

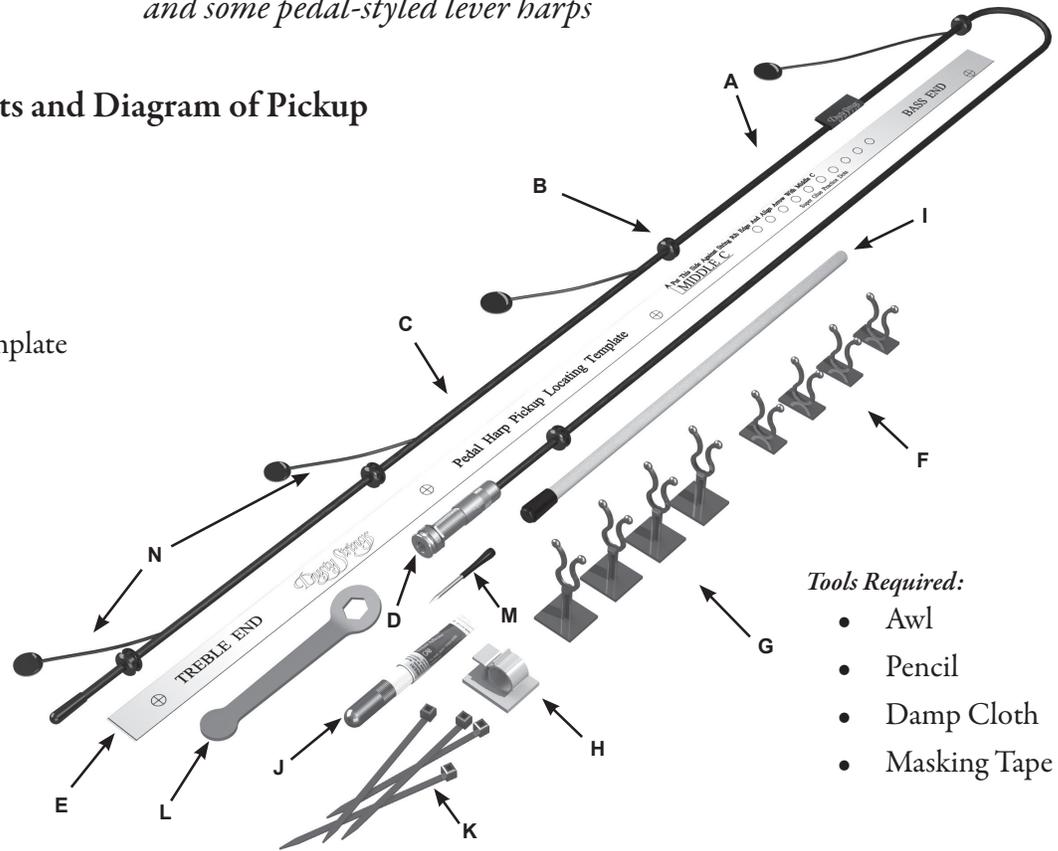
Dusty Strings

Dusty Harp Pickup Installation

Model P30 – For all Pedal Harps
and some pedal-styled lever harps

Installation Kit Contents and Diagram of Pickup

- A. Pickup Elements (4)
- B. Grommets (5)
- C. Pickup Harness
- D. Jack
- E. Pickup Locating Template
- F. Short Clips (4)
- G. Tall Clips (4)
- H. Jack Clip
- I. Pressure Stick/Ruler
- J. Super Glue
- K. Cable Ties (4)
- L. 12mm Wrench
- M. Jack-Tightening Pin
- N. Lead Wires



Tools Required:

- Awl
- Pencil
- Damp Cloth
- Masking Tape

Read This Before You Start!

Before you begin, please read the instructions all the way through and pay special attention to the tips below.

- This pickup produces the best possible sound *only* when the elements are super-glued to the back of the soundboard using the glue provided in the kit. If necessary, it can be removed without harm to the harp, but the elements are fragile and likely to be damaged in the process. It is meant to be a long-term investment in the versatility and value of your harp and is not designed to be removed and transferred to another instrument. If you choose to use a different type of adhesive for a less permanent installation, you will not get the sound quality and performance this pickup is known for.
- Anything that is not securely attached can create a buzz, and any hard surface that is lightly touching another hard surface can cause a rattle.
- Make sure the harness clips are not touching any part of the harp except where they are stuck on. Don't put them close enough to buzz against the soundboard or braces. Don't attach them to the soundboard if at all possible.
- Make sure the lead wires are not resting on the soundboard or on any interior braces.
- Regardless of how you install the jack, make sure all the internal and external nuts are snug, and make sure the jack is either securely attached to the harp or at the very least cushioned so it can't buzz against the harp body.
- Clean the surface of the harp at every adhesive attachment point, even if it doesn't look dirty. A little bit of dust can interfere with the adhesive bond, resulting in loose components later on.
- Test the element placement with double-stick tape to confirm the balance before gluing.

