



PinPac3 Installation Manual

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1. Warnings and Agreements

Welcome! The PinPac3 Pinball Person Audio Controller has been designed for simplicity of installation! As with any Pinball Machine modification and add on kit there is a required level of expertise for the installation. If you are not proficient in basic pinball parts installation we recommend having our kit installed by someone who is proficient with the basics of pinball repair. Pinnovators requires our kit be installed by an experienced Pinball service technician with basic electrical skills. As with any electrical piece of equipment a danger does exist and you must agree to not hold Pinnovators responsible for any injury, damages, etc. before continuing.

Sound Levels: Pinnovators recommends running your headphone sound level at a safe level to prevent long term hearing loss. We recommend following suggestions given by major audio equipment manufacturers such as Apple and their Ipod.

<http://phys.org/news80304823.html>
<http://www.macworld.com/article/1060274/hearingprotection.html>




ESD: We recommend always discharging the headphone cable by touching it to an exposed metal part of the pinball machine before plugging it into the machine.

Power Cord: ALWAYS UNPLUG THE POWER CORD for safety when working on your Pinball machine!



Playfield Propping: Pinnovators highly advises following Playfield propping instruction for your pinball machine. These instructions are typically found inside the Pinball Operators manual. Failure to follow these instructions can cause fatal injuries or even Death. Pinnovators also recommends having an assistant hold a propped playfield in the up position when servicing under the playfield.

2. What's included in the PinPac3

PinPac3 Front Panel	
Back Box Board (Specific to the kit ordered)	
Hardware accessory Kit (Clips and screws)	

3. Requirements:

The Pinnovators PinPac3 system DOES NOT require a Dollar Bill Acceptor slot on the machine's Coin door. Instead, it mounts under the machine.

The Machine must have a sound board / MPU system shown in the Back Box Installation section below. Please visit IPDB.ORG to learn what system your machine has. Pinnovators.com now provides a list of pinball systems we have a kit for.

4. Preparation

Read and understand this manual. Contact us if you have any questions! Sales@pinnovators.com

Unplug the Pinball Machine!

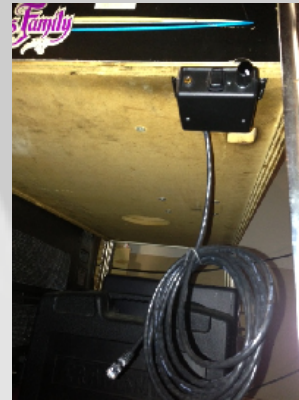


Next remove the back glass on the system and open the light board to expose the System circuit boards. The Addams Family is shown below as an example.

5. Control Panel Installation PinPac3:

- A. The control panel will be mounted under the cabinet on the right front side, next to the leg. There is no need to take the box apart.

(Ground wire not shown in this picture)



- B. Place the PinPac3 box bracket up against the front face of the machine. Using a pencil, mark the slots where the mounting screws will go. Make sure your happy with the placement.

(Have someone hold the PP3 box for you while you take a final look)

(Ground wire not shown in these pictures but we will get to it later on.)



- C. Using the included sheet metal screws in your kit, fasten the PP3 as shown below. The screws are short enough that they will not protrude into the cabinet.



- D.

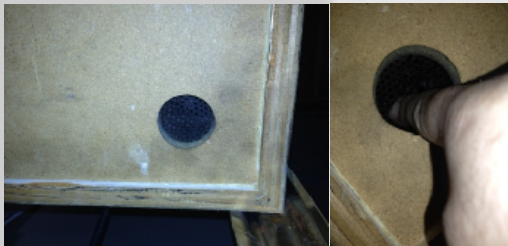
E. Cable Clips:

Secure the interface cable under the system using the 4 supplied cable clips and mounting screws. Route the cable to the back of the system and place the last clip at the rear right vent hole.



