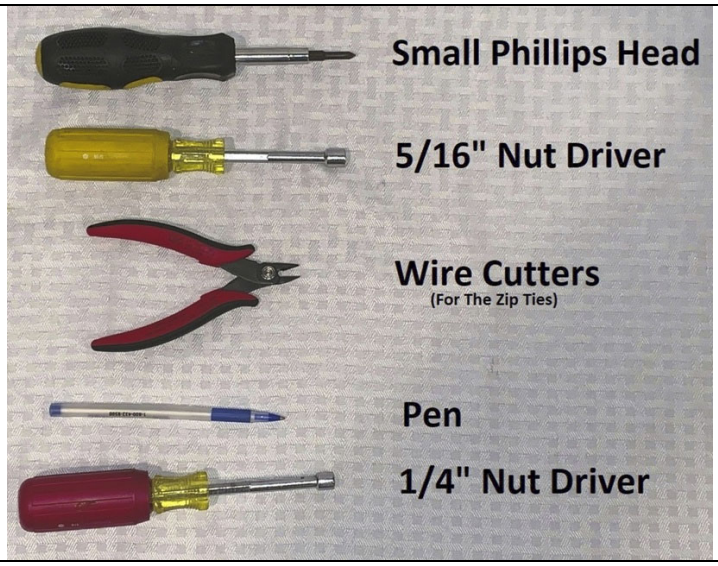
Pinshakers Universal Shaker Motor Kit Installation

Sys 11 Driver Board, Wire Harness, & Power Supply Installation – Updated 11/03/2019

Tools Required:

-Small Phillips Head Screwdriver
-5/16” Nut Driver
-Wire Cutters – (For cutting the ends of the zip ties)
-Pen – (For adjusting the dip switches)
-1/4” Nut Driver

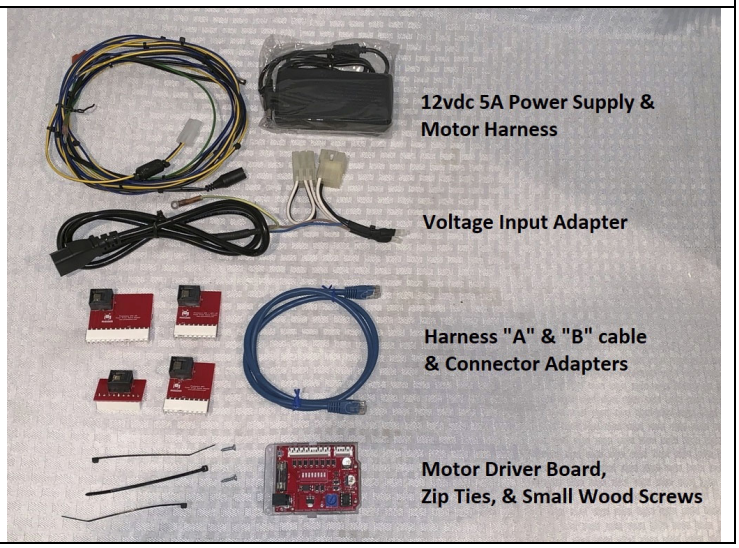
Note: Please hold onto this installation manual! In order to keep the price down on our kits we are only shipping one manual per household. You can still download our manuals from the website or watch the in-depth youtube installation videos.



Parts Required (included):

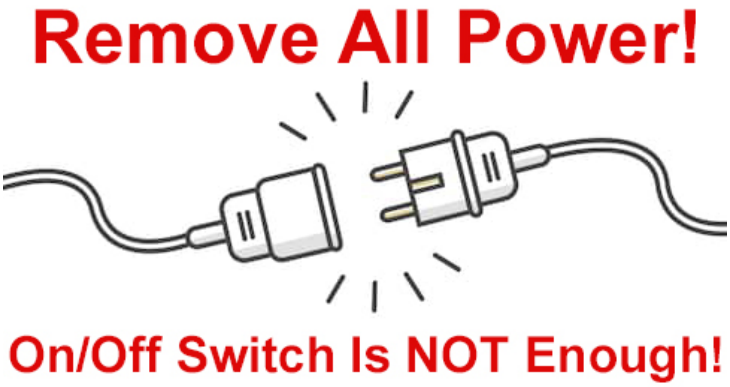
- ☐ 12vdc 5A Power Supply
- ☐ Motor Harness
- ☐ Voltage Input Adapter
- ☐ Wire Harness “A” and “B” Cable & Connector Adapters
- ☐ Motor Driver Board
- ☐ 2 x Small Wood Screws
- ☐ 3 Zip Ties
- ☐ Installation Manual
- ☐ Dip Switch Settings
- ☐ Any Optional Accessories