Step 1: Prepare the Harp

1. Lay your harp so the soundboard is parallel to the floor, with the soundholes facing up (*see figure 1*). It is important to get the soundboard as level as you can. Prop your harp up securely, with a carpet or other padded surface under the pillar and the base.
2. To ensure that the pickup elements and harness clips will adhere well, use a slightly damp cloth to wipe any dust or debris off of the inside of the soundboard and the soundboard lining along the left side of the soundboard (*see figure 2*). **This step is absolutely necessary.** Clean any surfaces where you will be attaching the clips and pickup elements. If you don't, the adhesives will not stick and pickup elements and/or harness clips may come loose. Don't assume that it is clean even if you can't see any dust. Dry to remove any trace of moisture.



Figure 1 – Prop up the harp

Step 2: Mark Pickup Locations

1. Find the pickup locating template provided in the installation kit. Poke an awl or a nail through the center of the four circles that have a cross through them (*see figure 3*).
2. Slide the template into the harp through the bottom soundhole, “Treble End” first.
3. Place the template on the back of the soundboard with the edge against the left side of the string rib (*see figure 2*).
4. Position the template so the “Middle C” arrow points directly at the middle C string. Tape the template in place.
5. Mark a pencil dot directly on the soundboard through the holes you made in the template.
6. Carefully remove the template from inside the harp.
7. You should now have 4 clearly visible pencil dots on the soundboard.

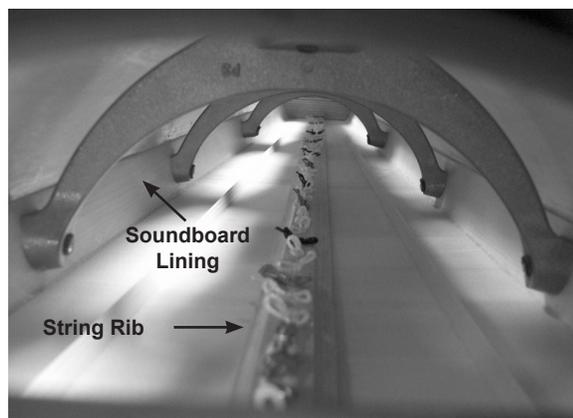


Figure 2 – String Rib & Soundboard Lining

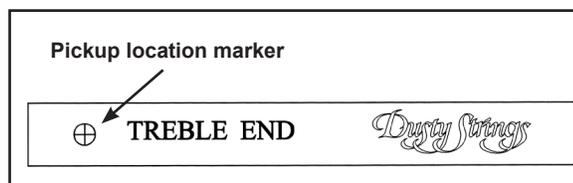


Figure 3 – Template

Note: The template reflects the positioning of pickup elements that has sounded best in the pedal harps we have worked on, but each harp is a little different. Before gluing anything down, we recommend using double-stick tape to adhere the elements at first. The tape will produce a diminished signal strength in comparison to the eventual hardened glue, but you will be able to plug the pickup into an amplifier and test the balance. To make adjustments, you can move a pickup element toward the center of the soundboard for more signal, or toward the edge of the soundboard for less signal.

Step 3: Attach Harness Clips and Harness

Note: Please read this section carefully before attaching clips. The interior structure of pedal harps varies significantly across manufacturers and models. Finding the best attachment points for the harness clips will be left to the installer, based on the following guidelines:

- The goal is to attach the harness in a location that allows the pickup elements to be glued in the marked locations without putting the lead wires under tension. (See figure 5 for an example.)
- Neither the clips nor the lead wires should contact any surface inside the harp except at the point where they are glued.
- The clips should not be attached to the soundboard itself, if at all possible.
- If the clip location is close to the soundboard, ensure that it doesn't touch the soundboard by placing a spacer on the soundboard to raise the clip slightly while you are attaching it. A paperclip, thin coin, or 3 business cards will provide enough clearance to prevent unwanted vibration (see figure 4). After the clip is securely in place, remove the spacer.
- Most installations will use either three or four short clips. Four tall clips are included for special situations.
- Figure 5 shows an installed pickup in a Lyon and Healy harp using four short harness clips attached to the soundboard lining between the aluminum body ribs. Venus harps will be similar.
- If you have a Salvi harp, use three short clips mounted to the edges of the wooden body ribs, making sure they are aligned so that the harness is straight.

