

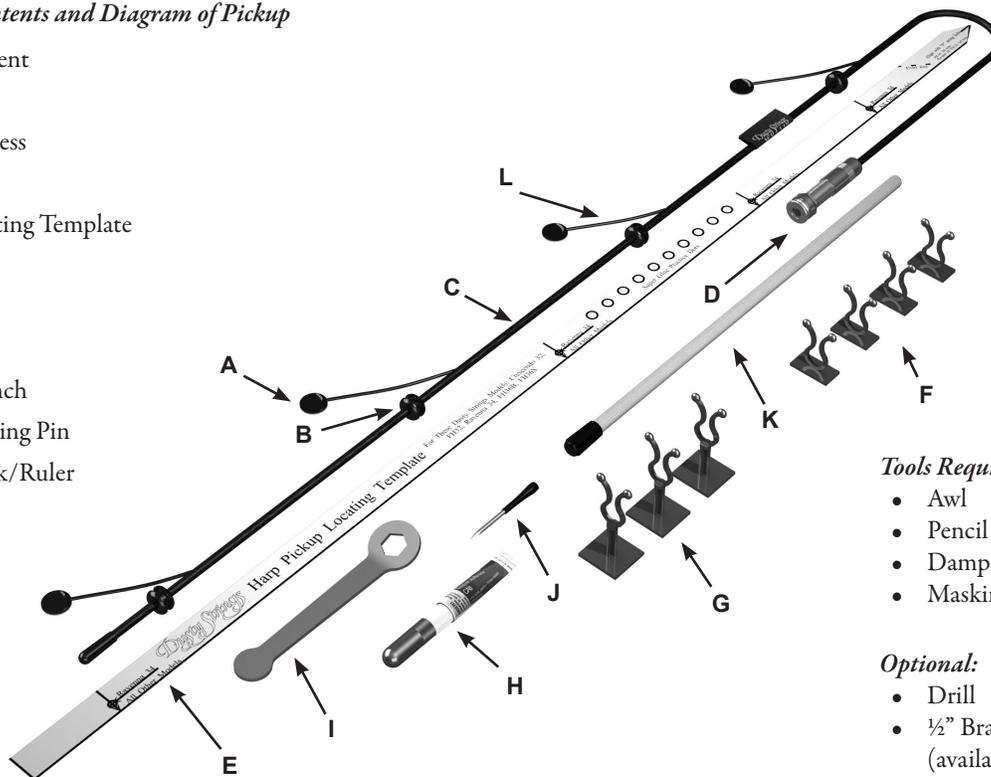
Dusty Strings

P20 Dusty Harp Pickup

for 32-40 string lever harps

Installation Kit Contents and Diagram of Pickup

- A. Pickup Element
- B. Grommet
- C. Pickup Harness
- D. Jack
- E. Pickup Locating Template
- F. Short Clips
- G. Tall Clips
- H. Super Glue
- I. 12mm Wrench
- J. Jack-Tightening Pin
- K. Pressure Stick/Ruler
- L. Lead Wires



Tools Required:

- Awl
- Pencil
- Damp Cloth
- Masking Tape

Optional:

- Drill
- ½" Brad Point Drill Bit
(available from Dusty Strings)

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 on non-Dusty harps to confirm the balance before gluing.

Installation Instructions

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. Use a slightly damp rag to wipe any dust or debris off of the inside of the soundboard and the soundboard lining along the left side of the harp. This will help to ensure the pickup elements and harness clips adhere well.
3. For Ravenna models with a drop-down leg installed, fully extend the leg to get it out of the way.



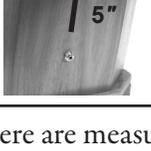
Figure 1 – Prop up the harp

Step 2: Drill Jack Hole (optional)

If you don't want to drill a hole in your harp, the Dusty Pickup Jack Clamp may be used as a secure and removable alternative. See more at www.dustystrings.com.

If you have a Ravenna harp, it may have a pre-drilled hole, which would be on the left quarter stave on the back of the harp, covered by a plastic cap. If you have a pre-drilled hole, you can skip the drilling step.

1. Find the center of the jack hole for your harp in the table below.

Ravenna 34	Left Quarter Stave, 1½" up from base and centered on the panel left to right	
FH34S	Center of back, 3" below bottom sound hole	
Crescendo 34, FH34, Crescendo 32 & FH32	Center of back, 4" below bottom sound hole	
FH36S, FH36H & FH36B	Center of back, 5" below bottom sound hole	

2. Using an awl, mark the position of the center of the hole on the back of the harp. For convenience, there are measurements engraved on the included pressure stick.
3. Place a paper towel inside the harp under the hole location to collect dust and wood chips from drilling.

Caution: When drilling, use gentle pressure to avoid chipping out the back of the hole and to prevent the drill from plunging through and damaging the soundboard.