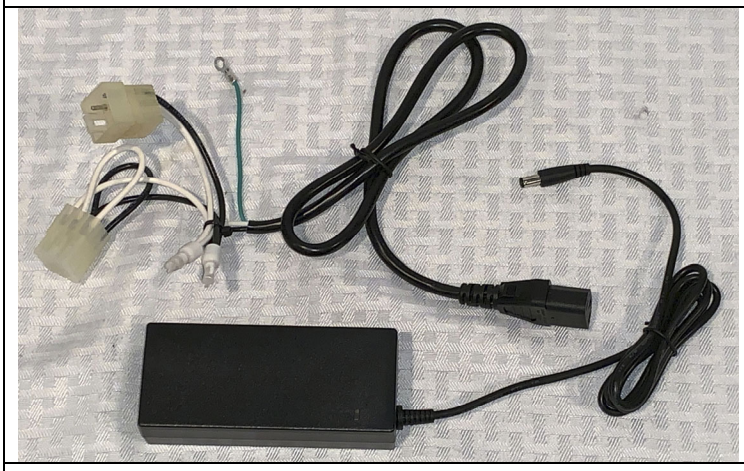
Unpack and inventory all the included components. Please let us know as soon as possible if you have any missing items. The photo to the right is an example, your kit may differ slightly with the number of connector adapters, voltage adapter type etc.



EXPECTATIONS OF USE

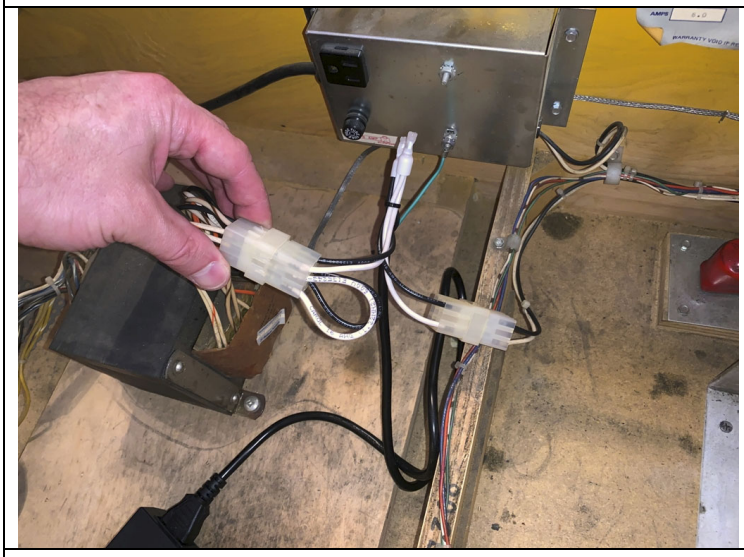
You agree to use our products in the manner described in the documentation provided. Any deviation from the provided documentation, or any custom modifications to our products, will likely cause damage to persons or property. You agree to only install our products in fully working and operating pinball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





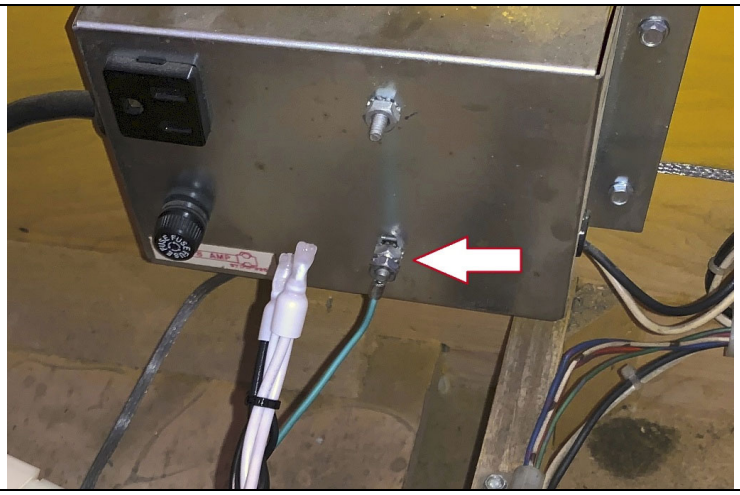
Step 1: 9pin Transformer Voltage Adapter Installation
If this is not the type of power supply adapter you received, skip to Step 7.

