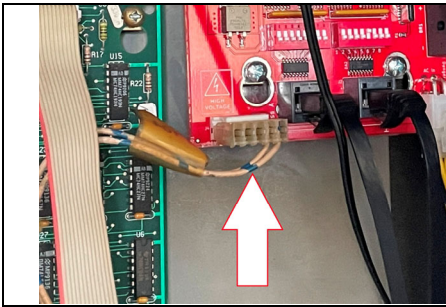
Mount the motor board on the included metal backplate. Be careful not to tighten the screws too tightly otherwise you will damage the threads. Connect the included Cat5 cables, motor harness, and power harness to the board.



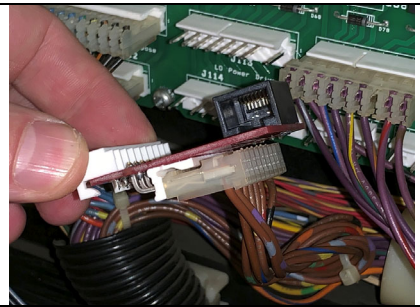
### Step 4: Power Harness Installation

Connect the power harness to the machine's power driver board. For WPC era machines use either J104 or J105. For WPC-95 machines use either J130 or J131. The connectors are all the same.

If there are no open connections, remove one of them and plug that connector into the 20vac / 50vac output connection on the motor driver board. After that, connect the power harness to the connection you just freed up on the power driver board.

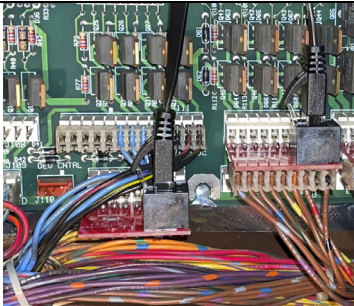


Above shows where you connect the wire harness you removed from the power driver board if both connections there were occupied. The 20vac / 50vac output on the motor board is just a pass-through connection. The voltages are not altered in any way so it will not have any affect on your machine's components.

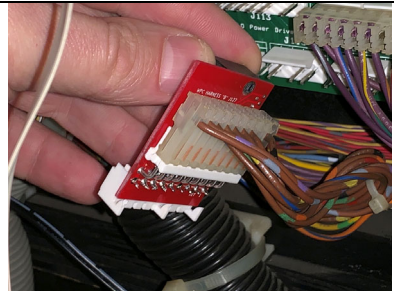


### Step 5: Harness Adapter Installation

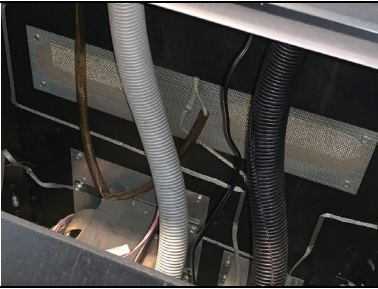
Locate the power driver board connector for the type of machine you have. Printed on each Cat5 adapter is the harness identifier as well as the Jxxx connection on the power driver board. Unplug the connector on the power driver board and connect it to the bottom of the Cat5 adapter. Then connect the adapter back into the power driver board.



The photo above shows the connections on a WPC-95 machine. Notice how for the Harness "A" it requires that you carefully route the wires coming off of the J111 connector above it. You may even need to remove the J111 connector prior to installing the J112 adapter in order for everything to fit easily.



Here is another angle of the original connector installed to the bottom of the adapter.

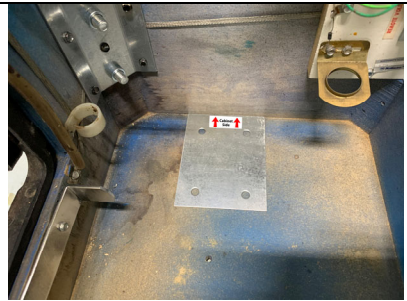
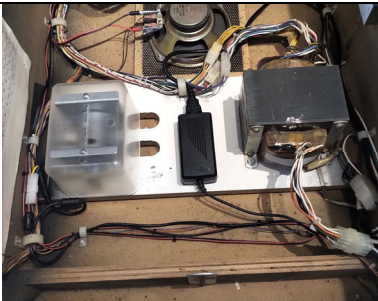


### Step 6: Motor Harness Installation

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.