F. Vent Hole

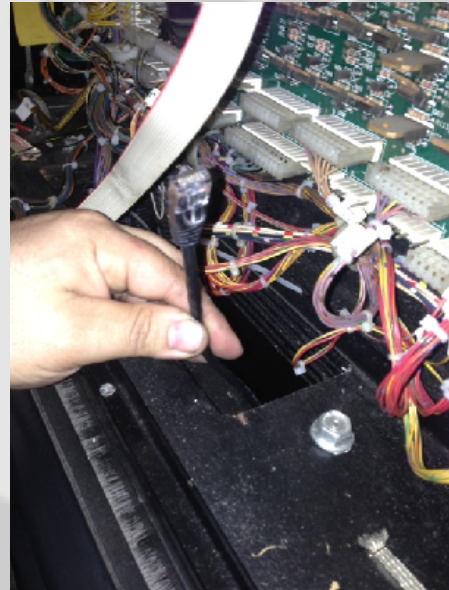
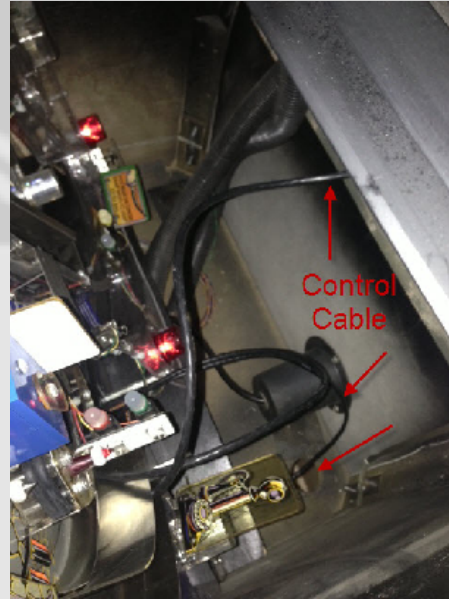
Locate the vent hole in the Right rear of the cabinet. Push up on the vent screen to dislocate it to allow the cable to be fed up into the hole.



The last mounting clip will hold the cable into position as it enters the vent hole.



G. Using a helper, remove the playfield glass and lift up the playfield. Thread the control cable up through the cabinet and into the Back Box.



Lower the playfield and reinstall the glass.

6. ESD Ground Wire:

Pinnovators provides a ground wire on our PinPac kits to provide a path to ground for any stray Static Electricity that may be stored on the headphone cable or human body. We recommend always discharging the headphone cable by touching it to an exposed metal part of the pinball machine before plugging it into the machine.

We will show two methods of connecting the ground wire for the PinPac3 kit.

Ground Wire Method 1: Williams machines.

Williams machines have a threaded hole under the machine as shown below. Simple thread the ground wire through the cable clip and then up into that hole. (Remove the coin box first)



Wrap the exposed end of the wire on the exposed ground stud of the power box. Secure the wire to ground as shown using the supplied nut.



Ground Wire Method #2: Stern games

We are going to attach the ground wire to one of the cabinet speaker mounting bolts. Locate the cabinet speaker and loosen the nut shown below. Don't fully remove the nut. Gently tap the screw down until it pops out the bottom of the pinball machine.



Form a hook on the end of the ground as shown.



Place the hooked wire around the screw head as shown. Push the screw head up and then tighten the nut on the speaker until the wire is secured.



Note: The Ground wire may be shortened and restriped to remove the extra length if desired.

7. Back Box Installation

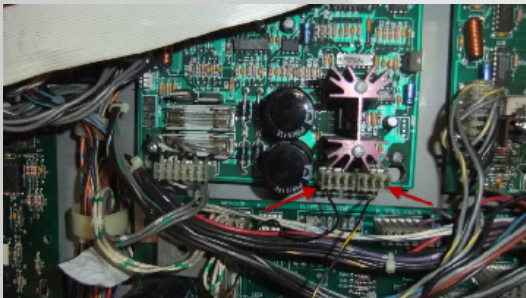
Pinnovators offers many kits for five of the most popular pinball systems as of the writing of this document.

Ref	Pinnovators Part Number	Description
1	330_003_WPC_DM	WPC-Dot Matrix
2	330_004_WPC_DCS	WPC_DCS
3	330_005_WPC_95	WPC_95
4	330_012_STN_WST	Stern Whitestar modified
5	330_013_STN_SAM	Stern S.A.M. System

We will cover the basic installation of the 330_003_WPC_DM WPC-Dot Matrix kit in the following section and we will include an addendum for the Back Box Board you purchase at the end of this manual.