Early Sys 11 machines have a 9pin transformer voltage connector. For this type of machine you should have received our power supply adapter as pictured to the left. It will come pre-jumpered for the voltage your machine is running with, which you should have chosen during checkout.



Separate the 9pin jumper connector from the connector coming out of the transformer. There is a small tab you will have to lift up on one of the side in order to separate the two connectors. Insert the pre-jumpered end of the included adapter into the transformer connector. Then insert the connector coming from your power box into the other side of the included adapter. When you are all finished, the connection should look like the photo to the left.

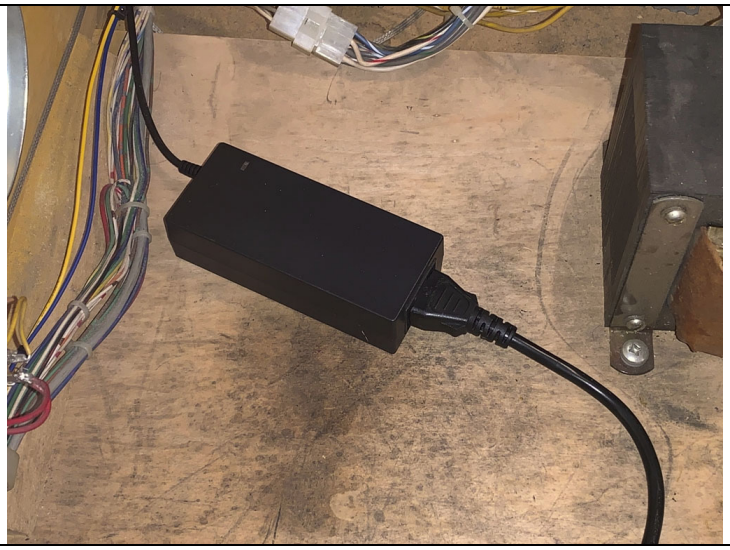
Step 2: Take the 1/4” nut driver and install the grounding cable to the grounding braid as shown in the image to the right. This is very important!



Step 3: Service Port Connection

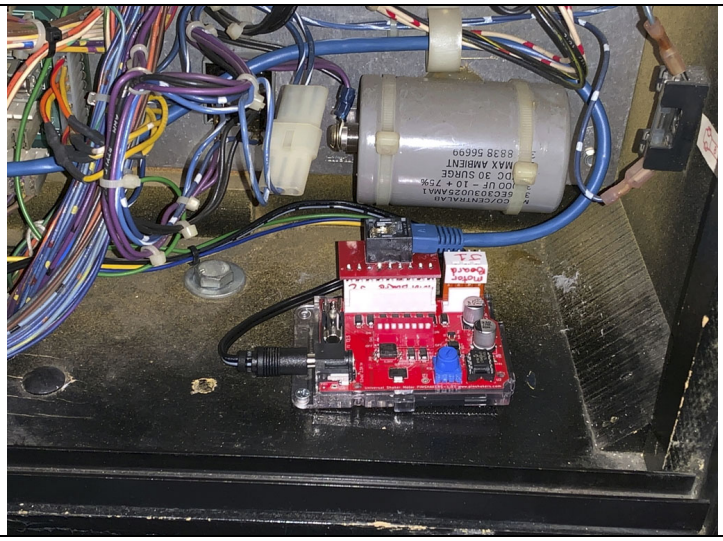
The last option for connecting the power supply is by plugging it directly into the service port. While this method may seem like the easiest of them all, the problem is that service port plug is always live whenever the pinball machine is plugged in. Turning off the switch to the pinball machine does not turn off the power to this service port. So you will need to make sure that whenever the machine is not in use, that you remove all power from the machine otherwise the included power supply, motor driver board, and shaker motor will remain powered. No damage will likely result in doing this, but if you are like me I do not like to leave things like this powered when unattended.

Step 4: Connect the power supply adapter 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 6’ extension cord and run it to the back of the machine.