1. Carefully slide the pickup harness into the harp through the bottom sound hole. The vinyl tip should be towards the top of the harp. Be careful not to let the jack drag or bump on the harp.
2. Position the harness along the left side of the soundboard so that the pickup elements line up with the locations marked in the previous step.
3. Mark an 'X' at 4 locations along the left side of the harp where clips can be located to hold the harness in position, following the guidelines above. In many installations the locations of the clips will be similar to where the grommets are positioned on the harness when the pickup is shipped to you.
4. Remove the backer from the self-adhesive patch on one of the harness clips.
5. If needed, use a coin or paperclip as a spacer to hold the bottom edge of the clip up off of the soundboard during installation (see figure 4). This is to prevent the clip from touching the soundboard and causing unwanted vibration.
6. Firmly press the clip into place over the 'X,' keeping it as square to the soundboard as possible.
7. Repeat for the remaining clips.
8. Slide the rubber grommets along the harness so they align with the clips while allowing the pickup elements to line up with the dots on the soundboard.
9. Press the rubber grommets into the clips. It is not necessary to twist the clips together.
10. If desired, unused grommets can be removed from the harness by carefully cutting with scissors or diagonal cutters.

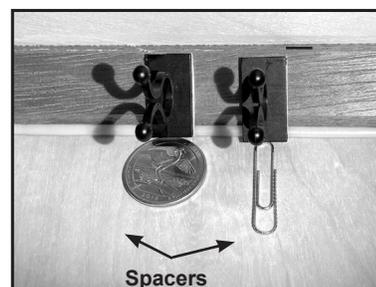


Figure 4 – Harness Clips and Spacers

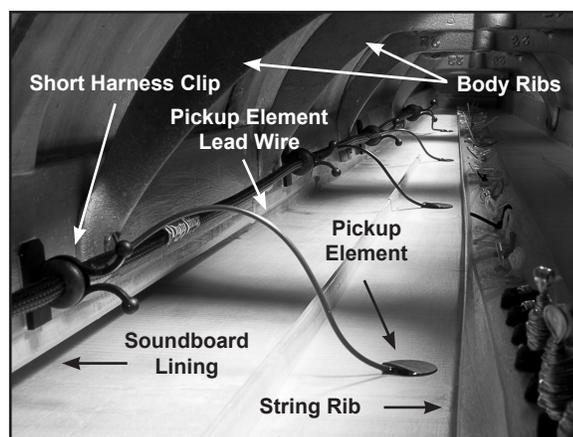


Figure 5 – Installed Pickup in Lyon and Healy harp

Step 4: Glue Pickup Elements in Place

Caution: Once the elements are glued on, they are very difficult to remove without damaging the pickup or the soundboard. There are a couple of techniques that it is a good idea to practice first:

Practice manipulating and placing the element.

1. Hold a pickup element by its lead wire, and guide it into position in the air over the pencil dot, parallel to the soundboard surface. It's best to drop the element directly onto the glue dot rather than sliding it along the soundboard. Sliding can be messy and may interfere with the strength of the glue bond.
2. Position the element shiny side down, and practice using the pressure stick to press the pickup element down onto the soundboard.
3. A useful trick, especially when it's difficult to get both hands inside the harp, is to use double-stick tape or poster putty to attach the element to the pressure stick. Then you can use the stick to position the element instead of your hands. Once the glue has cured for two minutes, you'll be able to remove the stick without pulling the element back up again.
4. Work with this until you have a feel for manipulating and positioning the elements.

Practice controlling glue.

1. Find the super glue practice dots located on the Pickup Locating Template.
2. Touch the tip of the tube to the paper and squeeze out just enough glue to fill the circle. This should be less than a drop. This is enough glue to bond the entire surface of the pickup to the soundboard without excess that will run and soak into the wood. Try to be as neat as possible!
3. When you have a feel for the right amount of glue, begin gluing the pickups in place.