4. Carefully drill a hole with a ½" brad-point drill bit (see figure 3). Be sure to keep the drill bit perpendicular to the surface of the harp.
5. After drilling, make sure the inside edge of the hole is free of splinters.

Note: Using a brad-point drill bit is important. This type of 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. It can also help to ensure that the hole doesn't get "wowed out" as you drill. If needed, ½" brad-point bits are available from Dusty Strings.



Figure 3 – Drill bits

Step 3: Mark Pickup Element Locations

1. Find the paper pickup locating template. Poke an awl or a nail through any circles that are labeled for your harp model.
2. Fold the template on the dotted line near its pointed end. Tape the fold flat.
3. Slide the template into the harp through the bottom sound-hole, folded end first.
4. Place the template on the soundboard with the edge against the soundboard lining on the left side of the harp. The lining is the strip of wood that covers the joint between the soundboard and the side of the harp. Position the template so the folded end points directly at the highest F (blue) string (see figure 4). Tape the template in place. (If you have a non-Dusty harp, see the sidebar on the right for more info.)
5. Mark a pencil dot directly on the soundboard through each of the holes you made in the template, or at the ends of the arrows if the circles don't apply to your harp model.

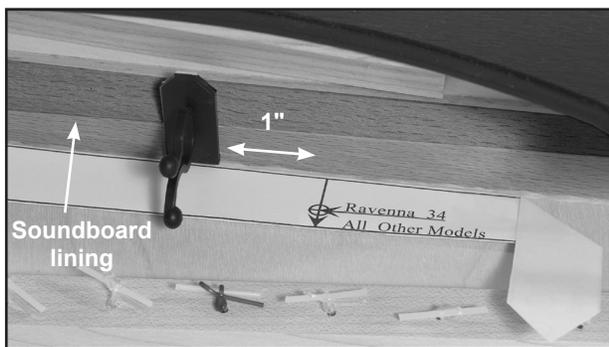


Figure 4 – Marking Template pointing at high F

Step 4: Mark Harness Clip Locations

Note: The P20 usually uses four short clips, but there are a few exceptions. When installing a P20 in a Dusty Strings FH36S, only three short clips are used. When installing the P20 in a non-Dusty harp with internal body ribs, taller harness clips may be required to clear the ribs. Three tall clips are included in the P20 kit for this reason.

1. **For all Dusty Strings models except FH36S:** Mark an 'X' on the soundboard lining approximately 1" toward the base of the harp from each element location (see figure 4). This location is approximate, and can be adjusted as needed.
2. **For FH36S only:** You will install three clips on the small finger braces running perpendicular to the soundboard lining (see figure 5).
3. **For non-Dusty harps:** You will need to use your judgement to place the clips in locations that make sense for that particular harp. Just make sure the main harness can stay relatively straight, the clips are not stuck to the soundboard or positioned close enough to buzz against the soundboard or other parts of the harp, and you're not placing the harness so far from the elements that it creates stress on the lead wires.

Testing Pickup Placement in a Non-Dusty Harp

Before gluing the pickup elements to the soundboard of a non-Dusty Strings harp, we advise using double-stick tape to temporarily place the elements on the outside of the soundboard, using the template so you can find the same locations when you permanently install the pickup inside. Then, plug into your amplifier and see how it sounds. You can tweak the sound a bit by adjusting the positions of the elements. Generally, moving the pickups toward the middle of the soundboard will increase the signal strength (loudness) and moving them toward the side of the harp will decrease the signal strength. Find the balance that is best for your harp. Be aware that the overall signal strength will be diminished by using the double-stick tape. There will be a much stronger signal once the elements are glued in and the glue has cured.

For some lever harps like the Lyon and Healy Ogden, which has the more robust bracing and higher-tension strings of a pedal harp, you may get better results with the pickup elements positioned further toward the center of the soundboard. As a starting point, we recommend placing the paper template against the string rib instead of against the lining, and making your pencil dots on the outside of the template (see figure 4A).