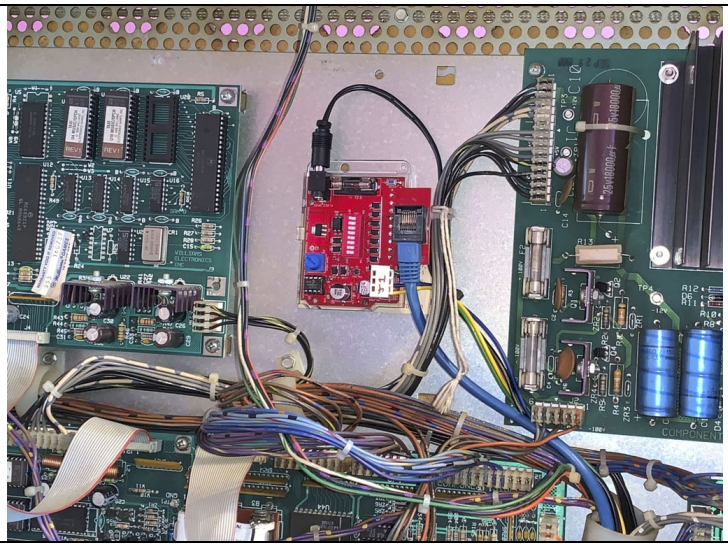


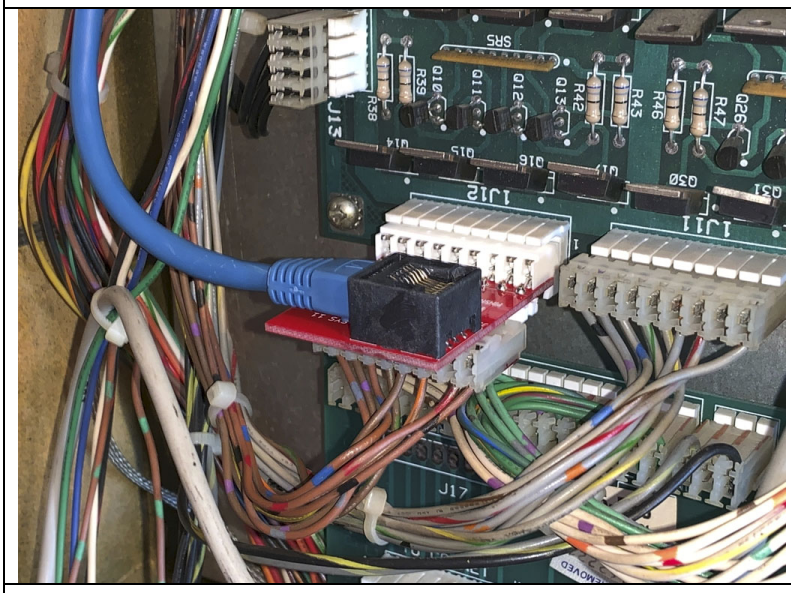
Step 5: Motor Driver Board Installation
Next take a look at your motor driver board. This is a good time to select the dip switch(s) you want to drive the shaker motor. Review the included dip switch matrix to determine what inputs you think you may want. You can always change them later after you install the board.

Locate the place where you want to mount the motor driver board. The example to the right is where we recommend installing the board in a Sys 11 generation machine. There is a strip of velcro already attached to the back of the driver board case. All you have to do is remove the backing and place the board to the side of the backbox.



To the right is an example of an alternate location for the motor driver board. You can use one of the holes pre-drilled in the metal back plate to mount one side of the driver board case, and also use the velcro to ensure a secure fit.





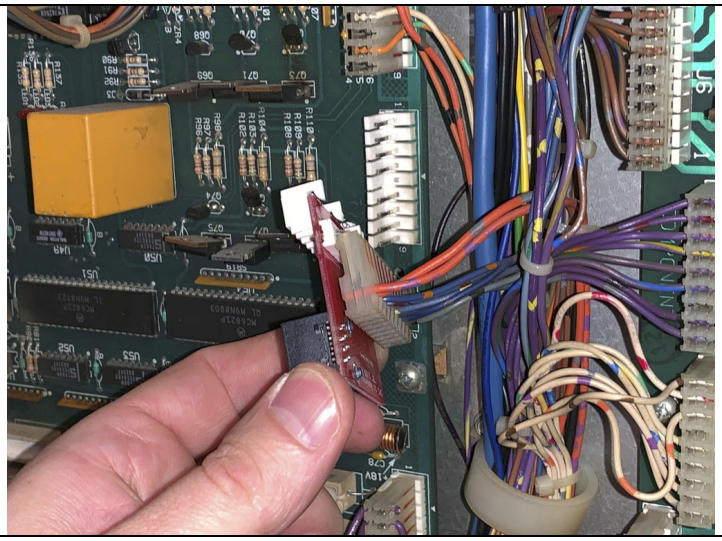
Step 6: Locate the power driver board connector for the type of machine you have. Unplug it and connect it to the connection on the bottom of the Cat5 adapter. Then connect the adapter back into the power driver board. Last, connect the Cat5 cable to the adapter. A photo to the left is a side view of the "A" adapter at 1J12.