330_003_WPC_DM WPC-Dot Matrix (Example Machines: T2, The Addams Family and Twilight Zone)

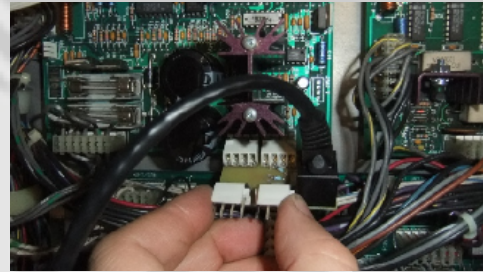
The sound board is the upper center board on a Twilight Zone. Locate the speaker connectors shown by the red arrows in the picture. Remove two speaker connectors by carefully rocking the connectors while pulling them out:



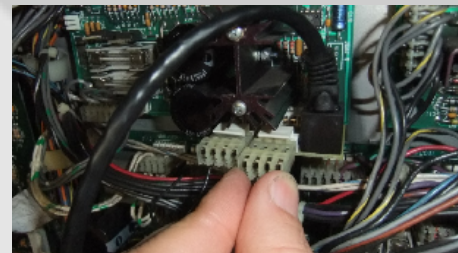
Plug supplied Pinnovators cable into the RJ45 jack on the Back Box Board Connector.



Insert the Back Box Board into the speaker connectors on the sound card as shown below. Make sure it's fully inserted and aligned properly. **ALIGNMENT is CRITICAL! You may damage your sound board if the connector is not properly aligned. Check it twice!**



Insert the original Speaker cables on to the pins of the Back Box Board. Note: the connectors can go on either set of pins without causing damage and will function properly for this Back Board.

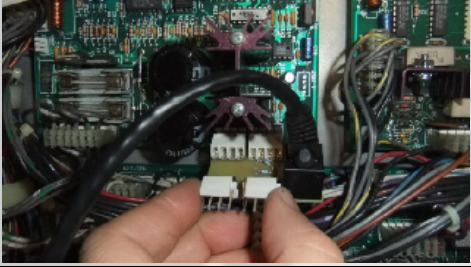
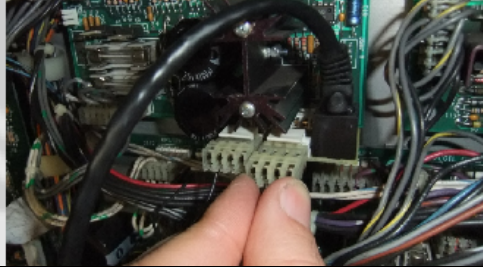
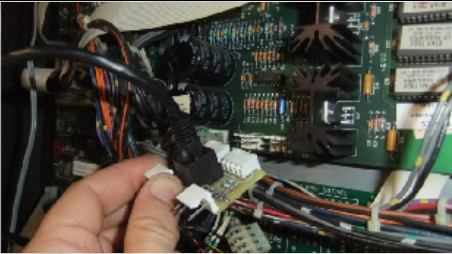
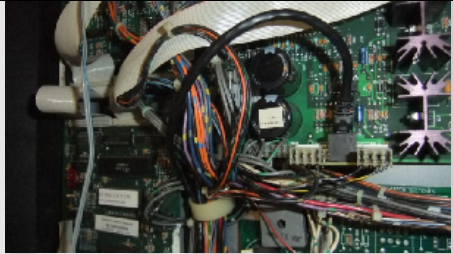
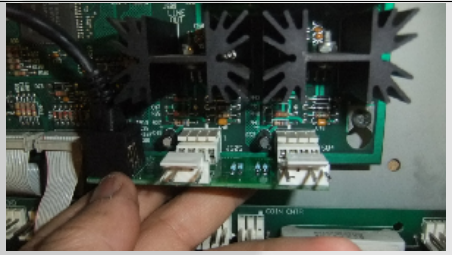
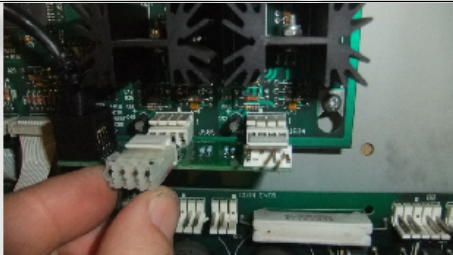
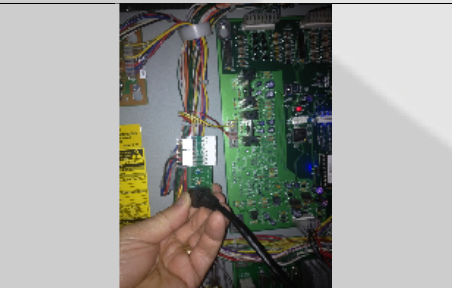
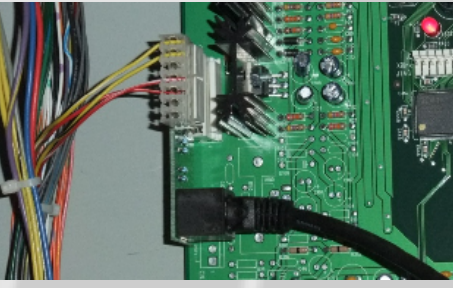