### Step 7: 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. If you can't fit the motor in the front compartment, then place it on the other side of the divider into the middle section.

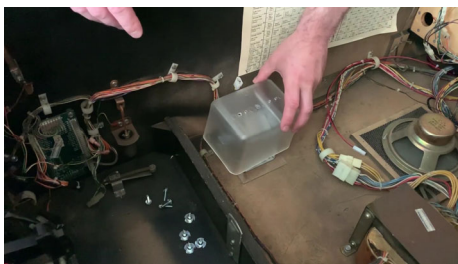


Above is an example of the motor installed on the raised transformer deck. For this you will use the included 2" mounting screws.

### Step 7a: Shaker Motor Installation

Included is a metal drill guide with 4 pre-drilled holes that you will use to drill the 17/64" holes in the cabinet. Place the drill guide against the side wall in the spot you believe you want the motor to be mounted.



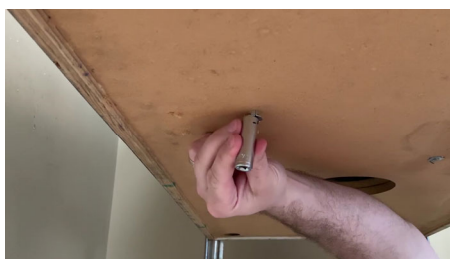


### Step 7b: Shaker Motor Installation

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 7c: Shaker Motor Installation

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



### Step 7d: Shaker Motor Installation

Drill your 4 holes using the included 17/64" 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 7e: Shaker Motor Installation

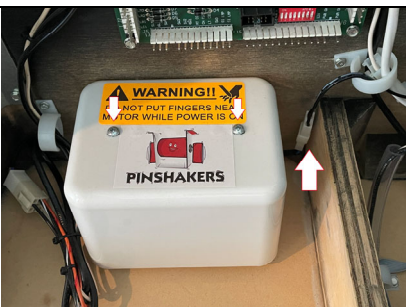
Once you get all 4 screws drilled, go underneath and hammer in the 4 tee nuts. Use a 1/2" deep socket to help so you don't smash your fingers. Hammer the tee nuts as far in the cabinet as they will go. If they do not go all the way in they will finish flush when you screw in the hex screws in the next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



### Step 7f: 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 7g: 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 8: Trigger Selections

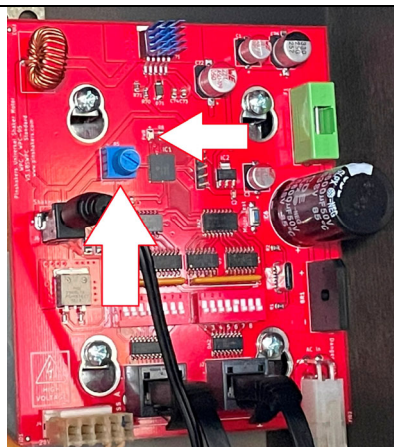
Feel free to change the dip switch settings with a pen or other like device on the motor driver board for the desired inputs that you want to drive the shaker motor. Do this while the machine is powered down. You can choose to have more than one switch turned on at a time.

You can use the above barcode to download the dip switch chart for your machine or visit [www.pinshakers.com/docs/wpcdipsettings.pdf](http://www.pinshakers.com/docs/wpcdipsettings.pdf)

**DANGER**



**HIGH  
VOLTAGE**



**In the next step you will be working with the motor board while it is powered on. Make sure you do not touch any of the components in the high voltage section or the 20vac/50vac output connector by accident as it may result in a serious injury or shock.**

### **Step 9: Power On & Test**

Power the machine on and look for the led on the motor driver board. It should flash 5 times, once it is steady it is ready for action. Play a game and the motor should shake when one of your triggers is activated. If it doesn't, then go back through the above steps to make sure you didn't miss a connection somewhere.

This is also a good time for you to adjust the intensity of the shaker motor to your desired amount. Use the speed adjust knob to adjust the intensity.

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).