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.

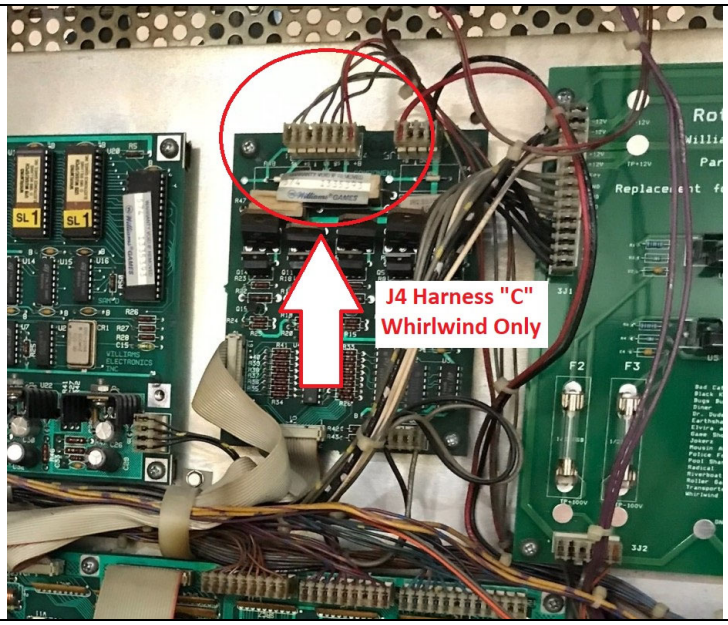
Here is an example of the wiring harness “B” connected to 1J19.

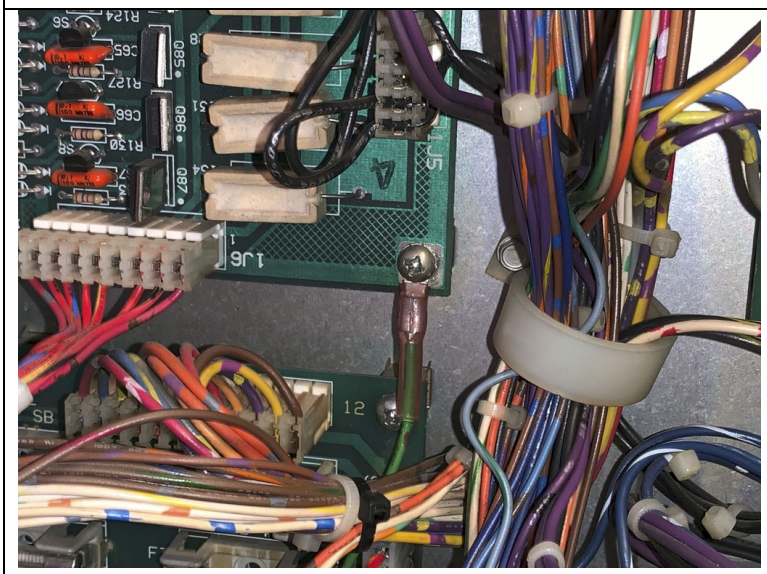
This is another angle showing the original connector installed to the bottom of the adapter.

Swapping between the two harnesses is a breeze. Simply install the other Cat5 adapter and connect the cable into it.