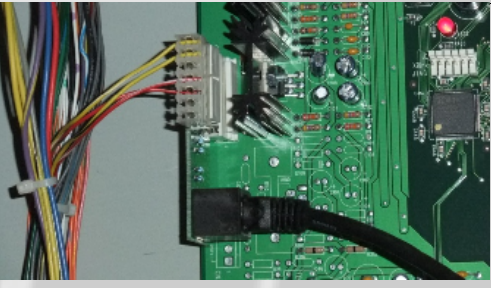
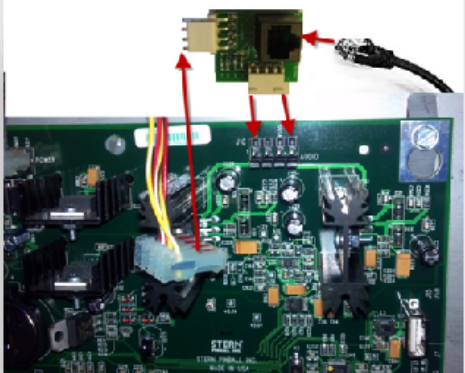


Route the cable into the cable harness clip as shown.



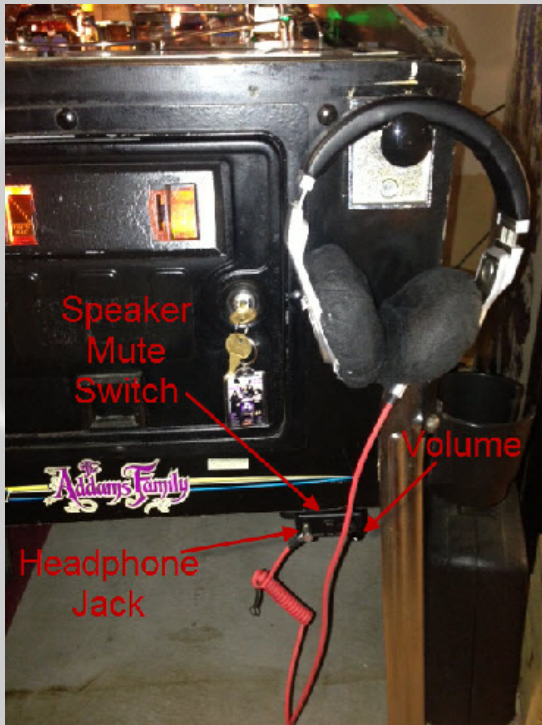
Reassemble the Back Box.