Note: After you place the pickup element on the soundboard, you will only have a few seconds to correct the position. After that, do not attempt to remove it, as this can break the developing glue bond. If you break the glue bond, you will have to carefully remove the glue residue from the soundboard and the pickup element using 150 grit or finer sandpaper.

1. The lead wire should naturally curve away from the soundboard (*see figure 6*). If necessary, adjust the pickup harness in the clips to ensure that the lead wires won't touch the soundboard and cause unwanted vibration.
2. Start with the top pickup.
3. Apply the super glue to the pencil dot.
4. Keeping the pickup element parallel to the soundboard (to ensure an even thickness of glue), press the pickup down firmly and quickly onto the super glue and hold in place with the provided pressure stick (*see figure 7*).
5. **Important:** Hold firmly for two minutes to ensure a complete glue bond. We recommend using a timer to make sure you hold the pickup in place for a full two minutes.
6. Proceed with the next pickup element, and so on, until all are done.

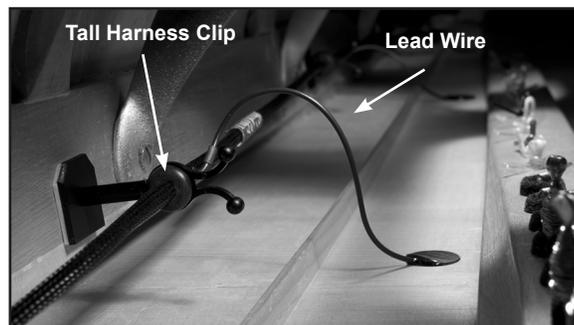


Figure 6 – Installed Pickup Element

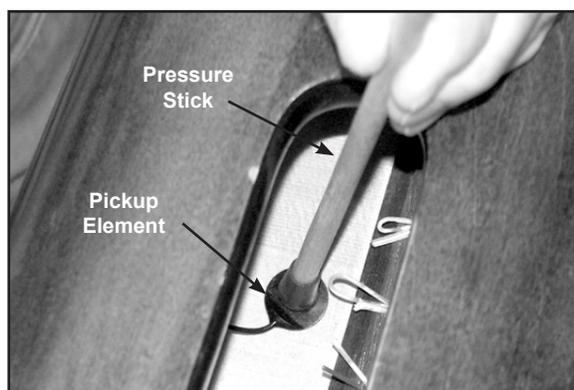


Figure 7 – Pressure Stick

Step 5: Install Jack

Note: Because there are multiple options for where and how to install the jack, you'll pick one of the following methods to follow. Whichever method you choose, make sure that the jack is reasonably easy to reach when you want to plug your harp in, and that none of the internal or external cables are going to interfere with the pedal mechanisms.

Method A: Using the Included Jack Clip

This is a straightforward and economical way to secure the jack underneath the harp without any special skills or additional accessories. However, it can be somewhat vulnerable to damage, so you should take care to protect it when moving the harp. (You could instead choose to mount the clip inside the lowest sound hole in the back of the harp.)

1. Route the free end of the pickup harness and the jack down through the hole in the base block and pedal box (see figure 8). (If your harp does not have this hole, you will probably need to mount the jack inside the lowest sound hole instead.)
2. Apply the adhesive-backed jack clip to the bottom of the pedal box on the right side, just forward of the A pedal. Place an extra harness clip on the edge of the base block to position the wiring harness to keep it clear of the pedals and pedal springs (see figure 8).
3. Make sure the tip nut is very tight. Loose hardware on the jack can cause a rattle.
4. Insert the jack as shown (see figures 9 & 10). The clip should seat down onto the threaded portion of the jack, between the tip nut and the hex nut. The two washers should be next to the hex nut.
5. Close the clip until it locks. You should hear and feel a distinct click.
6. Tighten the hex nut snugly.

Method B: Using the Dusty Jack Clamp

Our Jack Clamp is a somewhat more robust option that also does not require drilling a hole (see figure 11). It can be used to secure the jack in a completely removable way, and will not mar the finish on your harp or leave adhesive residue. More details can be found on our website, dustystrings.com. The Jack Clamp comes with its own detailed instructions for installation, so we recommend referring to those.

Method C: Drilling a Hole

Drilling a hole is often considered to be the most professional (and permanent) method of installing the jack. While most people prefer to have a technician do this part, it can be done by anyone with the right drill bit and a steady hand.