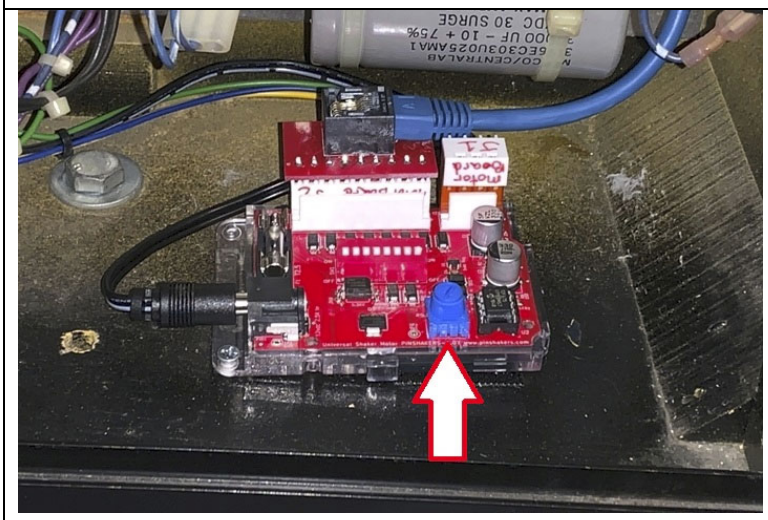
Whirlwind Only - Whirlwind has a special additional circuit board called a **“Sound Overlay Solenoid Board”.** It is located to the left of the power supply. There is no harness “A” for a Whirlwind, instead there is a harness “C” which will connect to J4 of this Aux board. Look at the photo to the right of reference. The harness adapter you will use will be the standard Sys11 harness “A” adapter, however there will be two extra pins that are not connected.





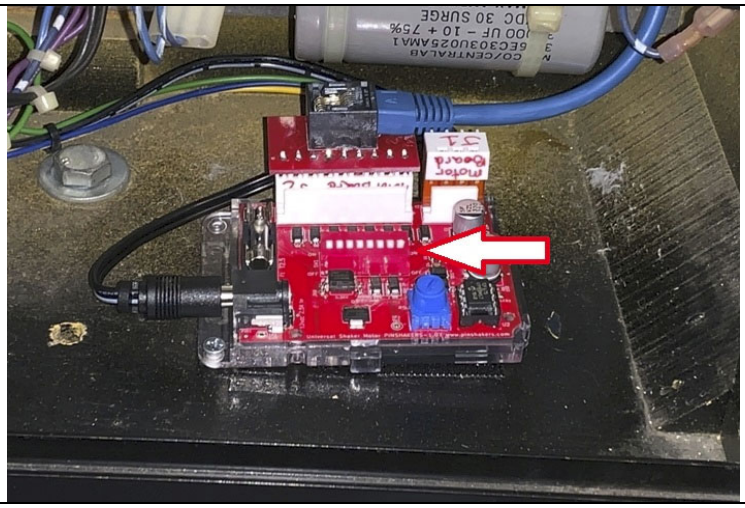
Step 7: Find the grounding screw to the bottom right corner of the MPU. Remove it and connect the grounding cable that is on the wiring harness. You can use this location regardless of which location you mounted the motor driver board. To be completely sure, I recommend you use a DMM in the continuity 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, IT IS THE MOST IMPORTANT STEP OF ALL BESIDES UN-PLUGGING YOUR MACHINE!

Step 8: Now run the shaker motor connection wires down into the cabinet. Use the wire wraps like the ones shown to the right to neatly secure the shaker motor wires. Connect the shaker motor, and leave all slack in the lines for both the shaker motor wires and the 12vdc cord 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 9: Power the machine on and look for the led on the motor driver board. It should flash 5 times during it's power-on routine. Once it is steady green, it is ready for action. Press the test button next to the fuse and the motor should shake. If it doesn't, then go back through the above steps to make sure you didn't miss a connection somewhere.
You can also use this test button to fine tune the intensity of the shaker using the speed adjust knob as shown to the left. Move this adjustment knob by hand only, counter-clockwise to reduce the shake and clockwise to increase the shake. Do not use a screwdriver as you might slip and accidentally short something out on the driver board. Continue to test the motor and adjust the shake to provide the perfect amount of shake you desire.

Step 10: 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. Do not mix up the dip switch on the motor driver board with the dip switch that may be on your MPU. The one on your MPU is used for setting the country settings only. You may turn on any dip switch on the motor driver board that does not have the "Do Not Use" label on the dip switch chart. You can choose to have more than one switch turned on at a time. Have fun with it and try to make it so that it feels as if this kit was always meant to be installed from the factory.



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.