8. Back Box Boards

<p>Sound Board connector location show with connectors removed.</p>	<p>Back Box Board installed and cable in place.</p>
<p>330_003_WPC_DM</p> 	<p>Sample games: The Addams Family</p> 
<p>330_004_WPC_DCS</p> 	<p>Sample games: Star Trek The Next Generation</p> 
<p>330_005_WPC_95</p> 	<p>Sample Game: Medieval Madness</p> 
<p>330_012_STN_WST</p> 	<p>Sample Game: The Lord Of The Rings</p> 
<p>330_013_STN_SAM Stern S.A.M.</p> 	<p>Sample Game: Transformers</p> 
<p>6</p>	

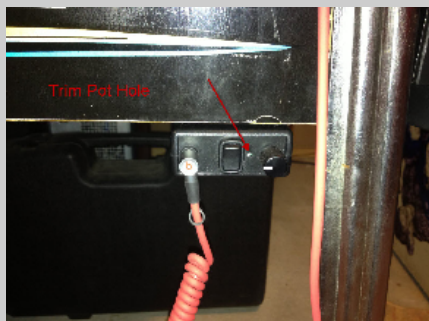
9. Final Checkout

Power up the system and start a game. Make sure the front panel switch on the PinPac Control panel is in the “UP” position. Verify sound can be heard from the Back Box speakers and the lower Cabinet speaker. Switch the switch to the “Down” position and verify the speakers turn off. Insert headphones into the jack and verify levels in headphones can be adjusted with the volume control knob.



10. Trim Pot Function

The PinPac front panel board has a small trim pot mounted on the PCB only accessible with a small screwdriver. Be careful not to force the trim pot. It is delicate.



This trim pot has different functionality depending on the Back Box Board type. The main purpose was to allow the user to “Mix” the Cabinet speaker channel and the Back Box Speaker channels going into the headphones. The trim pot provides a reasonable amount of mix on most of the boards. Note that the WPC-Dot Matrix system really only has ONE channel so the trim pot can’t adjust the mix, just the overall level in the headphones.

Ref	Pinnovators Back Board Part Number	Description	Trim Pot Function
1	330_003_WPC_DM	WPC-Dot Matrix	Overall level in the headphones
2	330_004_WPC_DCS	WPC_DCS	Cabinet and Back Box mix
3	330_005_WPC_95	WPC_95	Cabinet and Back Box mix
4	330_012_STN_WST	Stern Whitestar +modified	Cabinet and Back Box mix
5	330_013_STN_SAM	Stern S.A.M. System	Cabinet and Back Box mix

11. Recommended Headphones.

Pinnovators tested the PinPac3 and 2 on many different headphones. Our favorite was the Beats by Dr. Dre. We also tested a moderately priced set of headphones ~\$30 and was still blown away by how good the bass response was and how clear the treble was!

Thank your purchase of our product! We hope you get many years of service from it.

The Pinnovators Team.

12. Alternate Installation

The PinPac3 can also be wired without running the cable under the game cabinet. You have to use a ½ inch drill to put a hole in the bottom of your cabinet because we feel the installation is much cleaner and the benefit of having a headphone kit will add more value to your machine!

Open the PP3 box by removing the two screws on the bottom.



Mark the center of the round hole in the mounting bracket using a punch. Drill out the hole using a ½ inch drill. (Note you must be proficient at using hand tools safely or find someone that is!)



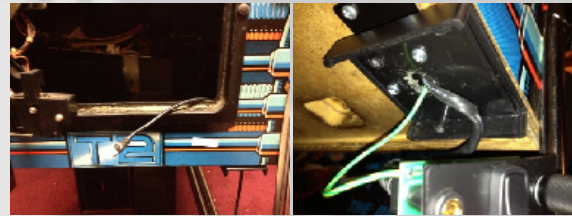
Position PinPac3 under the cabinet and mount just the top half as instructed in the earlier section of this manual.



Make sure the area above the hole inside the cabinet has nothing blocking it. Using a ½ inch drill, drill up into the cabinet.



Run the Control cable up through the hole. This takes a little skill but it can be done. Run the Ground wire up through the hole too.



Plug the other end of the Control cable into the RJ45 connector in the box. Route the cable inside the box as shown. Assemble the box and route the cable inside the cabinet and up to the Back Box.



Secure wire to ground stud on power box.



Continue on with the installation for the Back Box Board.