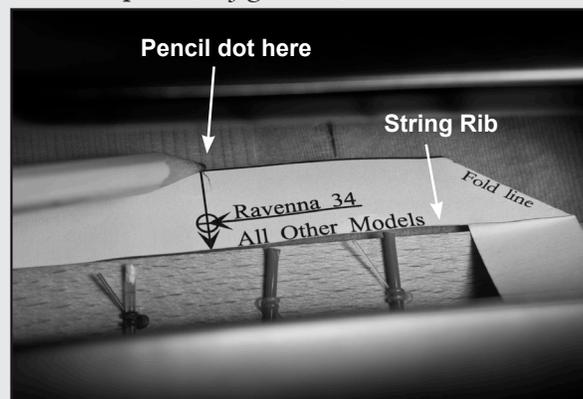


Figure 4A – Alternate template placement for L&H Ogden

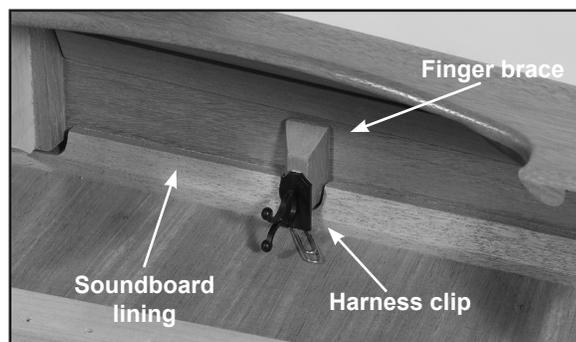


Figure 5 – FH36S Clip Location

4. Carefully remove the template from inside the harp.
5. You should now have 4 clearly visible pencil dots on the soundboard and corresponding 'X' marks for the harness clips on the lining.

Step 5: Attach Harness Clips

Note: Please read this section completely before attaching clips.

1. Place a paperclip or thin coin on the soundboard under the lowest 'X' mark on the soundboard lining to act as a spacer. This is to prevent the harness clip from touching the soundboard and causing unwanted vibration.
2. Remove the paper backing from the self-adhesive patch on one of the harness clips.
3. Use the spacer to position the bottom edge of the clip up off the soundboard (*see figure 6*).
4. Firmly press the clip into place over the 'X' on the soundboard lining, keeping it as square to the soundboard as possible. The clip may be wider than the lining, and this is okay.
5. Remove the spacer.
6. Repeat for the remaining clips.

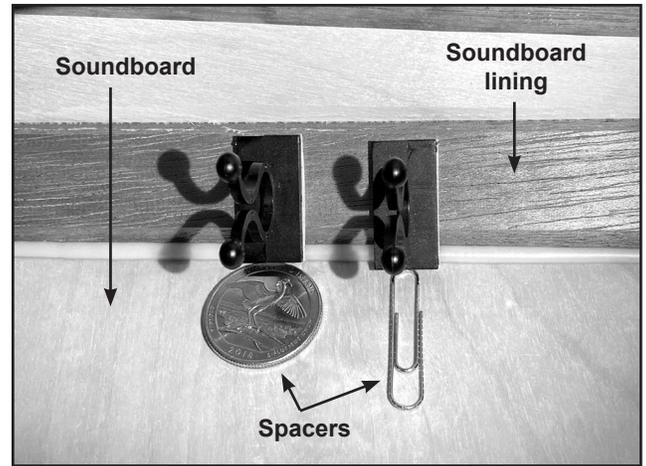


Figure 6 – Example Spacers

Step 6: Attach Pickup Harness

1. Slide the pickup harness up through the bottom sound hole, being careful to avoid dragging or bumping the jack against the harp.
2. Orient the harness so the pickup element lead wires point toward the string rib, away from the side of the harp (*see figure 7 on next page*).
3. Slide the rubber grommets on the harness so that they align with the clips while allowing the pickup elements to line up with the marks on the soundboard.
4. Press the rubber grommets into the clips. The groove in each grommet should snap into place in the arms of the clip. It is not necessary to twist the clips' "ears" together.
5. If your particular installation leaves you with an extra grommet (this will be the case with the FH36S), you can either leave it alone, or you can very carefully cut it off with a sharp blade, diagonal cutter, or scissors.

(See next page)

Step 7: 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. Be sure to practice using the tools as described in the sidebar at right.

1. Starting with the top pickup element, follow this sequence:
 - a. Apply the super glue to the pencil dot.
 - b. 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 rubber tip of the provided pressure stick.
 - c. **Important:** Hold firmly for two minutes, without moving the pickup element. To ensure a complete glue bond, we recommend using a timer to make sure you hold for a full two minutes.
 - d. The lead wire should naturally curve away from the soundboard (*see figure 7*). If necessary, adjust the pickup harness in the clips to ensure that the lead wires won't touch the soundboard and cause unwanted vibration.
 - e. For all Dusty Strings harp models except the FH36S, the pickup element lead wire will bend upward, toward the top of the harp (*see figure 7*).
 - f. For the FH36S, because the harness clips attach to the finger braces instead of the soundboard lining, the pickup element lead wires will bend downward, toward the bottom of the harp (*see figure 8*).
2. Proceed with the next pickup, and so on, until all are done. Once the glue has set, any white fog of glue residue left on the pickup elements can be removed by wiping gently with a damp cloth.