One place you can drill a hole is in the center back of the pedal box between the B and E pedals (see figure 12). If you use a cable with a right-angle plug, you can route the cable down to the floor, and it shouldn't interfere with pedal operation. Before drilling, look inside the pedal box to make sure that the pickup will not touch any moving parts. Another option is to drill the hole just below the lowest sound hole. Your harp technician may thank you for this, because it makes it easier to remove the pedal box for service.

Some harpists prefer to have the jack on the side of the pedal box, where it is not near the pedals, and can be easily hidden from an audience (see figure 13). However, the wood is often much thicker there, and you may need to drill a stepped hole, which can take some woodworking expertise and a variety of drill bits. If you choose this location, you may want to have an experienced harp technician do the work.

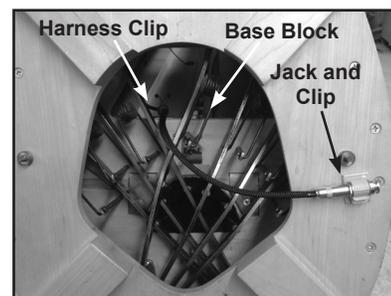


Figure 8 – Using the Jack Clip

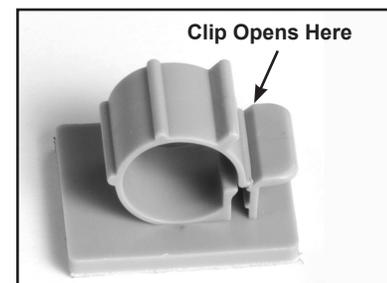


Figure 9 – Jack Clip

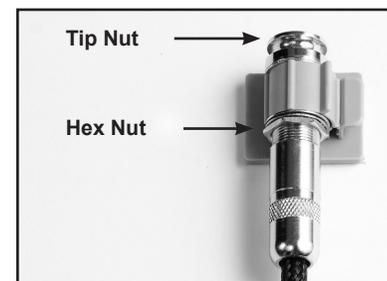


Figure 10 – Jack in Clip



Figure 11 – Jack Clamp

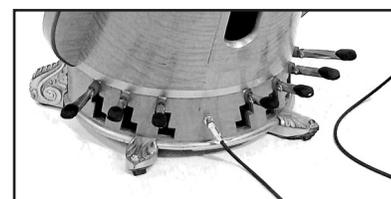


Figure 12 – Hole Drilled in Back



Figure 13 – Hole Drilled on Side

To install the jack by drilling a hole in the back of the harp:

1. Start by marking the center of your hole with an awl on the outside of the harp.
2. Place a paper towel inside the harp under the hole location to collect dust and wood chips from drilling.
3. Carefully drill a hole with a 1/2" brad-point drill bit (*see figure 14*). This type of drill bit centers the hole and holds the bit in place, helping to prevent damage caused by the drill bit sliding on the surface of the harp. Be sure to keep the drill bit perpendicular to the surface of the harp, and use gentle pressure to avoid chipping out the back of the hole or plunging the drill through and damaging the interior of the harp.
4. After drilling, make sure the inside edge of the hole is free from splinters.
5. To install the jack, first remove the tip nut, the retaining nut, and the outer washer from the jack (*see figure 15a*). Leave the lock washer, inner washer, and inner nut in place.
6. Reach inside the harp and carefully push the end of the jack up through the hole you drilled in the back of the harp. Adjust the inner nut so the step to the wider threads sits about $\frac{1}{16}$ " (1.5mm) below the outer surface of the harp body (*see figure 15b*).
7. Put the outer washer on the jack followed by the retaining nut (*see figure 15c*). Snug down the retaining nut finger-tight. The jack should be firmly held in place. If the jack is loose in the hole, loosen the retaining nut and adjust the inner nut so that the outer washer and retaining nut can fully seat against the surface of the harp.
8. Place the 12mm wrench on the retaining nut. Insert the jack-tightening pin through the cross-drilled hole in the threads of the jack. Hold the jack in position with the pin and use the 12mm wrench to firmly tighten the retaining nut (*see figure 15d*).
9. Screw on the tip nut as tightly as you can, as there is the potential for an annoying buzz if it is not tightened properly. You can use pliers, but try not to mar the edges. If correctly installed, the end of the threaded portion of the jack should be slightly visible in the chamfer at the end of the tip nut (*see figure 15e*). Your cable plug needs to be able to make a firm connection with the jack; it should snap distinctly into place when inserted. If the threaded portion of the jack is too far inside the tip nut, the cable plug can be stopped by the tip nut before it makes a good connection with the jack. If this is the case, you will need to remove the tip nut, loosen the retaining nut, adjust the position of the inner nut so that the end of the jack barrel is very slightly further out, retighten the retaining nut, and re-install the tip nut.

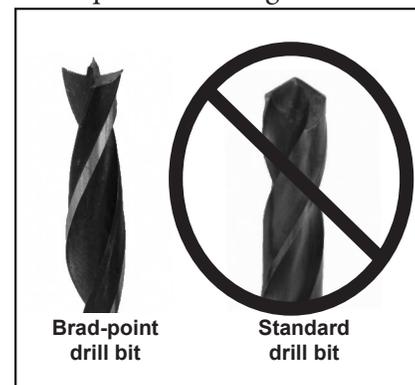


Figure 14 – Drill bits

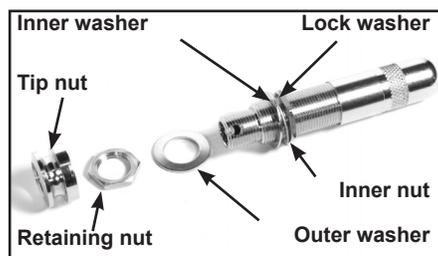


Figure 15a – Jack components

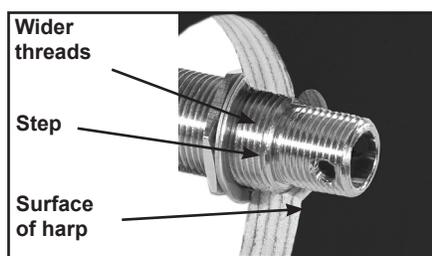


Figure 15b – Jack installation

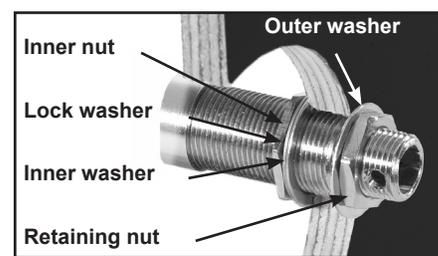


Figure 15c – Jack installation

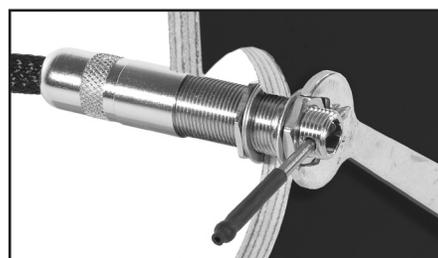


Figure 15d – Tighten the jack

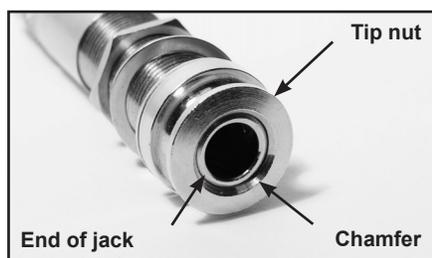


Figure 15e – Optimal alignment

Step 6: Check the Harness Wires

If you end up with a lot of extra cable between the pickup harness and and jack, it will need to be secured to prohibit contact with the pedal mechanism. Using the enclosed black cable ties, bundle the excess by gently folding the braided cable into an elongated S-shape and wrapping one or two cable ties around it, trying not to make hard creases in the cable at the bends.

Step 7: Test

Use an instrument cable to plug the pickup into an amplifier and lightly tap the backside of the soundboard near each pickup element to make sure each is giving a signal. Let the glue cure over night, and avoid moving or jostling your harp during that time. The tone and signal strength will improve over the next day as the super glue cures to full hardness.

Step 8: Practice at home before your first gig!

Of course, next you'll want to plug your harp into your amplifier and try it out. Just a bit of advice if we may: get thoroughly comfortable with setting up and plugging in your sound reinforcement gear *before* you get to the first gig where you'll be using your new pickup. Try out all the controls on your amplifier so you will understand how they affect the sound and what your possibilities are. If you can, get someone to listen and comment as you play. When you get to the gig, this will give you the confidence you need so you can concentrate on your music, knowing that you are projecting a quality sound.

Congratulations! The installation process is complete. Please give us a call with any questions.