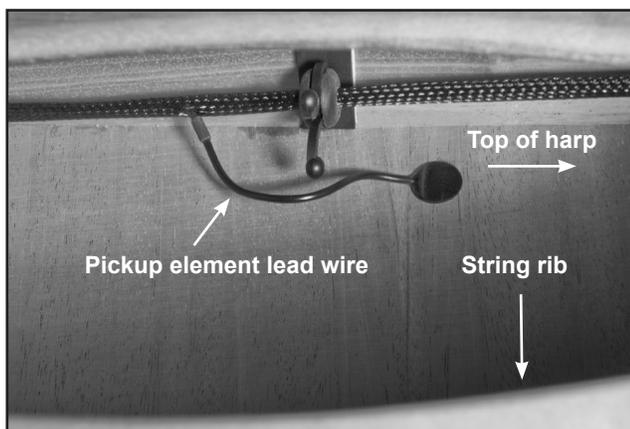


Figure 7 – Pickup Element Installation

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 soundboard. 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.

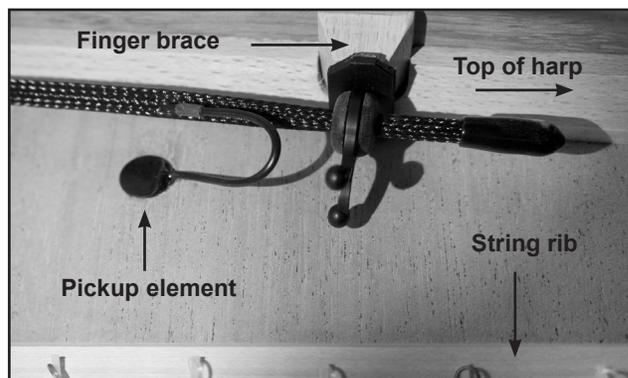


Figure 8 – FH36S Pickup Element and Lead Wire

Step 8: Install the Jack

Note: If you have purchased the Dusty Harp Jack Clamp, follow the included Jack Clamp instructions instead for installing the jack and fitting the clamp on your harp.

1. Remove the tip nut, the retaining nut, and the outer washer from the jack (see figure 9a). Leave the lock washer, inner washer, and inner nut in place.
2. 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 9b).
3. Put the outer washer on the jack followed by the retaining nut (see figure 9c). 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.
4. 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 9d).
5. 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 9e). 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 farther out, retighten the retaining nut and re-install the tip nut.

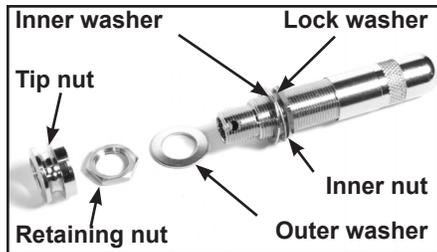


Figure 9a – Jack components

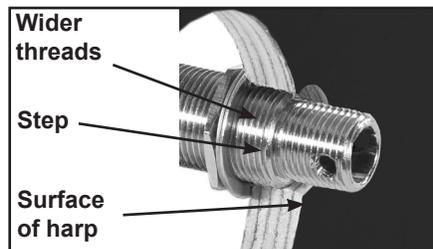


Figure 9b – Jack installation (cut-away shown for clarity)

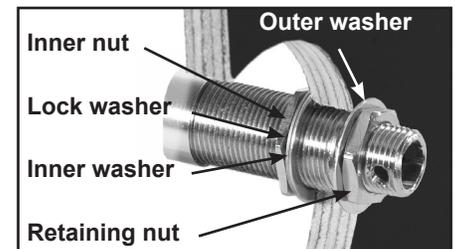


Figure 9c – Jack installation

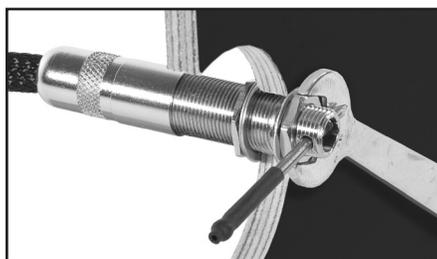


Figure 9d – Tighten the jack

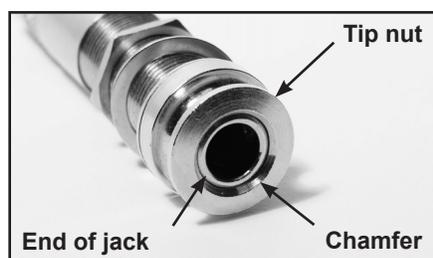


Figure 9e – Optimal alignment

Step 9: Test

Plug the pickup system into an amplifier and use the pressure stick to lightly tap the backside of the soundboard near each pickup element to make sure each is giving a signal. You can play your harp and use the pickup safely, but avoid moving or jostling your harp for 24 hours. The tone and signal strength will improve over the next day as the super glue cures to full hardness.

Congratulations! Now the installation process is complete. Please call us with any questions.